Training and Services Catalog

3D SYSTEMS®

Additive Manufacturing Solutions

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Training Programs

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Application Innovation Group (AIG)

Solve Your Biggest Design and Production Challenges

Innovation and Expertise

The Application Innovation Group is a broad team of application experts that enable our customers to adopt technology and solve their additive manufacturing (AM) challenges faster with a complete tailored solution. We have decades of experience across all technologies and broad experience in different industries — aerospace and defense, automotive and motorsports, dental, jewelry, medical devices, semiconductor, and more. We are experienced in each market and provide a state-of-the-art solution.

We accelerate the development of advanced applications and innovative additive manufacturing solutions. If you are just exploring or have some experience in additive manufacturing, the Application Innovation Group, regardless of the stage you are at, is here to help you get to the next level in your AM journey.

Know the Application Innovation Group

The 3D Systems' AIG collaborates closely with our customers to solve complex design and additive manufacturing challenges. Our customers' application requirements guide the solutions comprising hardware, materials, software and services we develop and deploy, accelerating and unlocking greater value and giving you a competitive edge, both as your organization grows with additive and scales production.
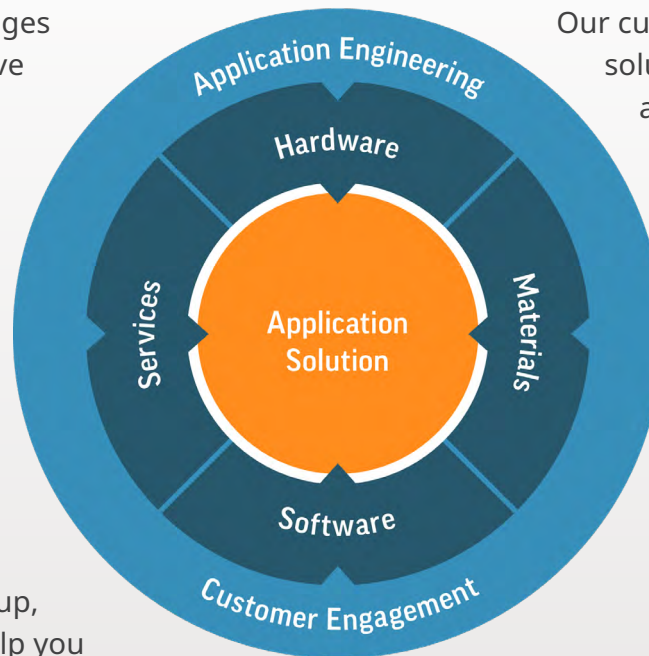
Introduction to AIG Professional Services

Accelerate the Development of Advanced Applications and Innovative Additive Manufacturing Solutions
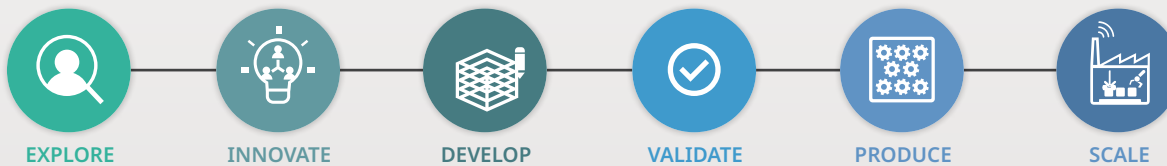
Our Professional Services

We are focused on solving challenging design and manufacturing problems with additive manufacturing solutions — and on delivering solutions for high criticality applications. We believe that the solution needs to be bespoke to the application journey as well as our customers' journeys in additive. What makes us unique is that we are not only a supplier of materials, software, hardware, and services but we are key users as well. We live and breathe in the same industries and applications as our customers, allowing us to truly partner with them, to expedite the path to market, remove risk, and improve ROI.

Our Approach

From Exploration and Implementation to Qualification and Scale

EXPLORE INNOVATE DEVELOP VALIDATE PRODUCE SCALE

Learn more about the Customer Success Stories

Professional Services Matching Your Needs

Expedite Your AM Journey

Our dedicated team of application experts guides you from Exploration and Implementation to Qualification and Scale.

AM Maturity/Adoption

4 Full Strategic Application

3 Departmental Applications

2 Experimenting and Testing

1 Little to no Experience

PROCESS PARAMETER DEVELOPMENT

NOSUPPORTS

ADVANCED BUILD FILE PREP

VALIDATION SUPPORT

TECHNOLOGY TRANSFER

MACHINE HEALTH MANAGEMENT

PILOT PRODUCTION

APPLICATION DEVELOPMENT

MATERIALS & PROCESS

DESIGN FOR AM

APPLICATION SCREENING

APPLICATION SUPPORT

Identify Need — **EXPLORE**

Joint Innovation — **INNOVATE**

Prototyping — **DEVELOP**

Certification — **VALIDATE**

Low Volume Production — **PRODUCE**

Full Production — **SCALE**

Professional Services Portfolio

AM JOURNEY	PROFESSIONAL SERVICE	PLATFORM	FORMAT	AM EXPERIENCE LEVEL	TYPICAL DURATION
Explore	Application Screening	Metals, Polymers	Workshop	Beginner	1 day
	Intro to Process and Materials	Metals, Polymers	Training	Beginner	0.5 day
Innovate	Design for Additive Manufacturing	Metals, Polymers	Training	Beginner	1 day
Develop	Application Development	DMP	Engineering Service	All	6-18 months
	Advanced Build File Preparation	DMP	Training	Advanced	0.5 day
	NoSupports	DMP	Training	Advanced	0.5 day
	Process Parameter Development	DMP	Training Engineering Service	Advanced All	3 days 1-12 months
Validate	Validation & Qualification	DMP, SLS, EXT	Engineering Service	Intermediate	5-8 months
	Scalmalloy® Certification	DMP	Engineering Service	All	2-3 months
	Customer-Specific Acceptance Testing	DMP	Engineering Service	Purchasing DMP Equipment	1-4 months
Produce	Pilot Production	DMP	Contract Manufacturing	All	6-18 months
	Machine Health Management	DMP	Training	Advanced	0.5 day
Scale	Technology Transfer	DMP, SLS, EXT	Engineering Service	Purchasing 3D Systems Equipment	6-18 months

Professional Services Portfolio

PROFESSIONAL SERVICE	PLATFORM	FORMAT	AM EXPERIENCE LEVEL	TYPICAL DURATION
Application Support	DMP SLA SLS Figure 4 MJP CJP EXT	Engineering Service	All	1-Day Modules (8h)
Customized Training Programs	All	Trainings, Workshops, Engineering Services	All	Based on Customer Needs

AM JOURNEY

EXPLORE — **INNOVATE** — **DEVELOP** — **VALIDATE** — **PRODUCE** — **SCALE**
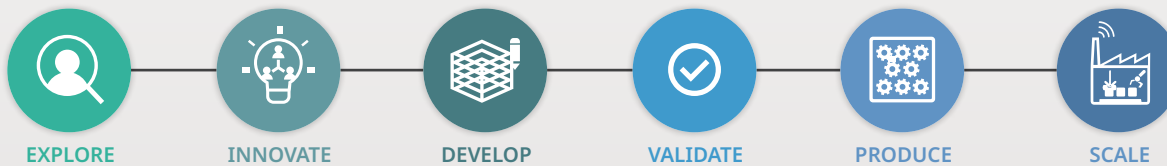
Customized training programs are offered on customer demand.
Contact us for more information or scan the QR code and talk to an expert.

TALK TO AN EXPERT
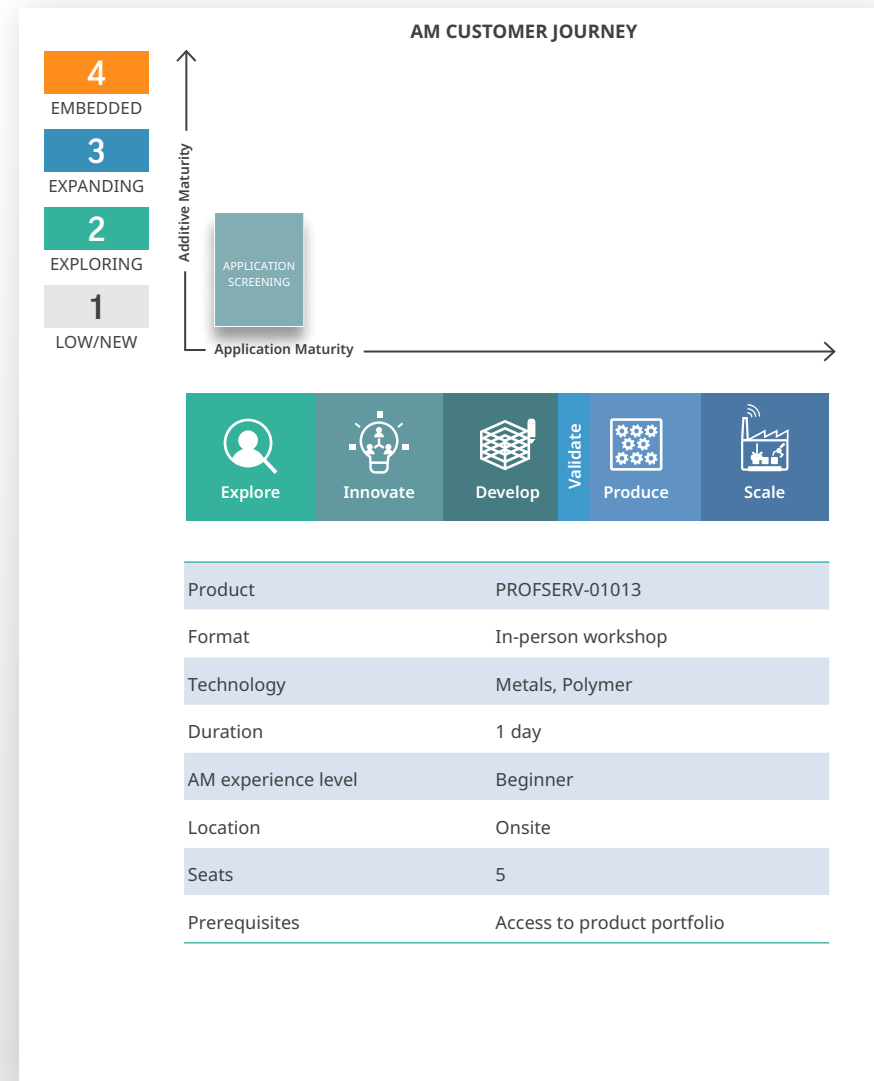
Application Screening

DESCRIPTION

The application screening workshop helps you identifying which products from your portfolio are most eligible for Additive Manufacturing (AM), leading to cost savings, enhanced performance and shorter time to market.

LEARNING OBJECTIVES

- AM benefits and limitations
- Product portfolio screening for AM
- Methodology to find the technical fit
- Business case analysis and AM cost drivers
- Create your AM product development pipeline

LEARNING PATH

1 **Talk to an expert –** Identify and share your needs to get tailored training content. Pre-screening of target applications and products.

2 **Onsite workshop –** Our application expert comes onsite for the interactive application screening workshop.

3 **Deliverable –** Shortlist with best product candidates to develop and produce with additive manufacturing technology.

4 **Promote your AM journey –** Discuss the next steps in your affitive journey with an application expert (e.g., Design for AM training or application development).

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

APPLICATION SCREENING

Additive Maturity

Application Maturity

Explore · Innovate · Develop · Validate · Produce · Scale

Product	PROFSERV-01013
Format	In-person workshop
Technology	Metals, Polymer
Duration	1 day
AM experience level	Beginner
Location	Onsite
Seats	5
Prerequisites	Access to product portfolio

TALK TO AN EXPERT

EXPLORE

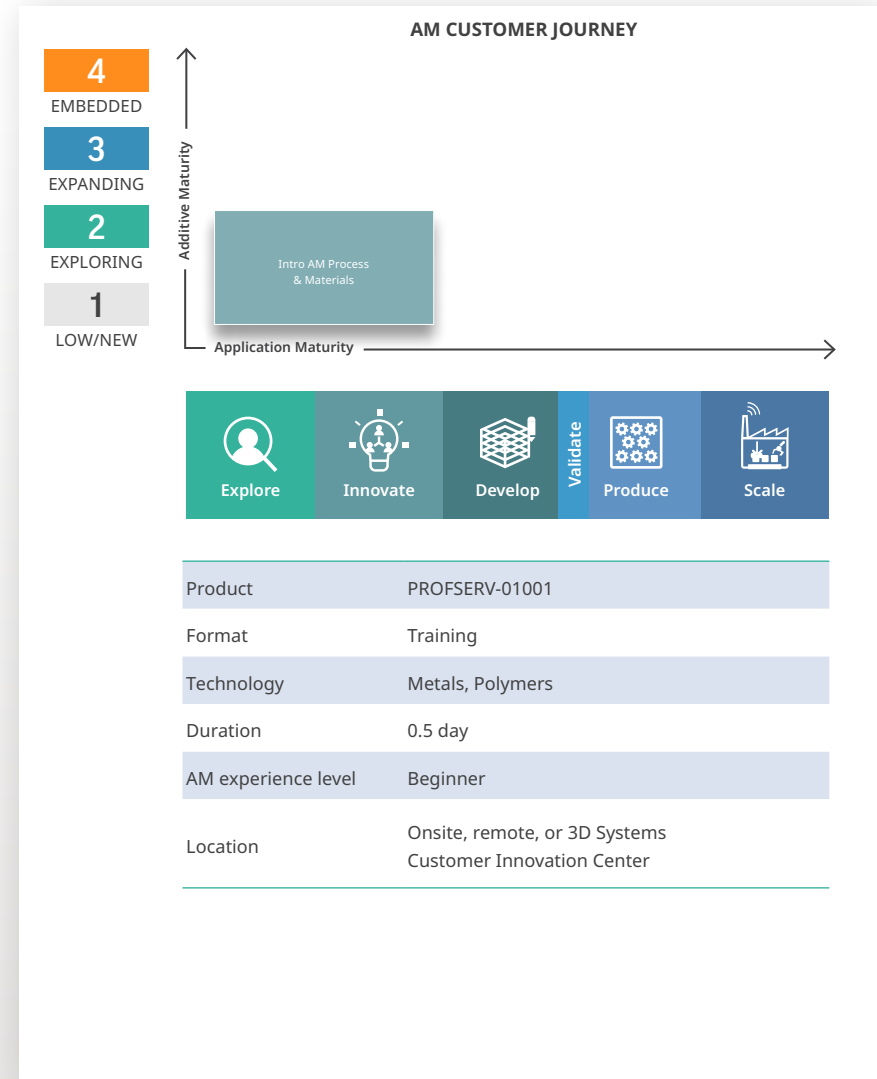# Introduction to AM Process and Materials

DESCRIPTION

This training provides a comprehensive overview of the Additive Manufacturing (AM) for process engineers, as well as operators. Attendees learn about AM process characteristics, material properties, and identify typical applications. They also develop awareness of key health and safety aspects for feedstock handling and AM operations to ensure a safe working environment.

