Moldflow in the 4th Industrial Revolution

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Product Managers | Moldflow Products

AUTODESK.

Disclaimer

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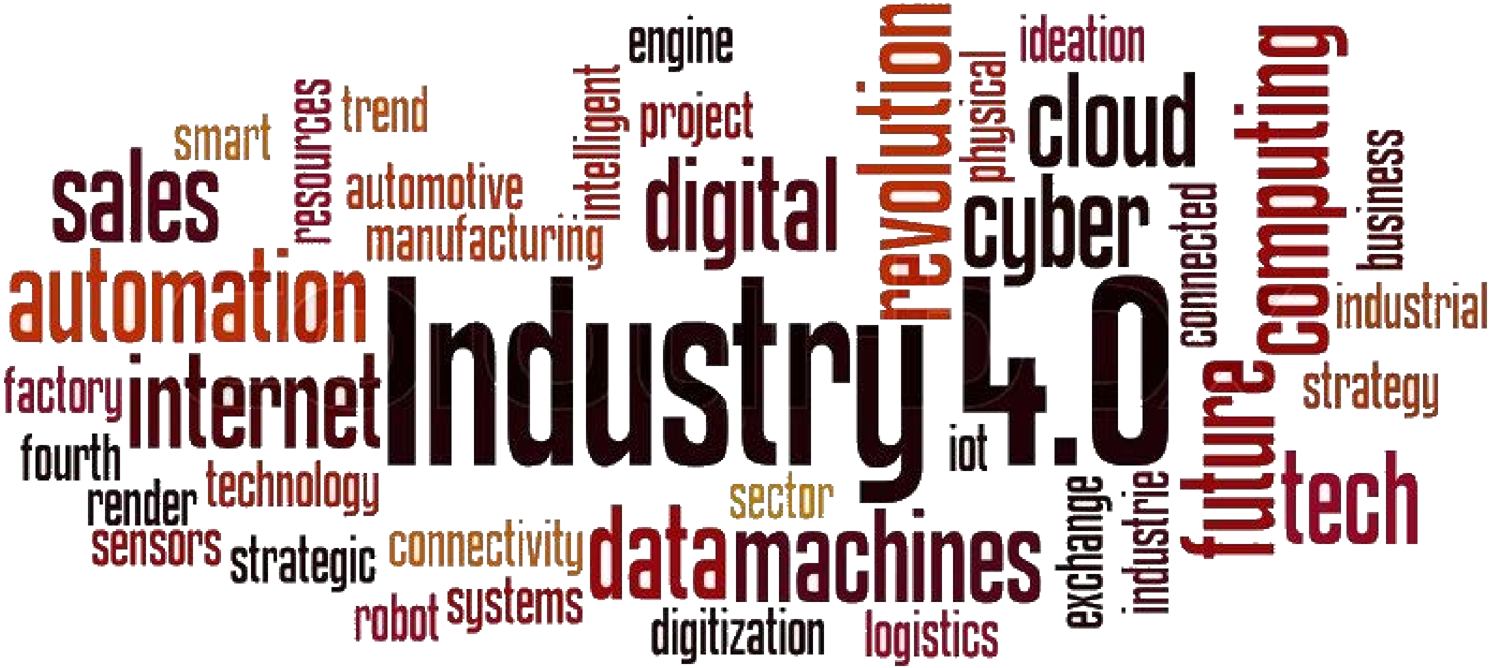
