Optimizing Local and Enterprise Additive Manufacturing Production Management

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What do these 3D printing companies have in common?

They all use Materialise software
What do these consumer good companies have in common?

They all use Materialise software
What do these companies have in common?

They all use Materialise software / products / services
One machine and a belief in the incredible potential of Additive Manufacturing
Mission Statement

Materialise’s mission is to innovate product development resulting in a better and healthier world through its software and hardware infrastructure and in-depth knowledge of Additive Manufacturing.
Why Materialise?

- Founded 1990
- NASDAQ: MTLS
- ~1,000 employees
- ~350 developers
- 100+ machines
- 16 Locations worldwide
Industries/Applications to 3D Printing

Software Platform for 3D Printing

Materialise

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Topics

- Open Ecosystem for AM Operations Management
- Strategy for AM Machine Integration
- Leveraging the AM Infrastructure Across the Enterprise
Design to Part: Vendor-Specific Processes

• CAD → STL
  • Common to all 3D Printing / Additive Manufacturing Processes

• AM Processes
  • 3D Systems
    – SLA: STL → 3D Manage / Lightyear → Build File
  • Stratasys
    – FDM: STL → Insight → Build File
    – Polyjet: STL → Objet Studio → Build File
  • EOS
    – LS: STL → RPTools → Build File
Design to Part: Vendor-Specific Processes

- Vendor-specific software – non-transferable skills
- Discreet, unconnected process steps
Streamics from Materialise

Production Control & Task Automation for Additive Manufacturing Processes

Streamics Control System
- Quoting & Order Entry
- Job Data Management
- Build Planning & Scheduling
- Production Tracking & Part Traceability
- Reporting & Performance Analysis

Streamics Automation
- Conversion of CAD to STL
- STL fixing, including stitching, merging/separating shell elimination of degenerate triangles, etc.
- STL Analysis, including extraction of X, Y, Z extents, volume, surface area, thin wall detection, and triangulation analysis
Modeled on a typical shop structure, built SQL database
Streamics Supports the Full AM Workflow

Quotes

Orders

Parts

Platforms

Build Schedule

Build Processor

Post Processing
Streamics Supports the Full AM Workflow

- Quotes
- Orders
- Parts
- Platforms
- Build Schedule
- Build Processor
- Post Processing
Build Processor

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The concept: Print Driver for AM

[Diagram showing 3D printer and print job interface]
Build Processor: Export
Build Processor: A unified AM platform
Build Processor Concept

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Machine Communication

Directly Loading Build Files
Reduce chance of human errors

Real-Time Monitoring
Sensor values and machine status

Log Retrieval
Traceability, build reports
AM Machine Vendor Participation

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- No standardization of machine controllers
- User demand is needed to drive development of Build Processors for all platforms
Leveraging the AM Infrastructure Across the Enterprise

- Streamics API allows integration with enterprise applications and custom portals
- Web Portals
  - Provide an information-rich interface between designers and engineers and installed AM infrastructure
  - Facilitate visibility and resource sharing
  - Dashboard for enterprise-wide analytics
Streamics – Single-Site Implementation

AM Customers

Streamics Portal

AM Facility
Streamics – Multi-Site Implementation

AM Customers

Extended Streamics Portal

AM Facility 1

AM Facility 2

AM Facility 3

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Thank you!