LEARNING OBJECTIVES

- Understand the AM process characteristics
- Explore AM materials and their properties
- Identify typical applications for AM materials
- Learn about heat treatments for AM materials
- Recognize health and safety aspects of feedstock and the AM process

LEARNING PATH

1 **Talk to an expert –** Identify and share your needs to get tailored training content.

2 **Classroom training –** Get fundamental insights on AM process and materials. Learn how to select materials for your application

3 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

Intro AM Process & Materials

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-01001
Format	Training
Technology	Metals, Polymers
Duration	0.5 day
AM experience level	Beginner
Location	Onsite, remote, or 3D Systems Customer Innovation Center

TALK TO AN EXPERT

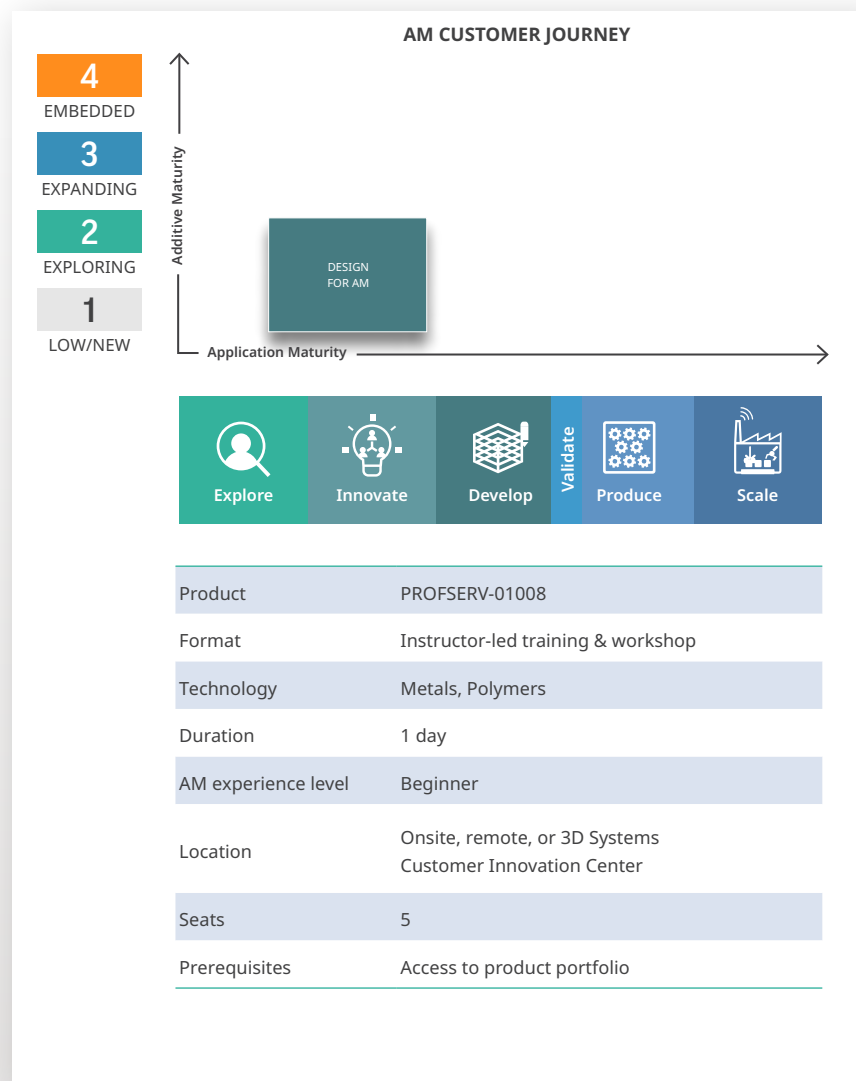# Design for Additive Manufacturing (DfAM)

INNOVATE

DESCRIPTION

Learn how to adopt an additive design methodology. Get a fundamental background on the Additive Manufacturing (AM) technology principles and understand how they affect product design and manufacturability. Learn how to apply AM design rules to deliver a successful part design and build layout.

LEARNING OBJECTIVES

- Intro to Design for Additive Manufacturing (DfAM)
- Intro to AM principles
- Part design and build preparation guidelines for AM
- Methodology to approach AM product design
- Design workshop on customer applications

LEARNING PATH

1   **Talk to an expert –** Identify and share your needs to get tailored training content. Discuss target applications and products.

2   **Classroom training –** Learn how to apply AM design rules to deliver a successful DMP part design and build layout.

3   **Design workshop –** Get the theory into practice. Apply the AM design rules on your parts with guidance from our application expert.

4   **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert. (e.g., application development).

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

DESIGN FOR AM

Application Maturity

Explore   Innovate   Develop   Validate   Produce   Scale

Product	PROFSERV-01008
Format	Instructor-led training & workshop
Technology	Metals, Polymers
Duration	1 day
AM experience level	Beginner
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Seats	5
Prerequisites	Access to product portfolio

TALK TO AN EXPERT
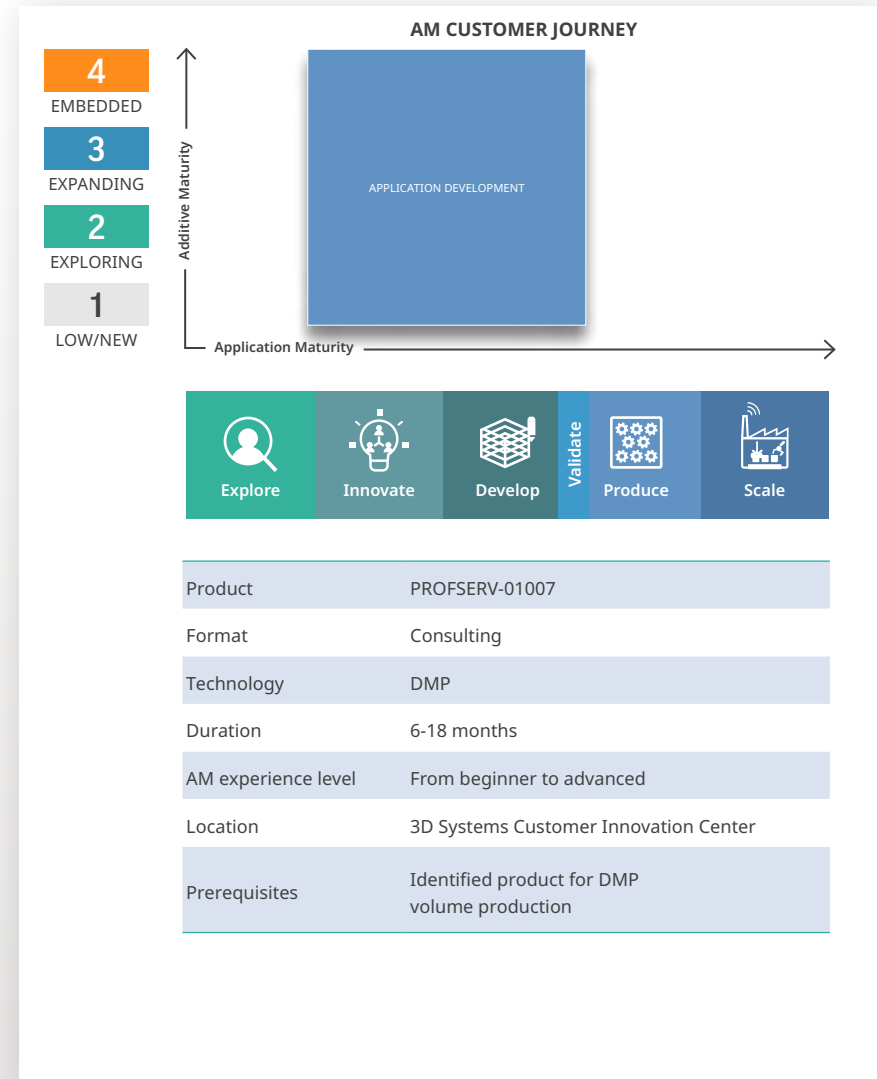
Application Development

DESCRIPTION

Do you seek to develop a metal AM part for volume manufacturing? This service delivers a controlled and documented process flow using Direct Metal Printing (DMP) and all relevant post-processing steps. The entire manufacturing workflow is developed, validated and transferred to a volume production environment at the customer facility or a preferred third-party manufacturing partner.

DELIVERABLES AND BENEFITS

- Part production-ready manufacturing workflow
- Production and quality reports
- Manufacturing instructions and production files
- Optional: Supportive documentation for regulatory submission
- Optional: Technology transfer of product development know-how and documentation
- Access to world-class AM application experts

SERVICE TRAJECTORY

1 **Talk to an expert –** Investigate the economic and technical feasibility. Create an application development framework and project plan.

2 **Development –** Define and develop the manufacturing workflow and processes for producing a conforming product according to the technical specifications.

3 **Validation –** Demonstrate the manufacturing readiness by delivering consistent and conforming finished products.

4 **Design transfer –** Transfer the fully developed application to a volume production environment.

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

APPLICATION DEVELOPMENT

Additive Maturity

Application Maturity

| Explore | Innovate | Develop | Validate | Produce | Scale |

Product	PROFSERV-01007
Format	Consulting
Technology	DMP
Duration	6-18 months
AM experience level	From beginner to advanced
Location	3D Systems Customer Innovation Center
Prerequisites	Identified product for DMP volume production

TALK TO AN EXPERT

Advanced Build File Preparation
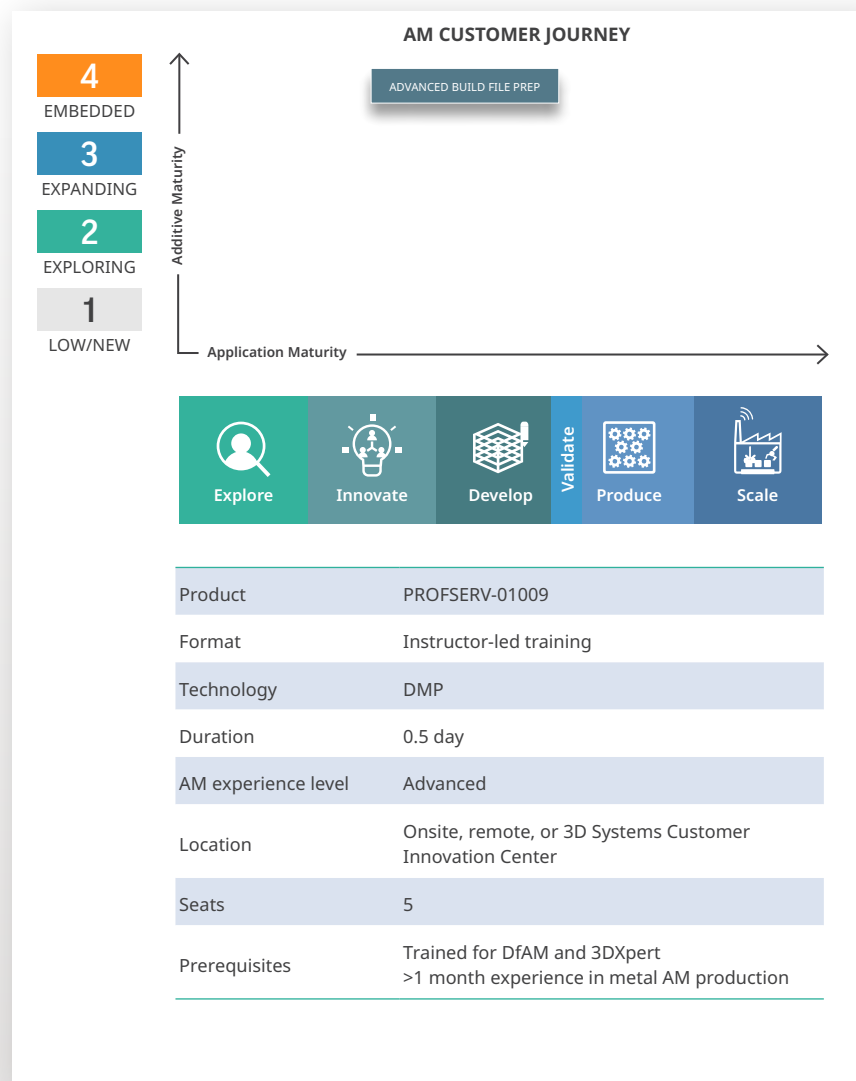
DEVELOP

DESCRIPTION

Understand thermal stresses in Direct Metal Printing (DMP) and how to manage thermal stresses in DMP to improve part quality and reduce part scrap rates. Learn about savvy support strategies and advanced build file preparation practices preventing part deformation, defects and build failures.

LEARNING OBJECTIVES

• Understand thermal stresses in DMP
• Best practices and design settings for various support types
• Apply savvy support strategies and advanced build preparation practices preventing part defects and build failures
• Use advanced design features in Oqton's 3DXpert

LEARNING PATH

1 **Talk to an expert –** Identify and share your needs to get tailored training content.

2 **Classroom training –** Learn about managing thermal stresses in DMP and how to apply savvy support strategies for running successful DMP builds.

3 **Practice –** Get theory into practice and apply these learnings on your DMP applications.