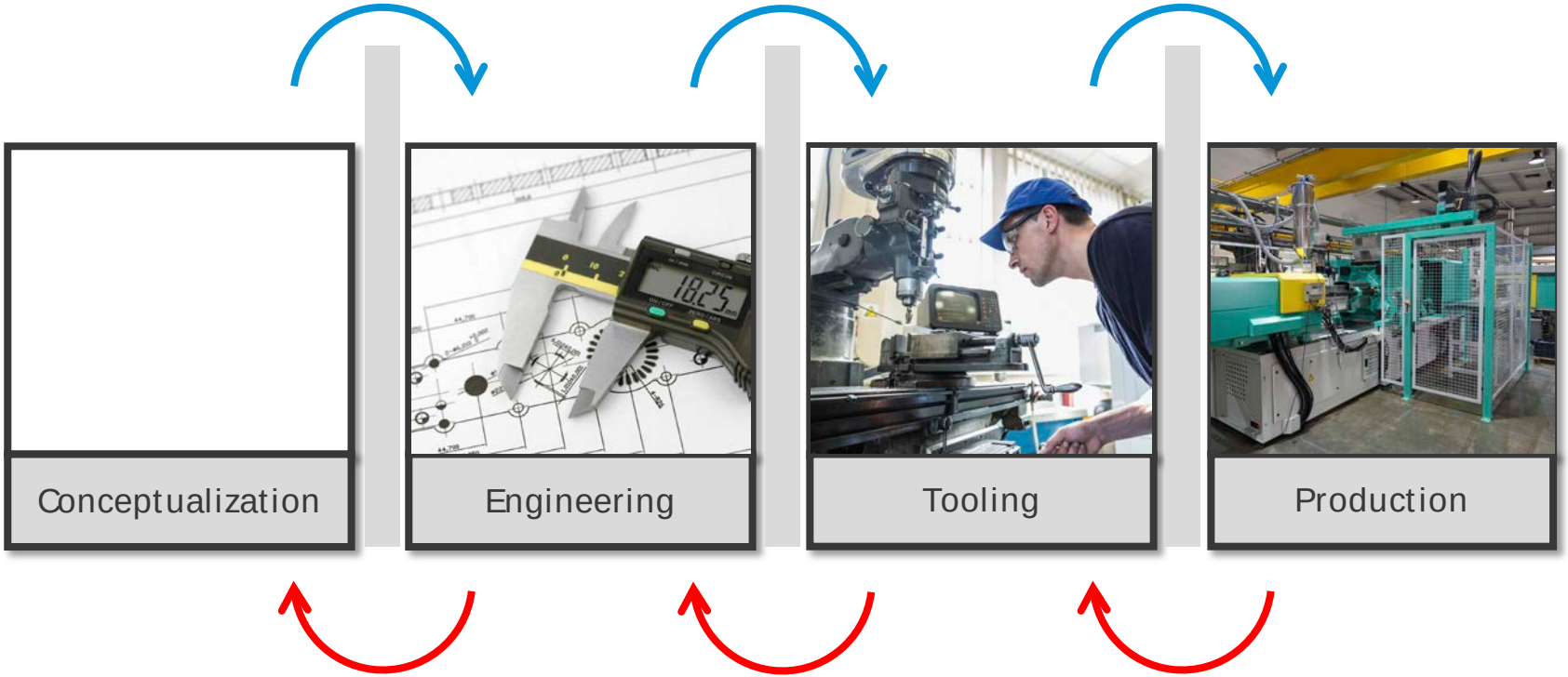
The Company assumes no obligation to update these forward-looking statements to reflect events that occur or circumstances that exist or change after the date on which they were made.