4 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

ADVANCED BUILD FILE PREP

Additive Maturity

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-01009
Format	Instructor-led training
Technology	DMP
Duration	0.5 day
AM experience level	Advanced
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Seats	5
Prerequisites	Trained for DfAM and 3DXpert >1 month experience in metal AM production

TALK TO AN EXPERT

DEVELOP

NoSupports

DESCRIPTION

This training provides a comprehensive understanding of the benefits and use of NoSupports for supportless metal printing. The training enables AM designers to create parts with greater design freedom and improved surface uniformity, while reducing cost and lead time.

LEARNING OBJECTIVES

- Understand challenges of printing downfacing surfaces
- Identify typical design features and use cases for NoSupports
- Applying NoSupports in Oqton's 3DXpert
- Develop your supportless DMP application

LEARNING PATH

1 **Talk to an expert –** Identify and share your needs to get tailored training content. Pre-screening on target applications.

2 **Classroom training –** Understand the challenges on downfacing surfaces and identify typical design features and use cases for supportless metal printing.

3 **Design workshop –** Learn through hands-on experience on how to apply NoSupports in Oqton's 3DXpert and develop your supportless application.

4 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

NOSUPPORTS

Additive Maturity

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-01010
Format	Instructor-led training
Technology	DMP
Duration	0.5 day
AM experience level	Advanced
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Seats	5
Prerequisites	Identified product for NoSupports

TALK TO AN EXPERT

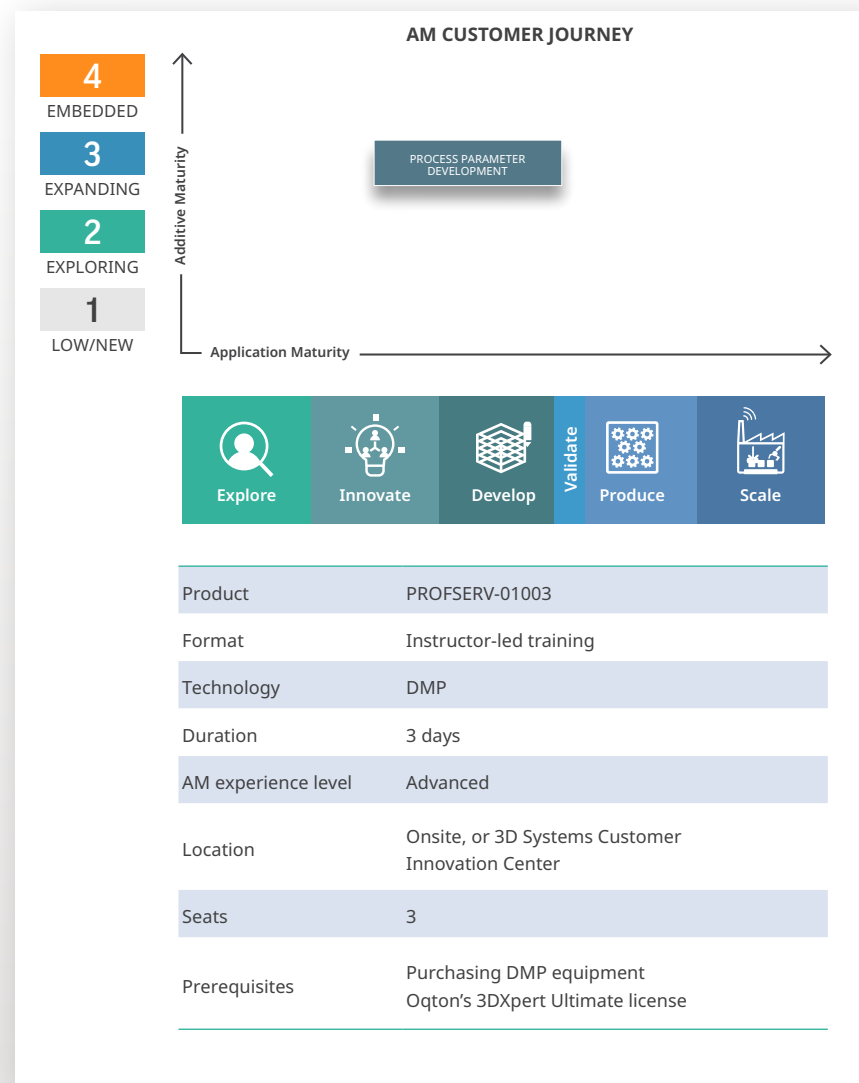# Process Parameter Development

DEVELOP

DESCRIPTION

Learn how to develop your own DMP process parameters for your alloy or application of interest. Explore the DMP parameter development strategy based on a design-of-experiments (DoE) approach. Deploy the material development workflow, including setting up DoEs, parameter modification in Oqton's 3DXpert, and assessing the print quality during development.

LEARNING OBJECTIVES

- Understand how DMP parameters affect the DMP process stability and printed part quality
- Learn about the parameter development plan and workflow
- Learn how to create a DMP parameter database and modify parameters in Oqton's 3DXpert
- Define and prepare your test job and evaluate the part quality after printing

LEARNING PATH

1 **Talk to an expert –** Identify and share your needs to get tailored training content.

2 **Classroom training –** Understand how DMP parameters affect the process stability and printed part quality. Learn about the parameter development plan and workflow.

3 **Design workshop –** Learn through hands-on experience on how to define, prepare, and print your test job. Evaluate the part quality after printing.

4 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

PROCESS PARAMETER DEVELOPMENT

Application Maturity

| Explore | Innovate | Develop | Validate | Produce | Scale |

Product	PROFSERV-01003
Format	Instructor-led training
Technology	DMP
Duration	3 days
AM experience level	Advanced
Location	Onsite, or 3D Systems Customer Innovation Center
Seats	3
Prerequisites	Purchasing DMP equipment Oqton's 3DXpert Ultimate license

TALK TO AN EXPERT

Process Parameter Development
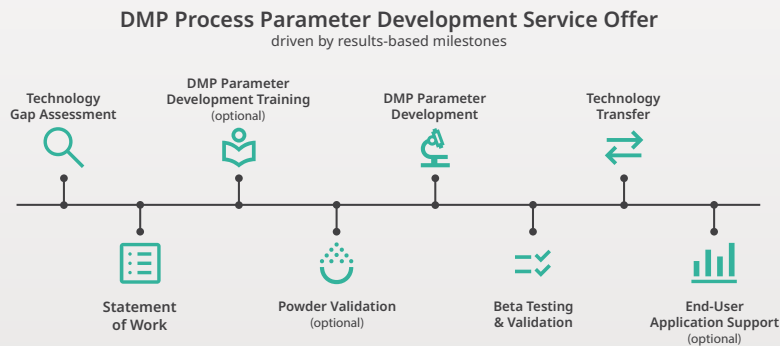
DEVELOP

DESCRIPTION

This service supports customers who seek to develop their own DMP process parameters tailored for their specific application or alloy of interest, using 3D Systems' DMP equipment and Oqton's 3DXpert software. The execution of the DMP parameter development plan can either be led by you or by a DMP Process Engineer at 3D Systems.

LEARNING OBJECTIVES

- Material screening and risk assessment on DMP processability
- Develop and optimize DMP parameters tailored for your specific application or alloy of interest
- Deploy the DMP parameter development workflow
- Develop a customized DMP parameter set in Oqton's 3DXpert
- Access to world-class DMP Process Experts

SERVICE TRAJECTORY

DMP Process Parameter Development Service Offer
driven by results-based milestones

Technology Gap Assessment — Statement of Work — DMP Parameter Development Training (optional) — Powder Validation (optional) — DMP Parameter Development — Beta Testing & Validation — Technology Transfer — End-User Application Support (optional)

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity — PROCESS PARAMETER DEVELOPMENT — Application Maturity

Explore — Innovate — Develop — Validate — Produce — Scale

Product	PROFSERV-01004
Format	Consulting
Technology	DMP
Duration	1-12 months
AM experience level	All
Location	Onsite, or 3D Systems Customer Innovation Center
Prerequisites	Optional: DMP process parameter development training (PROFSERV-01003)

TALK TO AN EXPERT

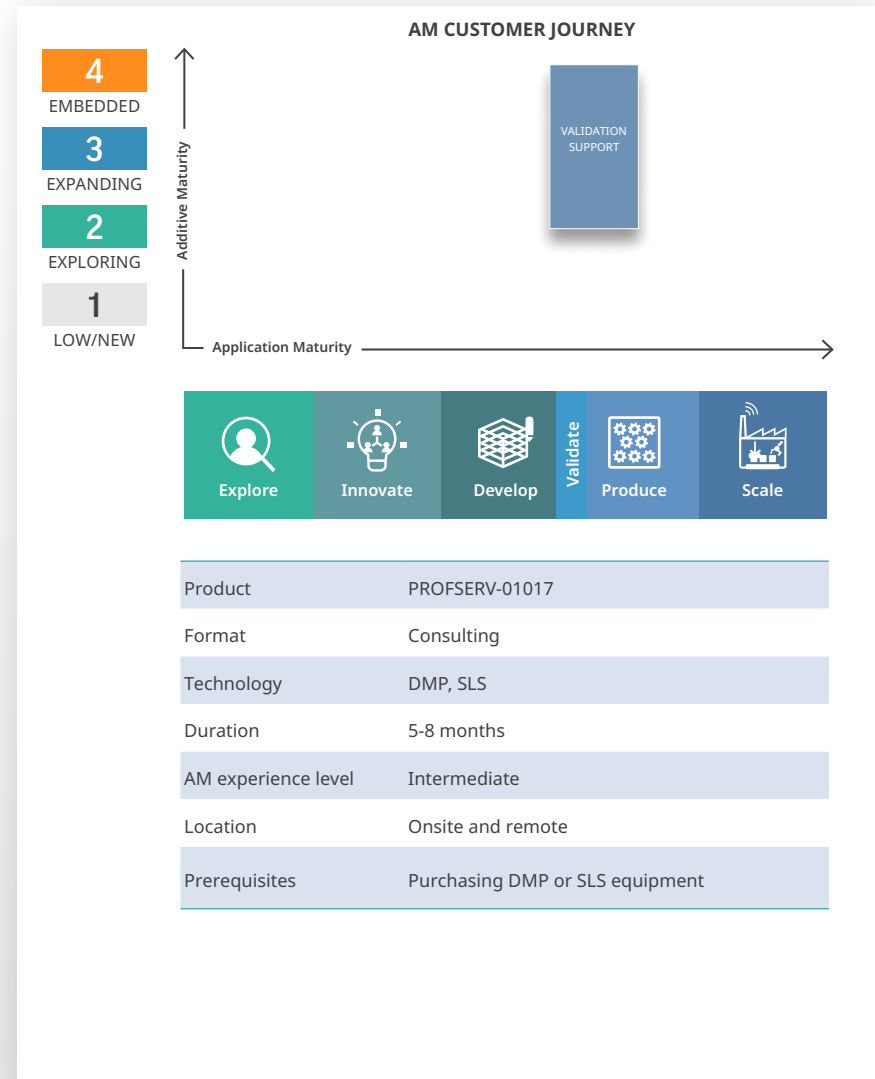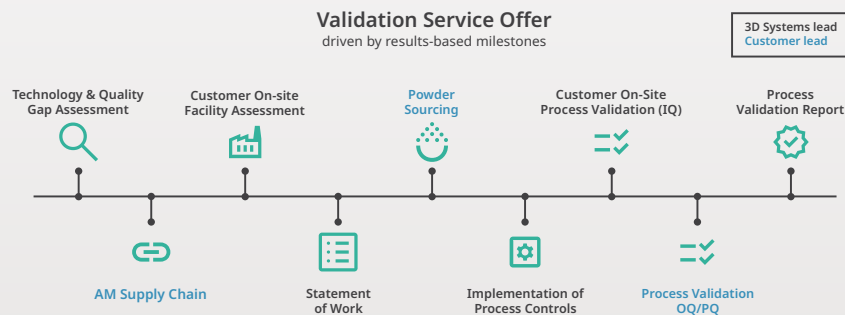# Validation & Qualification – DMP, SLS

VALIDATE

DESCRIPTION

Minimize the time to market of your next high criticality applications in regulated markets such as Healthcare and Aerospace. With 15 years of experience in DMP and SLS production, 3D Systems offers support in validation and qualification for DMP and SLS technology, complying with ISO/ASTM 52930. Our proven validation strategy, including equipment, process and software, delivers a regulations-compliant production process and fits well within ISO 13485 or AS 9100.