Industry 4.0
engine
ideation
trend
smart
resources
project
intelligent
revolution
physical
cloud
computing
business
sales
automotive
manufacturing
digital
cyber
connected
automation
industrial
factory
internet
strategy
fourth
iot
future
tech
technology
render
sector
sensors
strategic
connectivity
data
machines
exchange
industrie
robot
systems
digitization
logistics

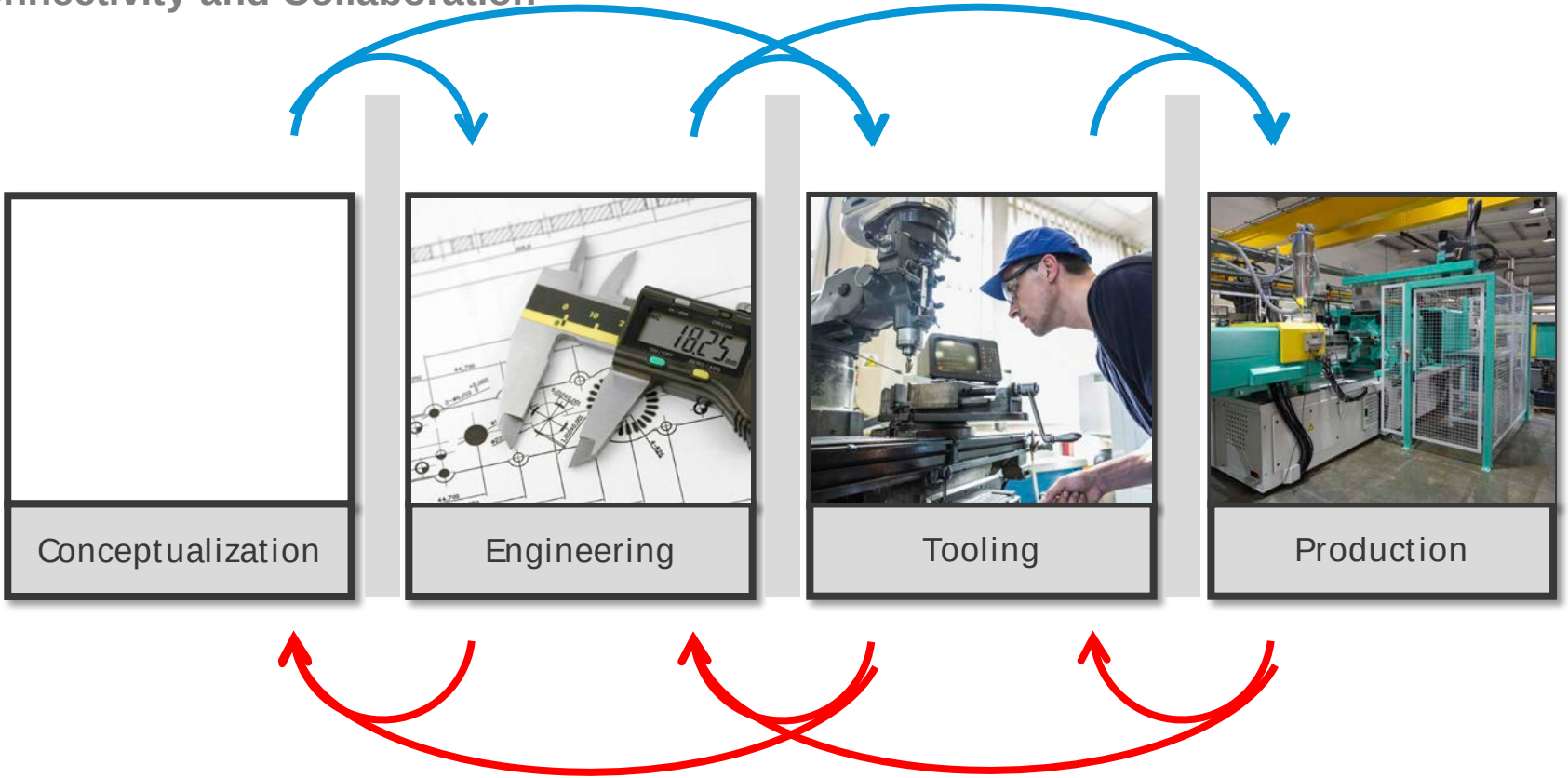
Industry Themes

Connectivity and Collaboration



Industry Themes

Connectivity and Collaboration



Industry Themes

Data Centricity

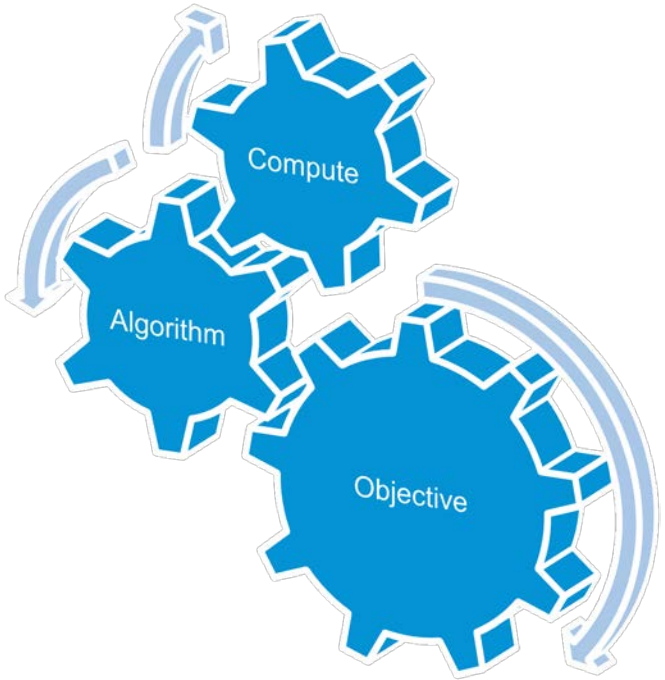
Industry Themes

Automation and Machine Learning

```
Dim nodeCount, iList, Ent, EntName, nodeList, nodeListStr
Dim Plot, Viewer, UnitSystem, LengthUnit, decDigit
Dim IndpValues, DsExists
Dim DVec, querySuccess
Const MsgTitle = "Flatness v1.4"
'
' ----- Setting up, including checking that a study is open in Synergy
Dim SynergyGetter
On Error Resume Next
Set SynergyGetter = GetObject(CreateObject("WScript.Shell").ExpandEnvironmentStrings("%SAInstance%"))
On Error GoTo 0
If (Not IsEmpty(SynergyGetter)) Then
  Set Synergy = SynergyGetter.GetSASynergy
Else
  Set Synergy = CreateObject("synergy.Synergy")
End If
If (Synergy is Nothing) Then
  QuitWithError "No active Autodesk Moldflow Insight instance." & vbCRLF & "Quitting..."
End If
UnitSystem = Synergy.GetUnits()
If UnitSystem = "English" Then
  LengthUnit = "in"
  decDigit = 6
Else
  LengthUnit = "mm"
  decDigit = 4
End If
Set SD = Synergy.StudyDoc()
If (SD is Nothing) Then
  QuitWithError "No active study." & vbCRLF & "Quitting..."
End If

' ----- Display deflection result
Set Plot = GetDeflectionPlot(Synergy)
Set Viewer = Synergy.Viewer()
Viewer.ShowPlot Plot

' ----- Process selection list
Set SelectList = SD.Selection
```