DELIVERABLES AND BENEFITS

- Validation service compliant with ISO/ASTM 52930
- Risk assessment and process characterization
- Implementation of process controls
- Documentation and procedures on powder management, maintenance and test methods
- Validation protocols and reports related to equipment, process and software
- Optional: Certification support for critical regulated applications

SERVICE TRAJECTORY

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

Application Maturity

VALIDATION SUPPORT

| Explore | Innovate | Develop | Validate | Produce | Scale |

Product	PROFSERV-01017
Format	Consulting
Technology	DMP, SLS
Duration	5-8 months
AM experience level	Intermediate
Location	Onsite and remote
Prerequisites	Purchasing DMP or SLS equipment

Validation Service Offer
driven by results-based milestones

3D Systems lead
Customer lead

Technology & Quality Gap Assessment
Customer On-site Facility Assessment
Powder Sourcing
Customer On-Site Process Validation (IQ)
Process Validation Report

AM Supply Chain
Statement of Work
Implementation of Process Controls
Process Validation OQ/PQ

TALK TO AN EXPERT

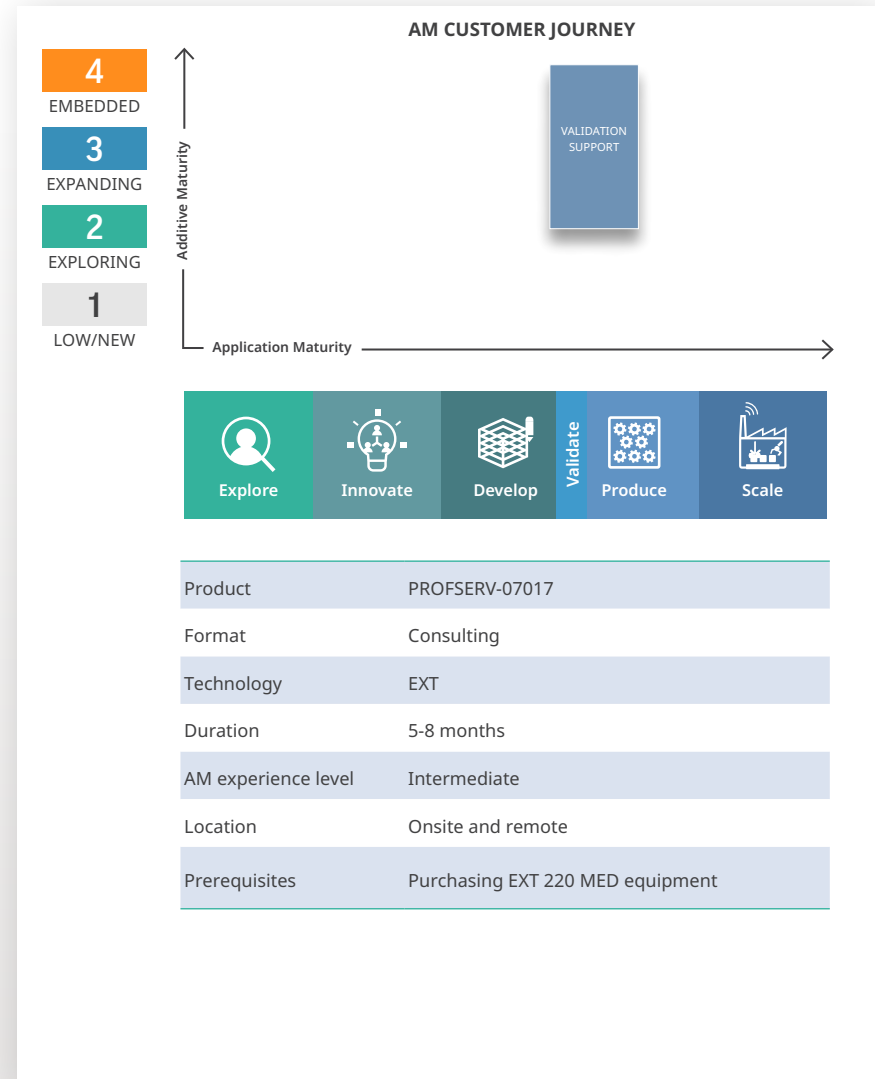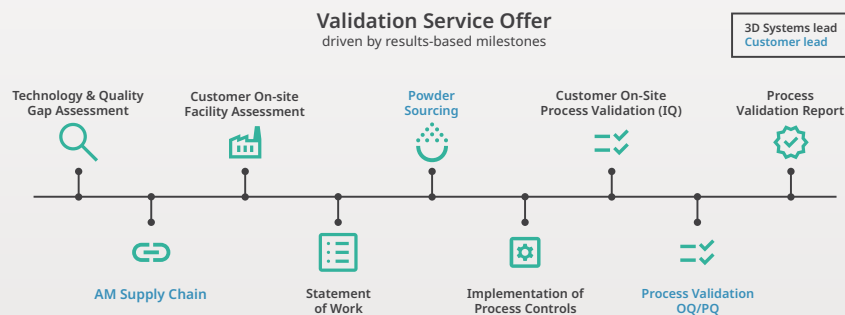# Validation & Qualification – EXT 220 MED

VALIDATE

DESCRIPTION

Minimize the time to market of your next innovative medical implant or instrument in healthcare. With 35+ years of production experience in additive manufacturing, 3D Systems offers support in validation and qualification for the EXT 220 MED. Our proven validation strategy, including equipment, process, and software, up to product-specific qualification, delivers a regulations-compliant production process and fits well within ISO 13485.

DELIVERABLES AND BENEFITS

- Risk assessment and process characterization
- Implementation of process controls
- Documentation and procedures on material management, maintenance, and test methods
- Validation protocols and reports related to equipment, process, and software
- Optional: product-specific support for critical regulated applications

SERVICE TRAJECTORY

Validation Service Offer
driven by results-based milestones

3D Systems lead
Customer lead

Technology & Quality Gap Assessment

Customer On-site Facility Assessment

Powder Sourcing

Customer On-Site Process Validation (IQ)

Process Validation Report

AM Supply Chain

Statement of Work

Implementation of Process Controls

Process Validation OQ/PQ

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

Application Maturity

VALIDATION SUPPORT

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-07017
Format	Consulting
Technology	EXT
Duration	5-8 months
AM experience level	Intermediate
Location	Onsite and remote
Prerequisites	Purchasing EXT 220 MED equipment

TALK TO AN EXPERT

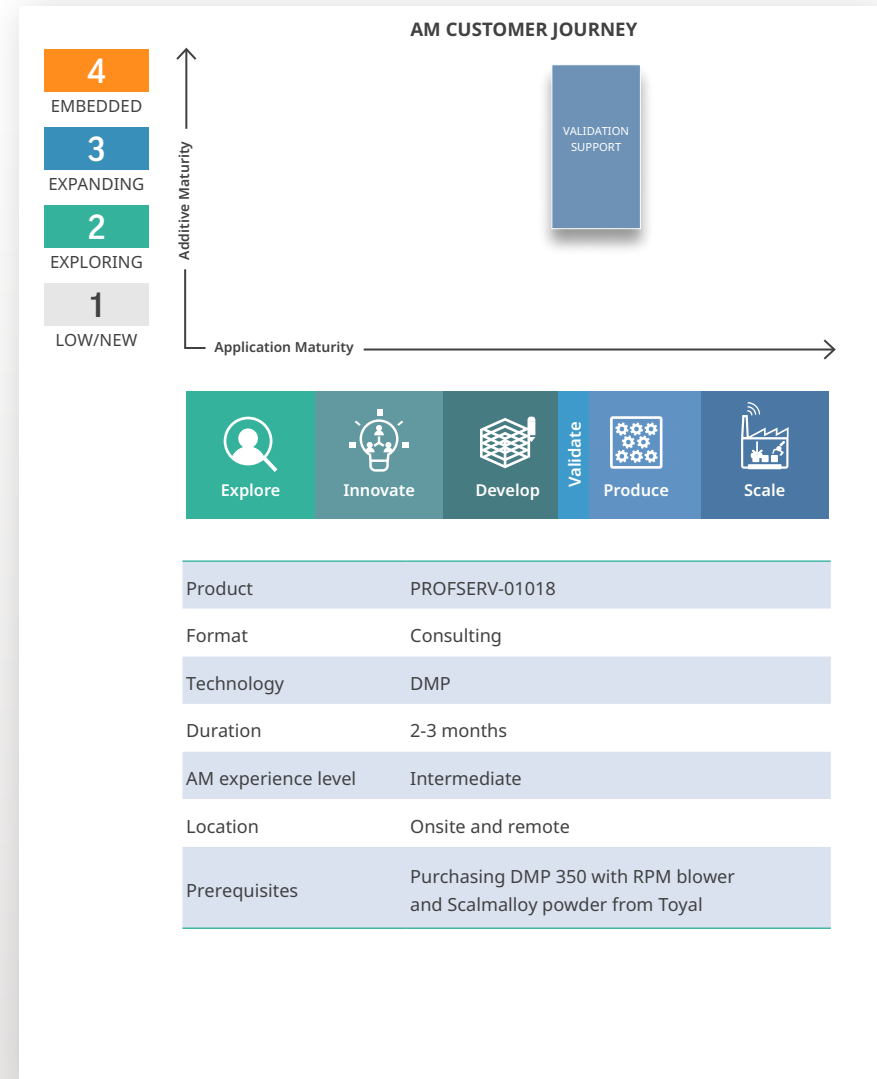# Scalmalloy® Certification

VALIDATE

DESCRIPTION

3D Systems partners with APWorks for delivering a cost-effective certification service for Certified Scalmalloy (A), after which you are certified as an Approved Scalmalloy Manufacturer. This service is a risk-free, outcome-based certification service for customers. The certification is tied to the serial number of the validated DMP Flex 350 or DMP Factory 350 and is valid for 1 year. Optional: Yearly recurring validation service.

DELIVERABLES AND BENEFITS

- Execution of APWORKS qualification procedure
- Validation report
- APWORKS Certification of Approved Scalmalloy Manufacturer for the validated DMP 350 (serial number-specific)

SERVICE TRAJECTORY

1 **DMP machine calibration –** 3D Systems Field Service Engineer comes onsite for a DMP machine calibration.

2 **Job launch & shipment –** 3D Systems Field Service Engineer launches the certification job. Customer ships the certification build to the 3DS facility for testing.

3 **Validation testing –** 3D Systems Validation Engineer coordinates heat treatment and validation testing according to the APWORKS qualification procedure.

4 **Certification –** 3D Systems delivers the Certification of Approved Scalmalloy Manufacturer for the validated DMP Flex 350 or DMP Factory 350 (serial number-specific).

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

Application Maturity

VALIDATION SUPPORT

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-01018
Format	Consulting
Technology	DMP
Duration	2-3 months
AM experience level	Intermediate
Location	Onsite and remote
Prerequisites	Purchasing DMP 350 with RPM blower and Scalmalloy powder from Toyal

TALK TO AN EXPERT

Customer-Specific Acceptance Testing
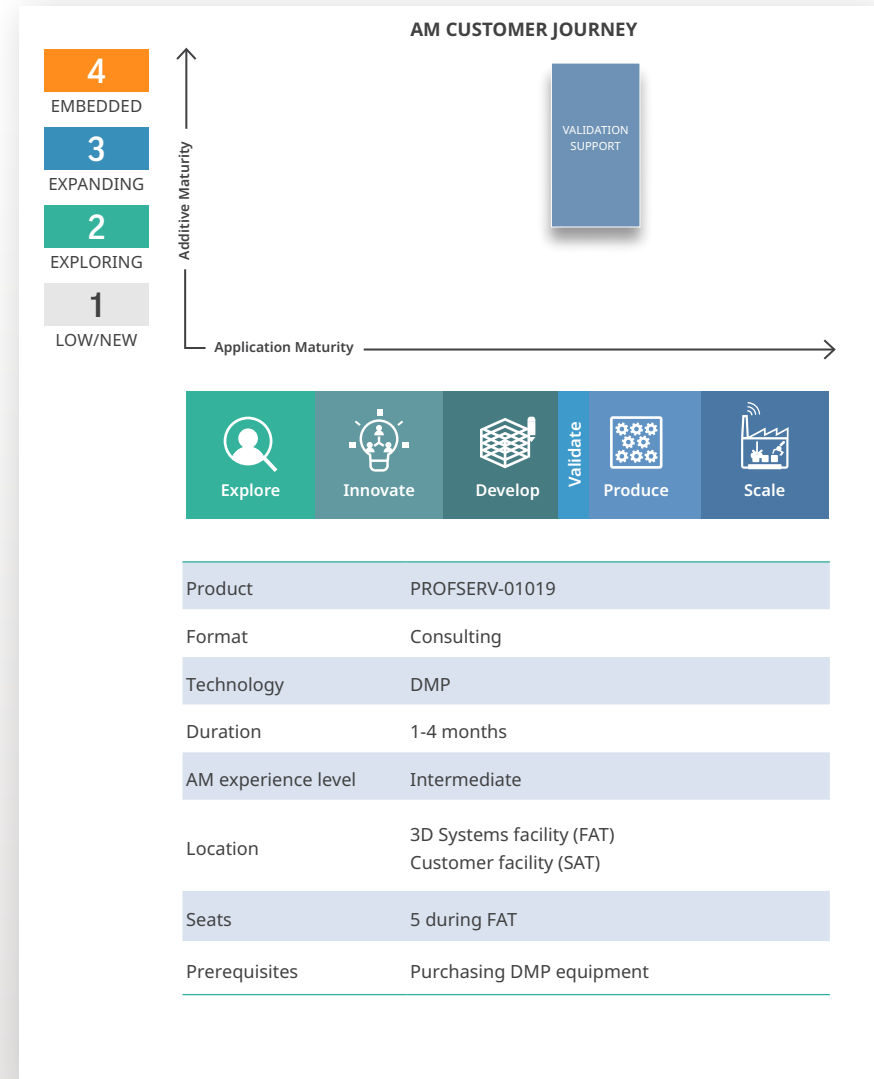
VALIDATE

DESCRIPTION

Extend the qualification of the DMP technology beyond 3D Systems' standard Factory or Site Acceptance Testing (FAT/SAT) protocols by ensuring that the selected DMP printer, material and process parameter set are compliant with specific customer or market requirements.

DELIVERABLES AND BENEFITS

- De-risk acceptance testing early in the process
- Customize your acceptance criteria for DMP equipment based on your application and market requirements
- Factory and Site Acceptance Test reports and certificates

SERVICE TRAJECTORY

1 **Statement of work –** Jointly define acceptance criteria for factory and site acceptance testing and mutually agree upon the testing protocol.

2 **Factory Acceptance Testing (FAT) –** Execute the factory acceptance testing protocol at 3D Systems' facility. Optional: Hosting customer attendees during FAT.

3 **Site Acceptance Testing (SAT) –** Execute the site acceptance testing protocol at the customer facility.

4 **Certification –** Issue the Factory and Site Acceptance Test reports and certificates.

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

Application Maturity

VALIDATION SUPPORT

Explore — Innovate — Develop — Validate — Produce — Scale

Product	PROFSERV-01019
Format	Consulting
Technology	DMP
Duration	1-4 months
AM experience level	Intermediate
Location	3D Systems facility (FAT) Customer facility (SAT)
Seats	5 during FAT
Prerequisites	Purchasing DMP equipment

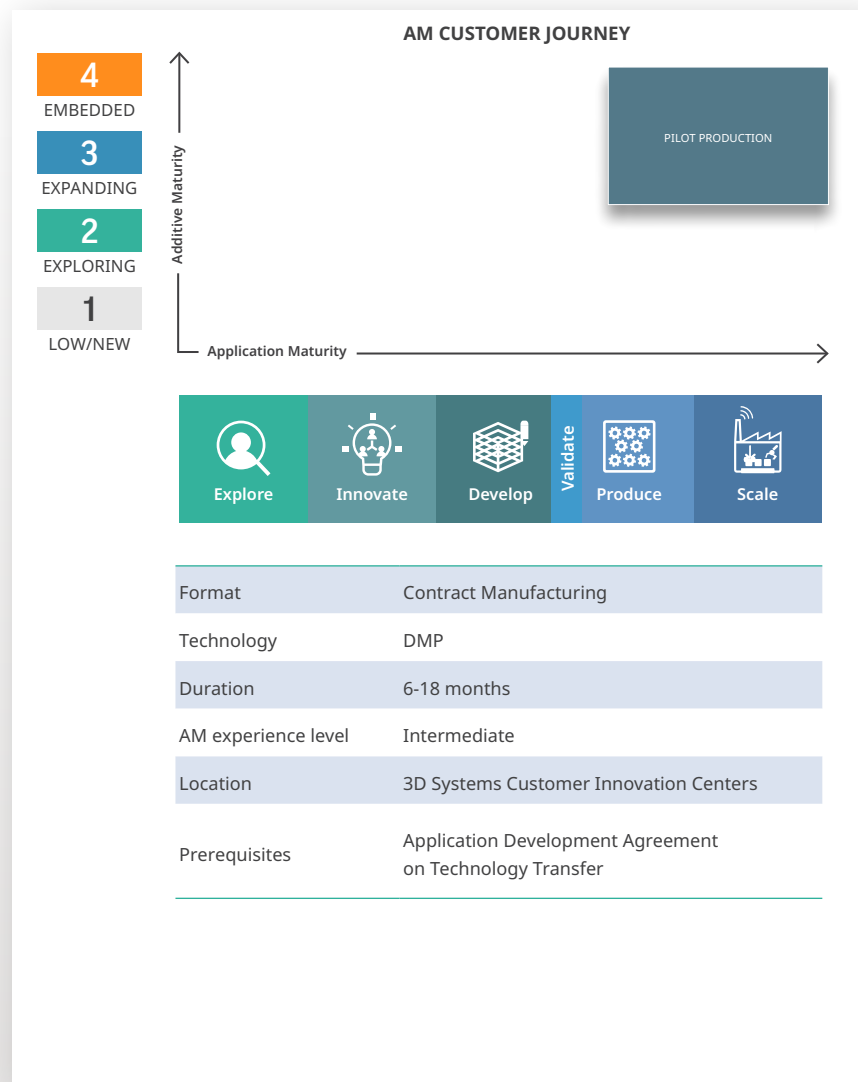TALK TO AN EXPERT

Pilot Production

PRODUCE

DESCRIPTION

Providing an end-to-end manufacturing solution for DMP applications, compliant with ISO/ASTM 52920. Focused on the customer's speed to market and DMP technology adoption with a greatly reduced risk profile for critical applications. Allowing an effective ramp up of DMP production as well as bridge the manufacturing gap towards in-house production.

DELIVERABLES AND BENEFITS

- Accelerated and de-risked path to market
- Bridging DMP production capacity in preparation for DMP technology transfer
- Compliant manufacturing process setup in regulatory certified production environment (ISO 9001, ISO 13485, FDA, AS 9100, ISO/ ASTM 52920)
- Streamlining AM manufacturing process flow through continuous improvement
- Develop process experience and know-how throughout the full manufacturing workflow

SERVICE TRAJECTORY

1 **Statement of work –** Jointly define the agreement on contract manufacturing for pilot production, including product line and operations, production capacity, and timeline.

2 **Ramp up DMP pilot production at 3D Systems –** Effectively ramp up production at 3D Systems' manufacturing site to bridge the manufacturing gap in preparation for customer's adoption.

3 **Technology transfer –** Transfer technology with progressive transfer of DMP production to customer's manufacturing site or third-party manufacturing partner.

4 **Ramp down DMP pilot production at 3D Systems –** Fully transfer DMP production from 3D Systems to the customer or third-party partner. Optional: Backup production capability or longer-term production at 3D Systems' manufacturing site is negotiable.

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

PILOT PRODUCTION

Application Maturity

Explore · Innovate · Develop · Validate · Produce · Scale

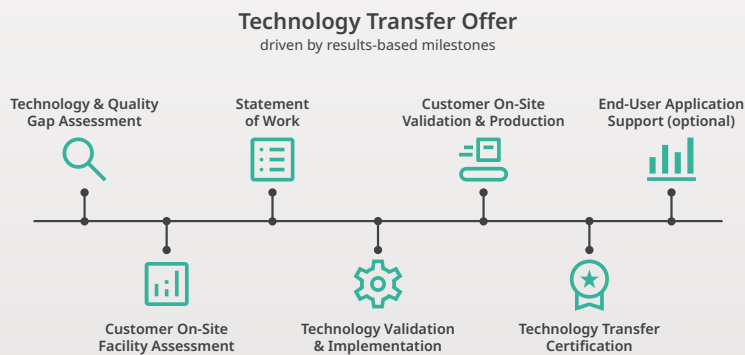|	
Format	Contract Manufacturing
Technology	DMP
Duration	6-18 months
AM experience level	Intermediate
Location	3D Systems Customer Innovation Centers
Prerequisites	Application Development Agreement on Technology Transfer

Technology Transfer – DMP

SCALE

DESCRIPTION

Looking to expedite your application for in-house or third-party additive manufacturing at lower risk? This service ensures a seamless and cost-effective transition to in-house additive manufacturing. With our transfer of competencies, you can acquire the know-how and expertise on 3D Systems' technology, covering the entire additive manufacturing workflow from powder handling and printing to the finished product. The implemented AM workflow fits the qualification requirements of ISO/ASTM 52920.

DELIVERABLES AND BENEFITS

• Successful technology transfer to in-house or third-party manufacturing
• Gap assessment reports on technology, QMS and facility
• Validation documentation and process controls
• Technology transfer of product-specific manufacturing workflow, know-how and documentation
• Access to world-class AM application experts

SERVICE TRAJECTORY

Technology Transfer Offer
driven by results-based milestones

Technology & Quality Gap Assessment

Statement of Work

Customer On-Site Validation & Production

End-User Application Support (optional)

Customer On-Site Facility Assessment

Technology Validation & Implementation

Technology Transfer Certification

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

Application Maturity

TECHNOLOGY TRANSFER

| Explore | Innovate | Develop | Validate | Produce | Scale |

Product	PROFSERV-01039
Format	Consulting
Technology	DMP
Duration	6-18 months
AM experience level	Advanced
Location	Onsite or third-party partner manufacturing site
Prerequisites	Purchasing DMP equipment Application Development

TALK TO AN EXPERT

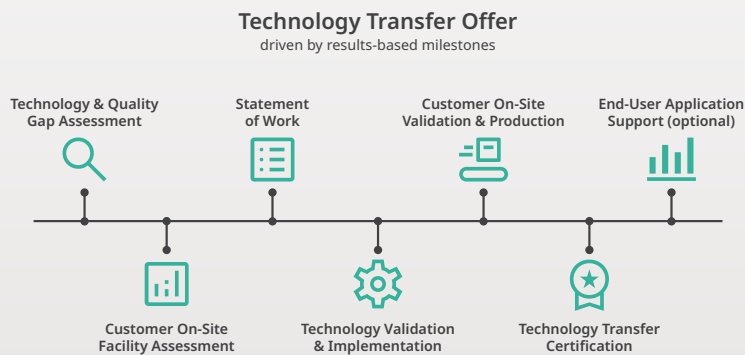SCALE

Technology Transfer – EXT

DESCRIPTION

Accelerate your transition to in-house additive manufacturing with 3D Systems' Technology Transfer Services for the EXT platform. Gain expertise in high-performance polymer extrusion with our comprehensive support. Our support encompasses the entire additive manufacturing workflow, from material handling and printing to the finished product. Additionally, we assist with validation efforts and offer regulatory support to ensure compliance and quality assurance.

DELIVERABLES AND BENEFITS

- Successful technology transfer to in-house or third-party manufacturing
- Gap assessment reports on technology, QMS, and facility
- Validation documentation and process controls
- Technology transfer of product-specific manufacturing workflow, know-how, and documentation
- Access to world-class AM Application Experts

SERVICE TRAJECTORY

Technology Transfer Offer
driven by results-based milestones

Technology & Quality Gap Assessment

Statement of Work

Customer On-Site Validation & Production

End-User Application Support (optional)

Customer On-Site Facility Assessment

Technology Validation & Implementation

Technology Transfer Certification

AM CUSTOMER JOURNEY

4 EMBEDDED
3 EXPANDING
2 EXPLORING
1 LOW/NEW

Additive Maturity

Application Maturity

TECHNOLOGY TRANSFER

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-07039
Format	Consulting
Technology	EXT
Duration	3-12 months
AM experience level	Advanced
Location	Onsite or third-party partner manufacturing site
Prerequisites	Purchasing EXT equipment

TALK TO AN EXPERT

EXPLORE   INNOVATE   DEVELOP   VALIDATE   PRODUCE   SCALE
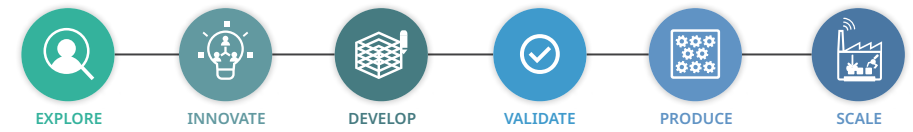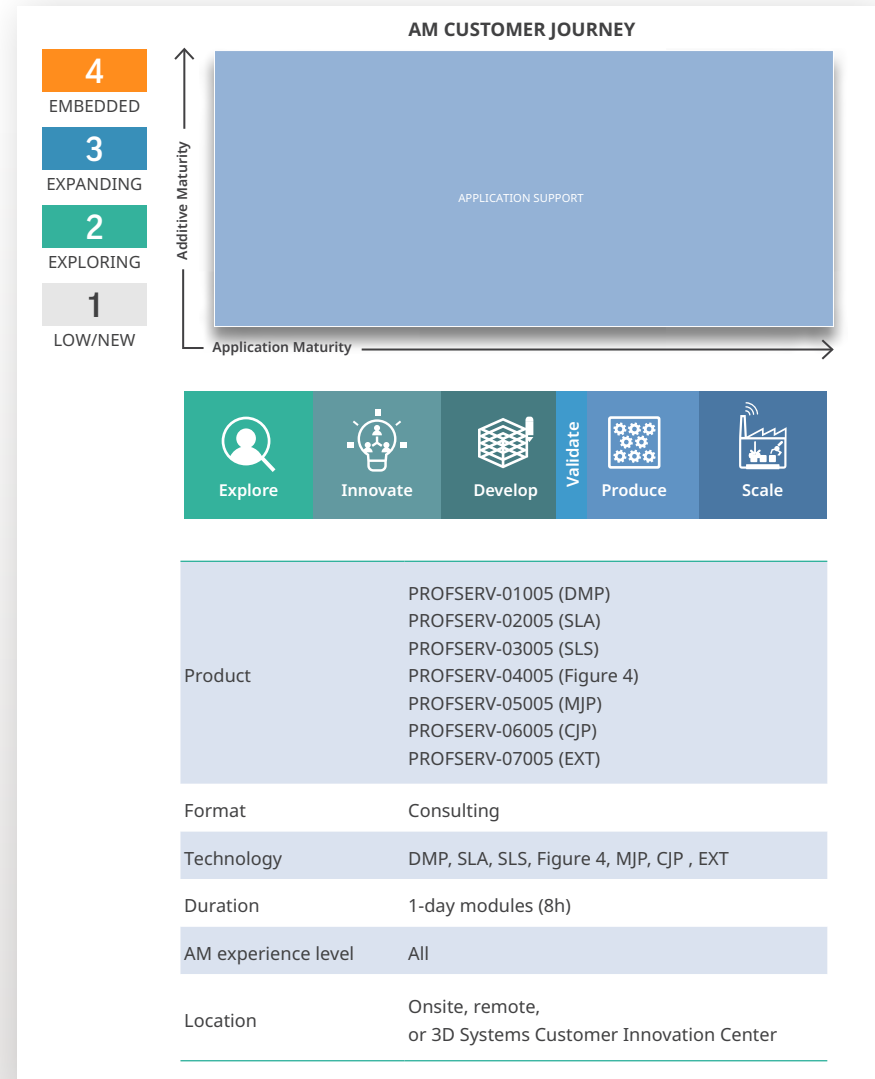
Application Support

DESCRIPTION

Support in developing high-quality metals or plastics AM applications faster, cheaper and at a lower risk. Helping you overcome hurdles related to your application, AM workflow, process yield or technology adoption. Involvement of our application engineers allows resolving user challenges by leveraging decades of joint technology and application experience.

DELIVERABLES AND BENEFITS

- Design optimization
- Process troubleshooting
- Transferring process knowledge on AM workflow
- Speed up technology adoption
- Improved process yield (e.g., part quality, productivity and throughput, material saving)
- Access to world-class AM application experts

SERVICE TRAJECTORY

1 **Talk to an expert –** Identify and discuss your hurdles and needs on your application, AM workflow, process yield, or technology adoption with an application expert.

2 **Application support –** Closely collaborate with our application experts for problem mapping and solving, delivering a tailored solution that fits your requirements.

3 **Knowledge transfer –** All relevant application and process knowledge and best practices of the tailored solution gets transferred to the customer.

4 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

APPLICATION SUPPORT

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Product	PROFSERV-01005 (DMP)
	PROFSERV-02005 (SLA)
	PROFSERV-03005 (SLS)
	PROFSERV-04005 (Figure 4)
	PROFSERV-05005 (MJP)
	PROFSERV-06005 (CJP)
	PROFSERV-07005 (EXT)
Format	Consulting
Technology	DMP, SLA, SLS, Figure 4, MJP, CJP , EXT
Duration	1-day modules (8h)
AM experience level	All
Location	Onsite, remote, or 3D Systems Customer Innovation Center

TALK TO AN EXPERT

Introduction to 3D Systems Training and Knowledge Center

Immerse Yourself into the World of 3D Printing

Our Operator Trainings

Develop the skills to meet the challenges you encounter every day with our world-class operator training. Our instructors provide an immersive experience where you can learn best practices in the printing process. We share our knowledge of safety considerations, printing theory, hardware and software, post-processing, maintenance, and troubleshooting. We also have custom training options to take the mystery out of application-specific challenges.