CONVERGENCE OF DESIGN & MANUFACTURING

Moldflow

Market Leader

Performance & Accuracy

License Flexibility

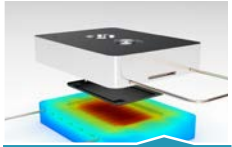
>10k Materials

Integrations

HPC & Cloud Solve

Meshing

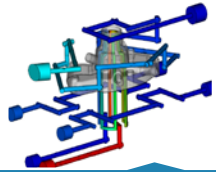
Mold filling



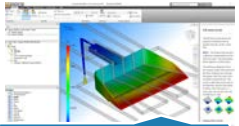
Mold Cooling

Warpage

Gas Assisted Inj. Molding

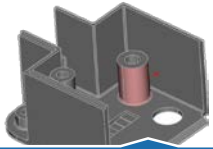


Conformal cooling

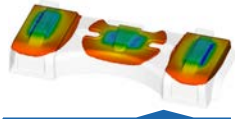


Collaboration

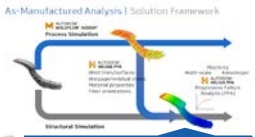
Accessibility



Geometry Manipulation



Compression Molding



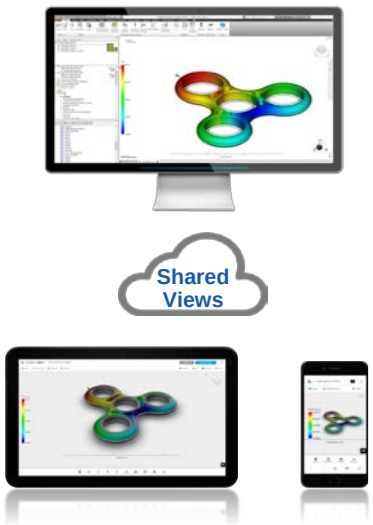
As-Mfg. Analysis

Design of Experiments

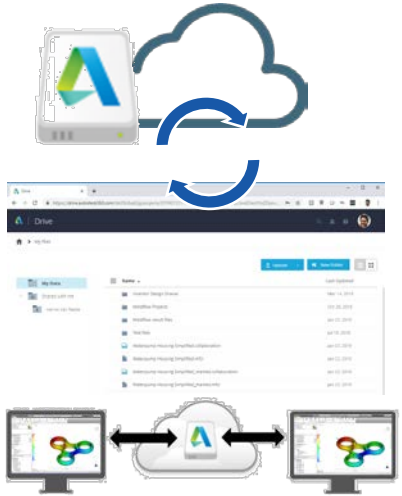
Moldflow

Value of Cloud

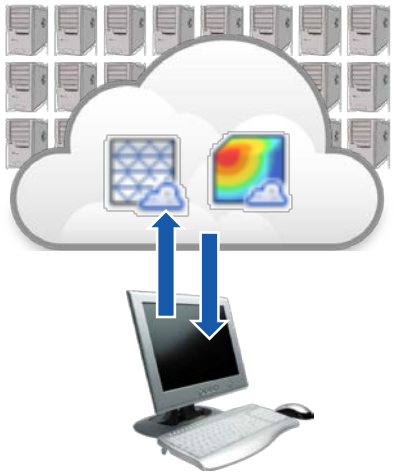
Sharing and Access



Collaboration

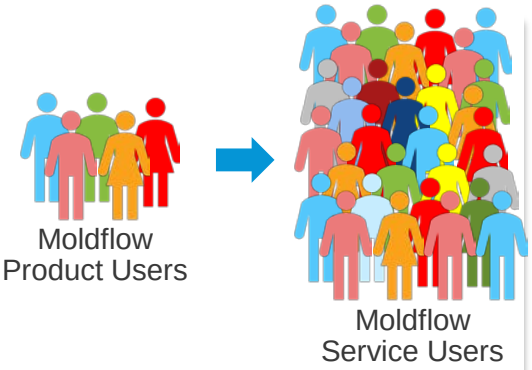


Compute