Held at your location or ours, you can be assured that our training will set you on the path to proficiency. Partner with us to maximize your printer uptime and ROI.

Our Approach for Customer Success
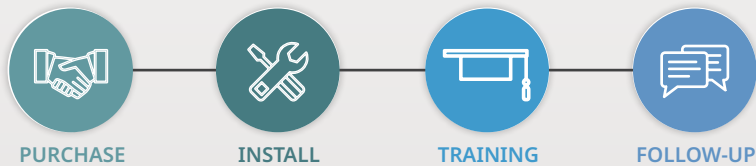
PURCHASE — INSTALL — TRAINING — FOLLOW-UP

CONTACT US FOR MORE INFO

DMP New User Training

DESCRIPTION

Unlocking and leveraging the potential of the DMP technology, it is important to have a thorough understanding of the technology fundamentals and adopt an additive design methodology.

LEARNING OBJECTIVES

- Become familiar with 3DXpert software
    - Learn the basic software functions to prepare a part for printing.
- Learn how to operate the machine properly on a day-to-day basis
- Understand the machine hardware
- Understand the safety risks and precautions related to DM processes
- Receive insight into DMP design guidelines

Note: Custom training is available after completing standard user training.

LEARNING PATH

1   **Training Preparation –** Understand customer problems and needs

2   **Training Session –** Student attends training at Leuven, Littleton, or at the customer site

3   **Training Assessment –** Assessment of the student's knowledge

Format	Training
Technology	DMP
Duration	7-8 days
AM Experience Level	Beginner
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Prerequisites	none

CONTACT US FOR MORE INFO

PURCHASE   INSTALL   TRAINING   FOLLOW-UP

ASTM Machine Operator Qualification for DMP Certification Program for DMP

Qualification of Machine Operators of DMP 350 based on ISO/ASTM 52942 and ISO/ASTM 52926-2

DESCRIPTION

Additive Manufacturing (AM) scaling from prototyping to production of critical components and the need to verify the competency of machine operators is increasing. In response to the market demand 3D Systems has partnered with ASTM to launch a Qualification of Operators of DMP 350 family (DMP Flex 350, DMP Factory 350 and DMP 350 Dual) compliant with:

- ISO/ASTM 52942 AM – Qualifying machine operators of LPBF machines and equipment for aerospace applications
- ISO/ASTM 52926-2 AM of metals - Qualification of operators for LPBF

LEARNING OBJECTIVES

The ASTM certification consists of both theoretical and practical assessments to evaluate the knowledge of the PBF-LB operator. The program ensures competencies in the following:

- Additive Manufacturing Procedure Specification (APS)
- Standard operating procedures
- Machine management and build process monitoring
- Operator maintenance of systems
- Powder material family specializations

3D SYSTEMS

ASTM CENTER of EXCELLENCE Research to Standards ADDITIVE MANUFACTURING

Learn more about the ASTM Certification Program

CONTACT US FOR MORE INFO

PURCHASE · INSTALL · TRAINING · FOLLOW-UP

DMP Machine Health Management

DESCRIPTION

Gain confidence in the operational excellence of your DMP machine. Understand the importance and impact of the DMP machine health condition on process stability and part quality. Minimize downtime of your DMP machine by learning how to monitor the machine health. Learn how to conduct a root cause analysis and troubleshooting of your DMP machine, before contacting 3D Systems Field Service Support.

LEARNING OBJECTIVES

- Understand the impact of DMP machine health on process stability and part quality.
- Conduct root cause analysis for DMP machine health troubleshooting.
- Learn to evaluate specific DMP test builds to evaluate machine health.
- Learn when to contact 3D Systems field service support.

LEARNING PATH

1 **Talk to an Expert –** Identify and share your needs to get tailored training content.

2 **Classroom training –** Learn how the machine health affects the process stability and part quality. Learn how to conduct a root cause analysis for machine health troubleshooting.

3 **Practice –** Learn to evaluate specific DMP test builds to evaluate machine health and observe the impact of machine health issues on process stability based on video content.

4 **Promote your AM journey –** Discuss the next steps in your AM journey with an application expert.

Product	PROFSERV-01014
Format	Training
Technology	DMP
Duration	0.5 day
AM Experience Level	Advanced
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	Purchasing new DMP printer, DMP new user training, minimum 6 months of DMP operation

CONTACT US FOR MORE INFO

SLA New User Training

DESCRIPTION

Gain a better understanding of SLA theory and receive a hands-on learning experience with 3D Sprint software when you attend one of our premiere training sessions.

LEARNING OBJECTIVES

- Hardware and Software Overview
- Preparing the Printer
- Setting Part Orientation
- Printing a Part
- Post-Processing
- Line-Width Compensation and Scale Values
- Empire Supports
- Build Parameters
- Recoating Process
- QuickCast™ (if relevant)
- Troubleshooting
- Preventive Maintenance

Note: Custom training is available after completing standard user training.

LEARNING PATH

1   **Training Preparation –** Understand customer problems and needs

2   **Training Session –** SLA Application Engineer comes on-site for training, or the learner attends a session at a 3D Systems' Location.

3   **Training Assessment –** Assessment of the student's knowledge

Format	Training
Technology	SLA
Duration	3 days
AM Experience Level	Beginner
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	None

CONTACT US FOR MORE INFO

PURCHASE INSTALL TRAINING FOLLOW-UP

SLS New User Training

DESCRIPTION

Gain a better understanding of SLS theory and receive a hands-on learning experience with associated software when you attend one of our premiere training sessions.

LEARNING OBJECTIVES

- Hardware and Software Overview
- SLS Printing Theory
- Setting Part Orientation in Software
- Printing the Part
- Part Extraction and Depowdering
- Cleaning Procedures
- Operator Preventive Maintenance
- Troubleshooting

Note: Custom training is available after completing standard user training.

LEARNING PATH

1   **Training Preparation –** Understand customer problems and needs

2   **Training Session –** SLS Application Engineer comes on-site for training, or the learner attends a session at a 3D Systems' Location.

3   **Training Assessment –** Assessment of the student's knowledge

Format	Training
Technology	SLS
Duration	3-4 days
AM Experience Level	Beginner
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	None

CONTACT US FOR MORE INFO

PURCHASE   INSTALL   TRAINING   FOLLOW-UP

Figure 4 Advanced User Training

DESCRIPTION

This course is intended to provide students with a specific, structured approach to learning how to properly, operate and maintain the Figure 4 Modular printer. By the end, the trainee will have a deep understanding of Figure 4 printing and a mix of practical and theoretical knowledge to integrate the machine into their workflow.

LEARNING OBJECTIVES

- Design for Figure 4 AM (DfAM)
- Intro to Figure 4 Print Process
- Advance Build Style Editing
- Advanced Support and Orientation strategies
- Advanced 3D Sprint Use
- Advanced post processing strategies
- Machine PM and Care

Note: Custom training is available after completing standard user training.

LEARNING PATH

1 **Intro Call –** Understand customer problems and needs.

2 **Training Visit –** Figure 4 Application Engineer comes on-site for the training, or students attend at a 3D Systems location.

3 **Assessment** – Trainees will become certified advanced operators.

4 **Continued Support** – AE will continue to support trainees virtually as they put the training into practice

Format	Training
Technology	Figure 4
Duration	3 days
AM Experience Level	Intermediate
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	Figure 4 Basic User Training

CONTACT US FOR MORE INFO

MJP Advanced User Training

DESCRIPTION

This course is intended to provide students with a specific, structured approach to learning how to properly, operate and maintain the MJP series of printers. By the end, the trainee will have a deep understanding of MJP printing and a mix of practical and theoretical knowledge to integrate the machine into their workflow.

LEARNING OBJECTIVES

- Design for MJP AM (DfAM)
- Intro to MJP Print Process
- Advanced Orientation strategies
- Advanced 3D Sprint Use
- Advanced post processing strategies
- Advanced finishing strategies
- Machine PM and Care

Note: Custom training is available after completing standard user training.

LEARNING PATH

1   **Intro Call –** Understand customer problems and needs.

2   **Training Visit –** MJP Application Engineer comes on-site for the training, or students attend at a 3D Systems location..

3   **Assessment** – Trainees will become certified advanced operators.

4   **Continued Support** – AE will continue to support trainees virtually as they put the training into practice.

Format	Training
Technology	MJP
Duration	2 days
AM Experience Level	Intermediate
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	MJP Basic User Training

PURCHASE   INSTALL   TRAINING   FOLLOW-UP

EXT Titan Pellet New User Training

DESCRIPTION

This course is intended to provide students with a specific structured approach to learning how to properly operate and maintain EXT printers.

LEARNING OBJECTIVES

Printer
- Hardware and Software Overview
- Basic Auxiliary Unit Functions
- Fused Layer Manufacturing (FLM) Printing Theory
- Filament Extrusion
- Pellet Extrusion
- Extrusion and Spindle Calibrations
- Build Preparation and Printing Process
- Preventive Maintenance
- Material Change-Over
- Troubleshooting

Software
- Simplify3D – Basic Print Setup

Post Processing
- Part Cleaning
- Finishing the Part

Note: Custom training is available after completing standard user training.

LEARNING PATH

1   **Training Preparation –** Understand customer problems and needs

2   **Training Session –** Learner attends training at 3D Systems Rock Hill, or at the customer site

3   **Assessment** – Assessment of the student's knowledge

Format	Training
Technology	EXT
Duration	3-5 days
AM Experience Level	Beginner
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	Online User Training

CONTACT US FOR MORE INFO

PURCHASE   INSTALL   TRAINING   FOLLOW-UP

EXT 220 MED New User Training

DESCRIPTION

This course is intended to provide students with a specific structured approach to learning how to properly operate and maintain EXT printers.

LEARNING OBJECTIVES

Printer
- Hardware and Software Overview
- Fused Layer Manufacturing (FLM) Printing Theory
- Build Preparation and Printing Process
- Operator Maintenance
- Materials
- Troubleshooting

Software
- Simplify3D – Basic Print Setup

Post Processing
- Part Cleaning
- Finishing the Part

Note: Custom training is available after completing standard user training.

LEARNING PATH

1 **Training Preparation –** Understand customer problems and needs

2 **Training Session –** Learner attends training at 3D Systems Rock Hill, or at the customer site

3 **Assessment –** Assessment of the student's knowledge

Format	Training
Technology	EXT
Duration	1-2 days
AM Experience Level	From none to beginner
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	Online User Training

CONTACT US FOR MORE INFO

PURCHASE · INSTALL · TRAINING · FOLLOW-UP

PSLA 270 New User Training

DESCRIPTION

Gain a better understanding of PSLA theory and receive a hands-on learning experience with 3D Sprint software when you attend one of our premiere training sessions. Go from novice to production ready in days rather than weeks.

LEARNING OBJECTIVES

- Hardware and software overview
- Preparing the printer
- Setting Part orientation
- Printing a Part
- Post Processing
- Scale and Offset Values
- Advanced supports
- Recoating Process
- Troubleshooting
- Preventative Maintenance

LEARNING PATH

1 **Training Preparation –** Understand customer problems and needs

2 **Training Session –** Application Engineer comes on-site for training, the learner attends a session at a 3D Systems' Location, or the learner performs the online training courses

3 **Assessment** – Assessment of the student's knowledge

Format	Training
Technology	PSLA
Duration	3 days
AM Experience Level	Beginner
Location	Customer site, remote, or 3D Systems Customer Innovation Center
Prerequisites	None

CONTACT US FOR MORE INFO

Additive Explore Program

EXPLORE

DESCRIPTION

If you are new to Additive Manufacturing (AM) or have limited experience, the Additive Explore Program is the perfect starting point for your AM journey. This program provides a comprehensive introduction to AM technology and its numerous benefits, empowering you to identify suitable applications, build a compelling AM business case, and teaches you how to design for AM.
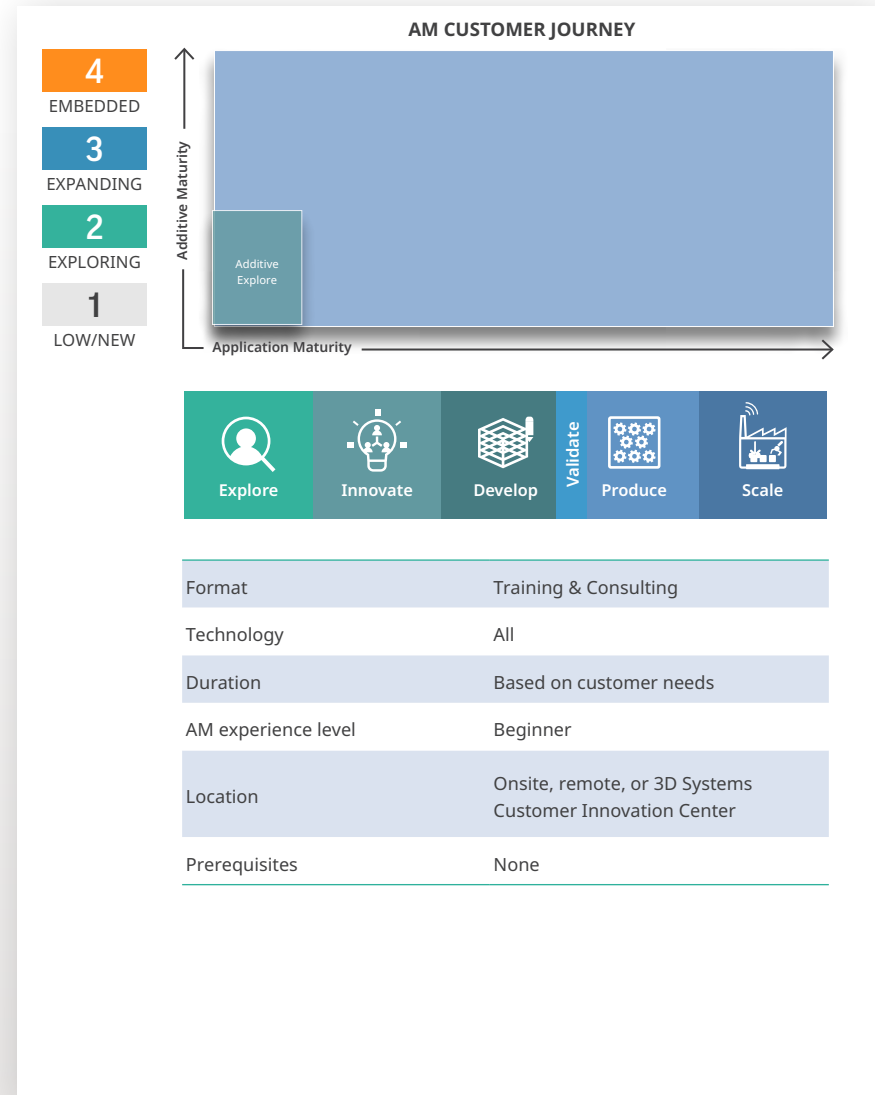
LEARNING OBJECTIVES

- AM benefits and limitations
- Understand the basics of AM process, materials, and safety risks
- Product portfolio screening for AM
- AM technology & material screening
- AM business case analysis
- Intro to design principles for AM
- AM part design and build preparation guidelines

DELIVERABLES & BENEFITS

- Perfect mix of classroom training, workshops, and hands-on practice projects
- Access to world-class AM Application Experts

LEARNING PATH

1 **Intro to AM Process & Materials** – 1 day training

2 **Applications Screening** – 1 day workshop

3 **Design for AM** – 1 day training and workshop

AM CUSTOMER JOURNEY

| 4 EMBEDDED |
| 3 EXPANDING |
| 2 EXPLORING |
| 1 LOW/NEW |

Additive Maturity

Additive Explore

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Format	Training & Consulting
Technology	All
Duration	Based on customer needs
AM experience level	Beginner
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Prerequisites	None

TALK TO AN EXPERT

Additive Operation Program

DESCRIPTION

The Additive Operation Program is designed to equip personnel with the skills to effectively operate Additive Manufacturing (AM) equipment and manage the entire AM workflow, from design to post-processing. This program is tailored for organizations investing in 3D Systems AM equipment for in-house production and combines theoretical knowledge with hands-on experience for an optimal learning experience.

LEARNING OBJECTIVES

- AM benefits and limitations
- Understand the basics of DMP process, materials, and safety risks.
- Design principles for AM and build preparation guidelines
- Learn the build file preparation workflow in 3DXpert software
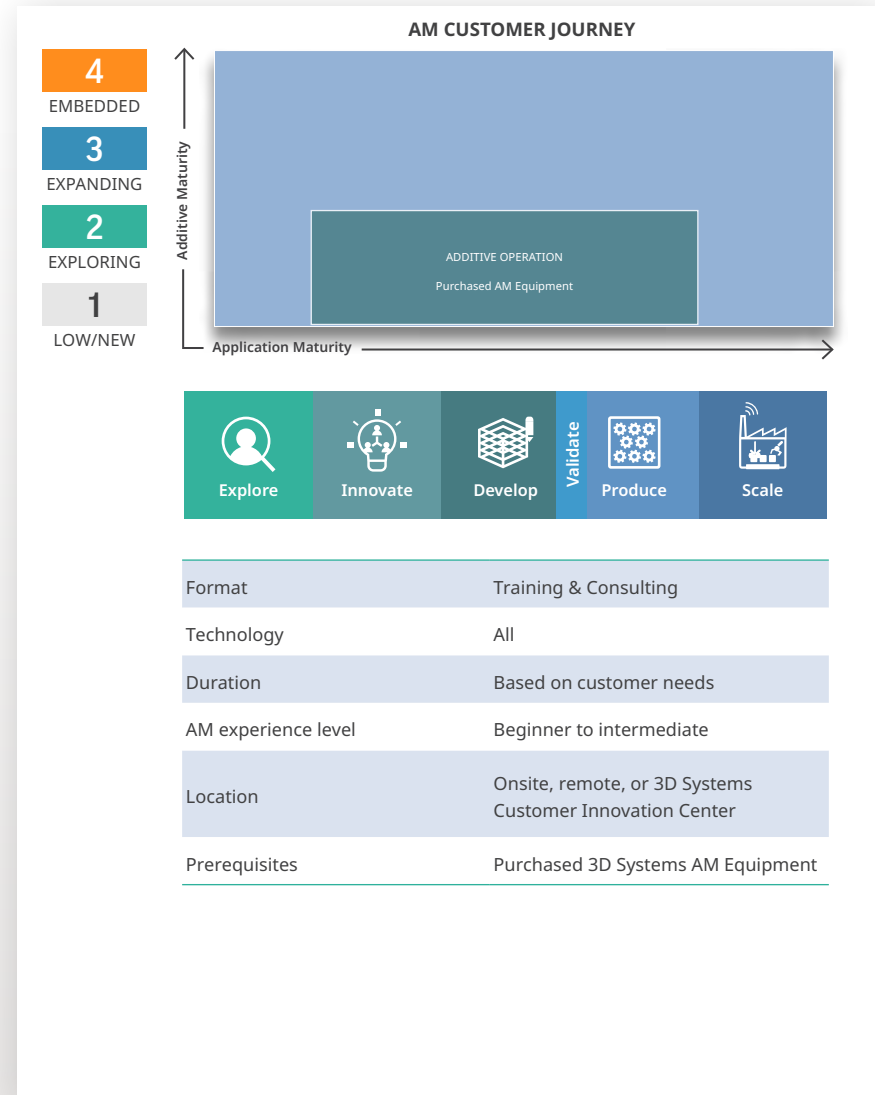- Learn the end-to-end AM workflow, from design, to machine operation, and post-processing

DELIVERABLES & BENEFITS

- Perfect mix of classroom training, workshops, and hands-on practice projects
- Access to world-class AM Application Experts
- Post-training application support
- Train and qualify DMP machine operators compliant to ISO/ASTM 52942 & ISO/ASTM 52926-2

LEARNING PATH[1]

1 **Design for AM** – 1 day training

2 **Intro to DMP Process & Materials** – 0.5 day training

3 **DMP New User Training (software & equipment)** – 7-8 day training

4 **DMP Post-processing** – 1 day workshop

5 **DMP Applications Support** – 8h service packages

6 **DMP Machine Health Management (option)** – 0.5 day training

7 **ASTM DMP Machine Operator Certification Program**[2] – 1 day certification

[1] Example given for Direct Metal Printing (DMP)
[2] Minimum 6 months experience in DMP operation

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

ADDITIVE OPERATION
Purchased AM Equipment

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Format	Training & Consulting
Technology	All
Duration	Based on customer needs
AM experience level	Beginner to intermediate
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Prerequisites	Purchased 3D Systems AM Equipment

TRAINING

Additive Scale Program

DESCRIPTION

Effectively scale your in-house Additive Manufacturing (AM) workflow to serial production while minimizing risk with the Additive Scale Program. This comprehensive program integrates training and consulting services to facilitate the transition to qualified high-volume production. Equip your AM designers with the skills and tools needed to optimize the entire AM workflow for volume production. Additionally, it provides training for operators on machine operations and best practices for machine health management.

LEARNING OBJECTIVES

- Tailored training content to your needs
- Perfect mix of training and consulting services
- Access to world-class AM Application Experts
- Learn skills and tools to optimize the AM workflow for volume production
- Develop process experience and know-how throughout the full manufacturing workflow
- Minimize downtime of your DMP machine by learning how to monitor the machine health.
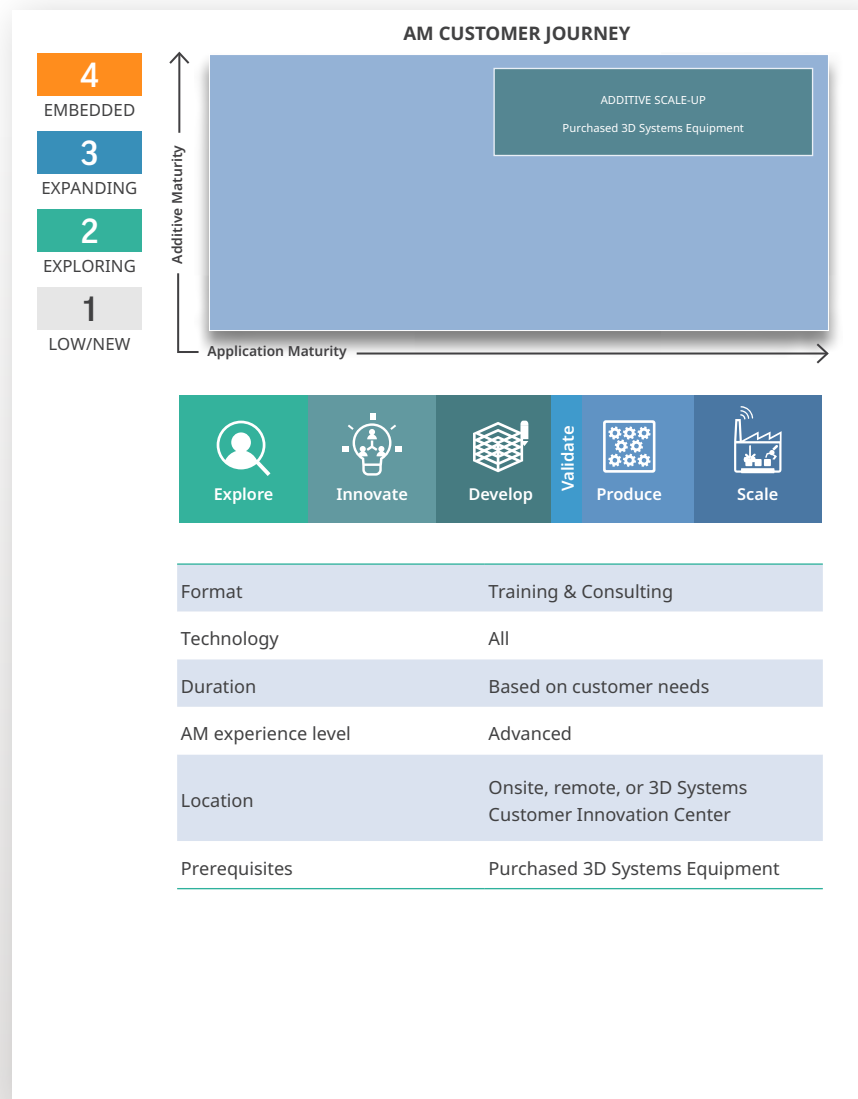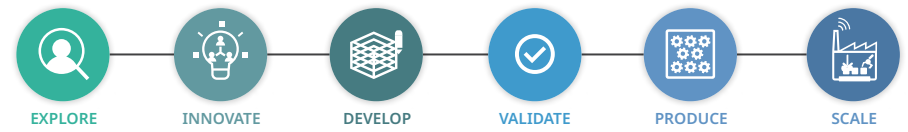
DELIVERABLES & BENEFITS

- Perfect mix of training and consulting services
- Access to world-class AM Application Experts
- Technology transfer of product-specific manufacturing workflow, knowhow, and documentation
- Train and qualify DMP machine operators compliant to ISO/ASTM 52942 & ISO/ASTM

LEARNING PATH[1]

1 **Advanced Build File Preparation** – 0.5 day training

2 **DMP Machine Health Management** – 0.5 day training

3 **DMP Application Support** – 8h service packages

4 **DMP Validation & Qualification** – 5-8 month service

5 **DMP Technology Transfer** – 6-18 month service

6 **ASTM DMP Machine Operator Certification Program**[2]– 1 day certification

[1] Example given for Direct Metal Printing (DMP)   [2] Minimum 6 months experience in DMP operation

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

ADDITIVE SCALE-UP
Purchased 3D Systems Equipment

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Format	Training & Consulting
Technology	All
Duration	Based on customer needs
AM experience level	Advanced
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Prerequisites	Purchased 3D Systems Equipment

EXPLORE **INNOVATE** **DEVELOP** **VALIDATE** **PRODUCE** **SCALE**
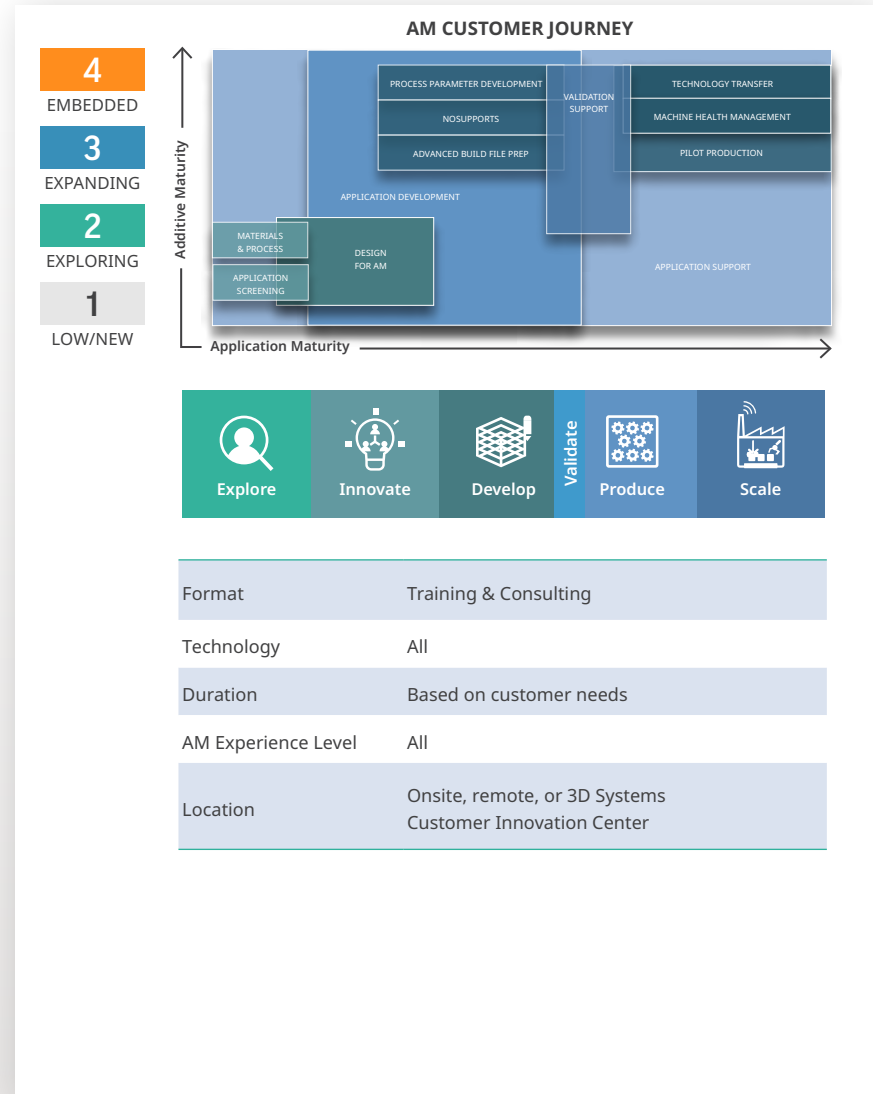
Customized Training Program

DESCRIPTION

Expedite your Additive Manufacturing (AM) journey and advance your AM know-how. Derisk and speed up AM application development or AM technology adoption through a customized training program. Or boost the AM expertise and know-how of your team with our customized AM personnel training programs for operators and engineers. Get a tailored training program with relevant content and the perfect mix of classroom trainings and hands-on practice that fit your needs.

LEARNING OBJECTIVES

- Application development training programs
- AM personnel training programs for operators and engineers
- Tailored training content to your needs
- Customized training format for the best learning experience: in person, online, or hybrid
- Perfect mix of classroom training, workshops, and hands-on practice projects
- Access to world-class AM application experts

LEARNING PATH

1 **Talk to an expert –** Identify and discuss your hurdles and needs on your AM applications or AM technology adoption. Discuss your goals for the AM journey.

2 **Statement of work –** Jointly define the training scope and learning objectives that fit your needs and goals.

3 **Deploy training program –** Customized training program with tailored content and a perfect mix of classroom trainings, workshops and hands-on practice projects that fit your needs.

4 **Assessment and certification –** Evaluate your learnings through a training assessment and obtain your training certification.

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

PROCESS PARAMETER DEVELOPMENT • VALIDATION SUPPORT • TECHNOLOGY TRANSFER
NO SUPPORTS • MACHINE HEALTH MANAGEMENT
ADVANCED BUILD FILE PREP • PILOT PRODUCTION
APPLICATION DEVELOPMENT
MATERIALS & PROCESS • DESIGN FOR AM • APPLICATION SUPPORT
APPLICATION SCREENING

Application Maturity

Explore **Innovate** **Develop** **Validate** **Produce** **Scale**

Format	Training & Consulting
Technology	All
Duration	Based on customer needs
AM Experience Level	All
Location	Onsite, remote, or 3D Systems Customer Innovation Center

TALK TO AN EXPERT

TRAINING

Additive Personnel Program

DESCRIPTION

Boost your team's expertise with our comprehensive Additive Personnel Training Programs, specifically designed for AM Designers and Operators. Our modular training curriculum equips personnel with the essential skills to master the entire end-to-end workflow of additive manufacturing (AM), from innovative design concepts to qualified operation of AM equipment. This program combines theoretical knowledge with hands-on workshops, maximizing your learning experience.

LEARNING PATHS

AM DESIGNER

1. **Intro to AM Process & Materials** – 1 day training
2. **Application Screening** – 1 day workshop
3. **Design for AM** – 1 day training & workshop
4. **AM Software Training (3DXpert, 3D Sprint)** – 3 day training
5. **DMP post-processing** – 1 day workshop

ADVANCED AM DESIGNER[1]

1. **Advanced Build File Preparation** – 0.5 day training
2. **NoSupports** – 0.5 day training
3. **Process Parameter Development** – 3 day training
4. **3DXpert Build Simulation & Build Inspection** – 1 day training
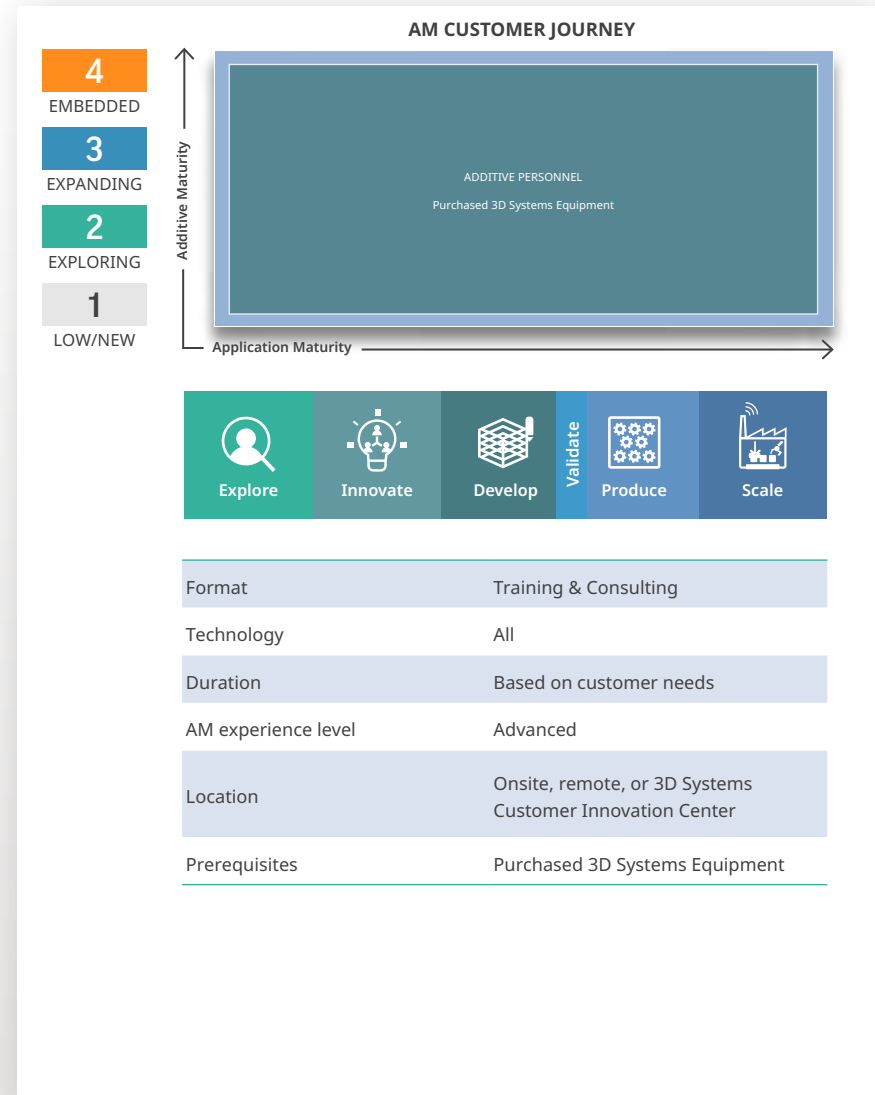5. **Advanced Build File Preparation (custom use case)** – 2 day workshop

AM OPERATOR[1]

1. **Intro to Process & Materials** – 0.5 day training
2. **DMP New User Training** – 7-8 day training
3. **DMP Post-Processing** – 1 day workshop
4. **DMP Machine Health Management** – 0.5 day training
5. **ASTM DMP Machine Operator Certification Program**[2] – 1 day certification

[1] Example given for Direct Metal Printing (DMP)
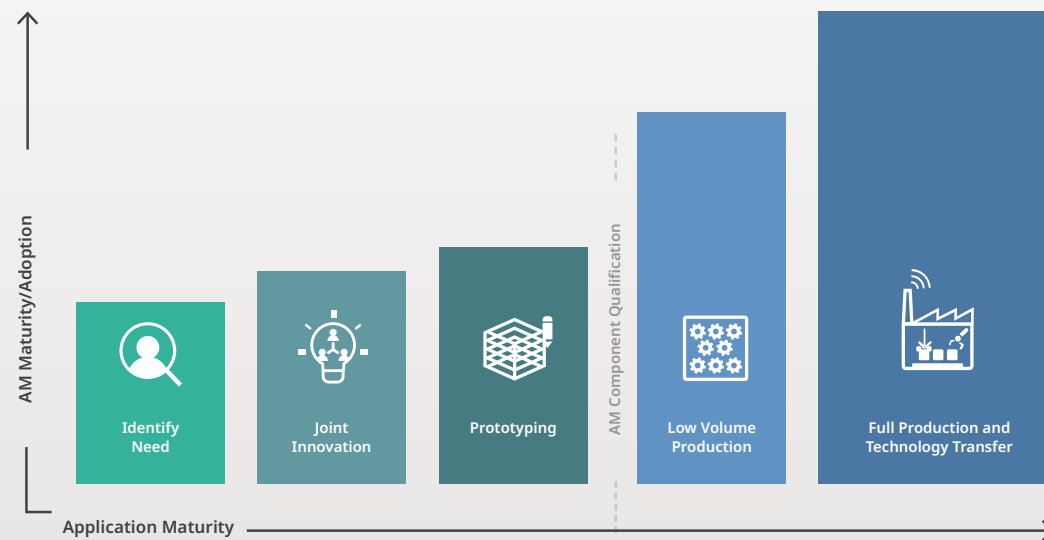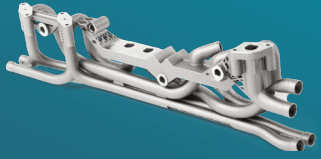[2] Minimum 6 months experience in DMP operation

AM CUSTOMER JOURNEY

4	EMBEDDED
3	EXPANDING
2	EXPLORING
1	LOW/NEW

Additive Maturity

ADDITIVE PERSONNEL

Purchased 3D Systems Equipment

Application Maturity

Explore | Innovate | Develop | Validate | Produce | Scale

Format	Training & Consulting
Technology	All
Duration	Based on customer needs
AM experience level	Advanced
Location	Onsite, remote, or 3D Systems Customer Innovation Center
Prerequisites	Purchased 3D Systems Equipment

Professional Service Modules

1	Applications Screening	1 day
2	Design for Metal Additive Manufacturing	1 day
3	Application Development	6–18 months typically
4	Application Support	1–day modules
5	Validation and Qualification	5–8 months typically
6	Contract Manufacturing for Pilot Production	6–18 months typically
7	Technology Transfer	6–18 months typically

Discover our customer success stories on the **AIG webpage**

- Healthcare
- Aerospace & Defense
- Semiconductor
- High-Tech
- Energy & Turbomachinery
- Transportation & Motorsports
- Consumer Technology

AM Maturity/Adoption

AM Component Qualification

Identify Need

Joint Innovation

Prototyping

Low Volume Production

Full Production and Technology Transfer

Application Maturity

Industrial Case Study

Metal AM for Semiconductor Capital Equipment

Wilting worked with 3D Systems to accelerate the adoption of metal additive manufacturing to support complex metal parts production for semiconductor capital equipment.

Learn more about the Customer Success Story

Image courtesy: Wilting

Customer Success Stories

CUSTOMER CHALLENGE

- Wilting, a precision machining company, needed to accelerate the adoption of additive to support complex metal parts for a large manufacturer of semiconductor capital equipment.

3D SYSTEMS SOLUTION

- Consulting with 3D Systems Application Innovation Group, Wilting has been able to rapidly iterate and test complex semiconductor components with a proven path to production.

- Solution comprised of DMP Flex 350, Oqton's 3DXpert software, LaserForm materials and technology transfer.

OUTCOME

- Proven workflow to produce optimized components designed for higher performance in semiconductor capital equipment.

- Streamlined adoption of metal additive manufacturing through technology transfer, including best practices on machine operation, optimal build strategies, build file preparation, as well as post-processing.
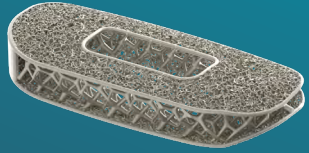
Healthcare Case Study

Metal AM for Medical Implants

NuVasive worked with 3D Systems on application development and FDA submission for medical implants.

The human body is not traditionally manufactured, so why should medical devices be? AM enables complex geometry and porous regions that promote bone in-growth to maximize porosity and performance of interbody fusion devices in a robust and scalable manufacturing process.

Learn more about the Customer Success Story

Image courtesy: NuVasive

Customer Success Stories

CUSTOMER CHALLENGE

- Assist customers in navigating the complex regulatory process required for FDA Class I, II, and III clearance. This includes developing robust, product-specific process flows in a QMS environment.

- Bridging the manufacturing gap to volume production.

3D SYSTEMS SOLUTION

- 3D Systems leverages its extensive DfAM experience in the medical device field into a phase-gated application development process. This approach, combined with validated DMP system and 3D Systems Masterfile Letter of Authorization access, has a proven track record of successful submissions.

- Contract manufacturing for pilot production to bridge the manufacturing gap in preparation for customer's adoption.

OUTCOME

- With a successful submission, the culmination of the application development process ensures steady-state, production-ready products that conform to customer, FDA and ASTM requirements in a readily scalable environment based on customer needs.

Motorsports Case Study

Same Day Silicone Parts Speed Development for F1

BWT Alpine F1 Team collaborated with 3D Systems to produce a diverse range of high-quality molded silicone and polyurethane parts in record speed with Figure 4 eggshell molding solution, providing unprecedented access to one-off and iterative parts using conventional molding materials.

Learn more about the Customer Success Story

Image courtesy: BWT Alpine F1 Team

Customer Success Stories

CUSTOMER CHALLENGE

- Rapidly produce molded elastomeric parts for wind tunnel and on-car applications for F1 development.

3D SYSTEMS SOLUTION

- 3D Systems' Figure 4 eggshell molding solution

- Easy digital eggshell mold creation in 3D Sprint®

- Broad material versatility with a range of casting silicones and polyurethanes to fit your application

- Straightforward digital silicone tooling workflow.

OUTCOME

- Unprecedented speed and flexibility to produce silicone and polyurethane parts for development and on-car use.

- Same-day 100% silicone parts production to accelerate design iteration.

Questions?

Schedule a free AIG consultation today

Accelerate and de-risk the development of your next application.

3D SYSTEMS APPLICATION INNOVATION GROUP
aig@3dsystems.com

Schedule a free training consultation today

Master additive manufacturing and maximize your investment.

3D SYSTEMS CUSTOMER SUCCESS
customersuccess@3dsystems.com