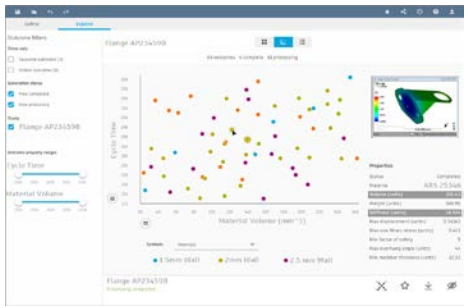


Moldflow

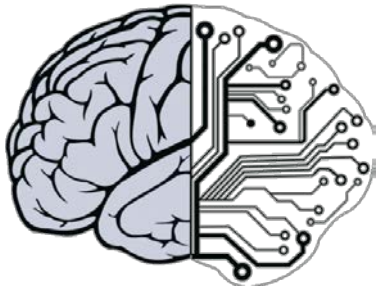
Unlocking Trapped Value



Adoption



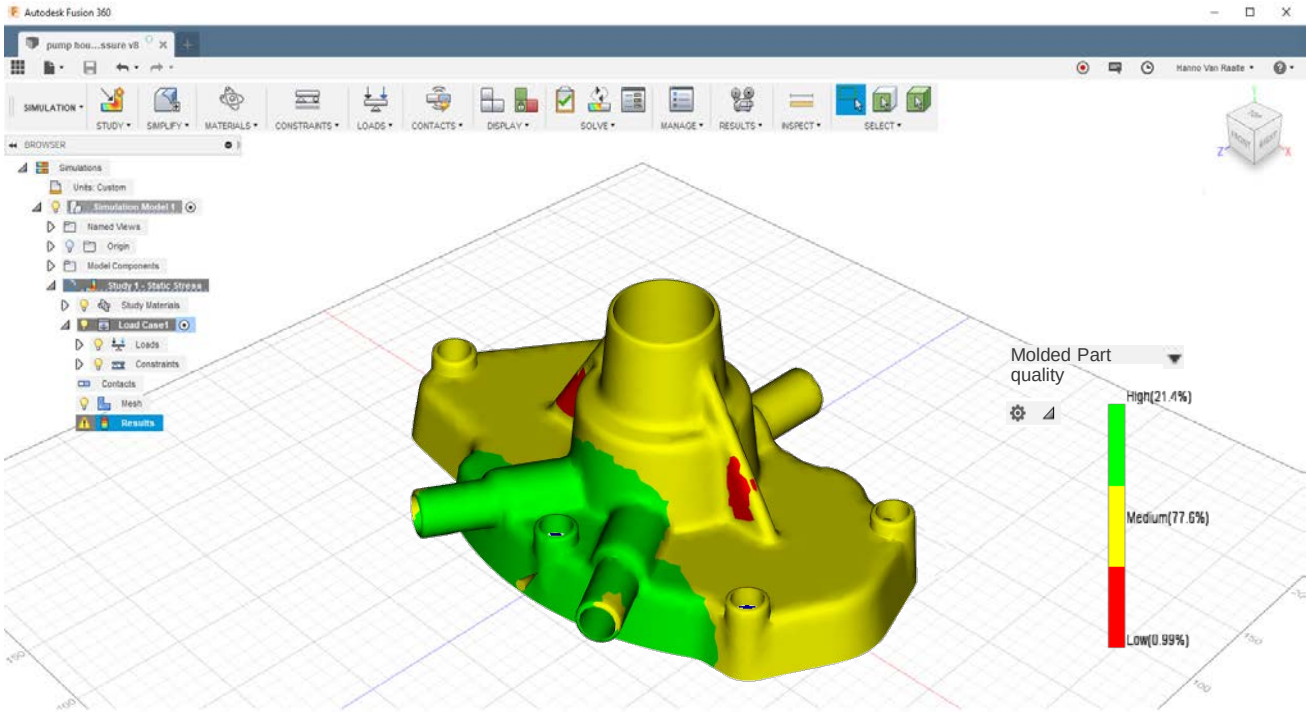
User Experience



Automation & ML

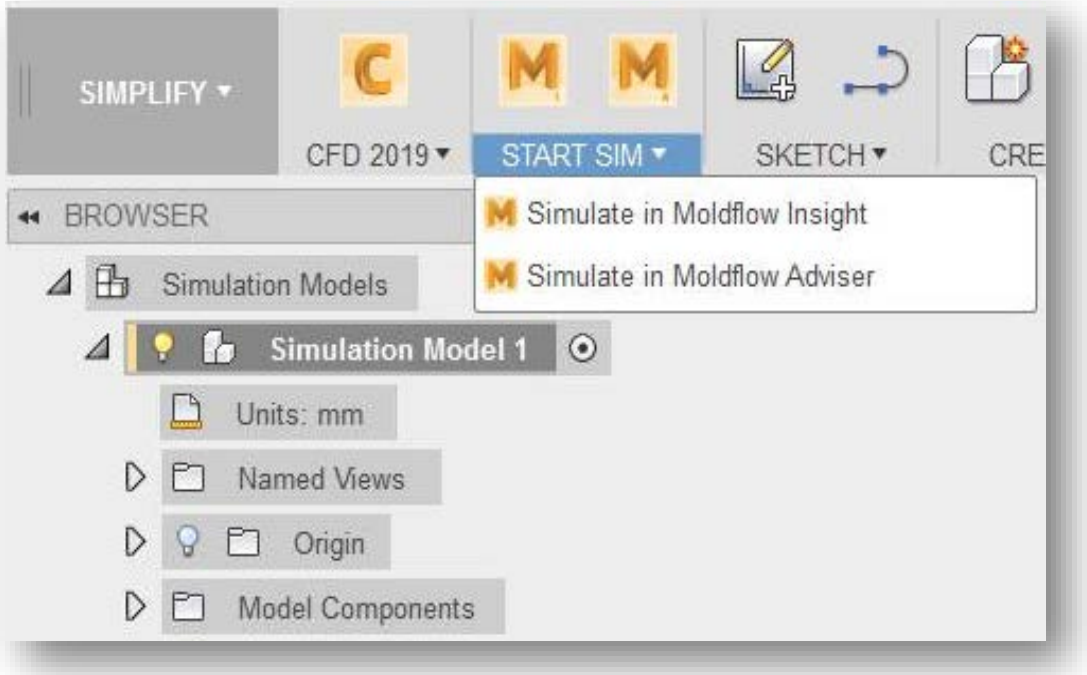
Moldflow tech in Fusion 360

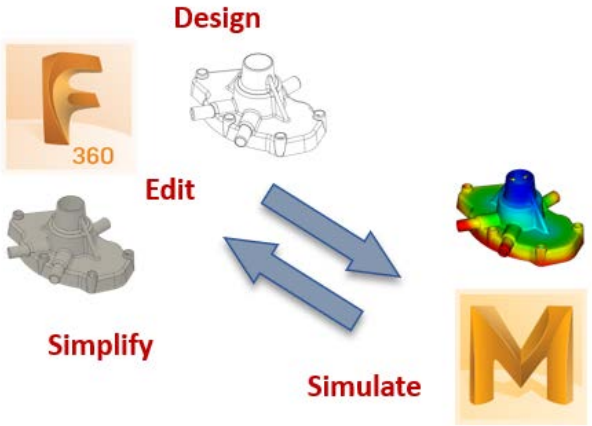
Component Analysis



Moldflow

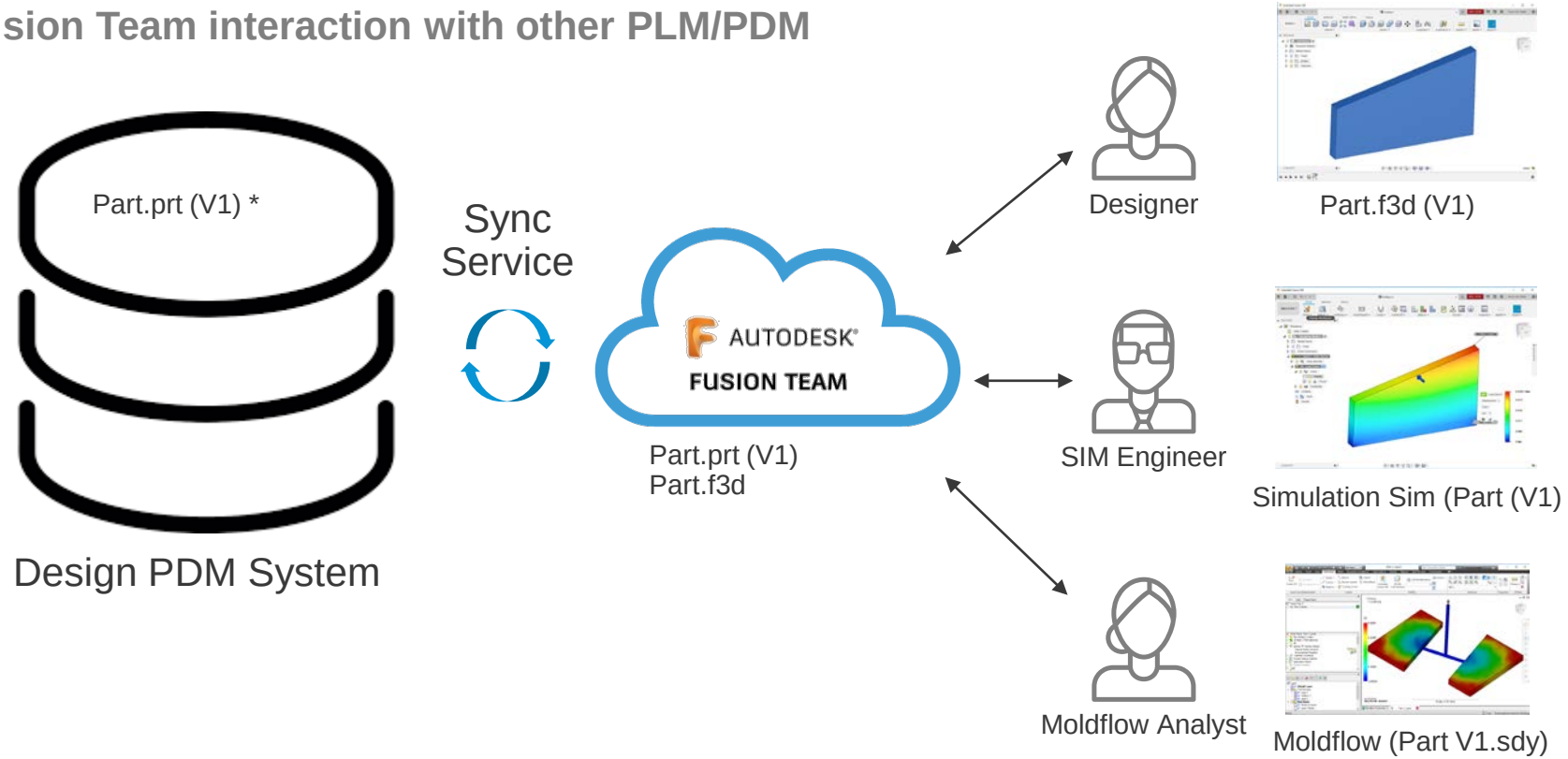
Fusion 360 Interoperability





Moldflow and Fusion 360

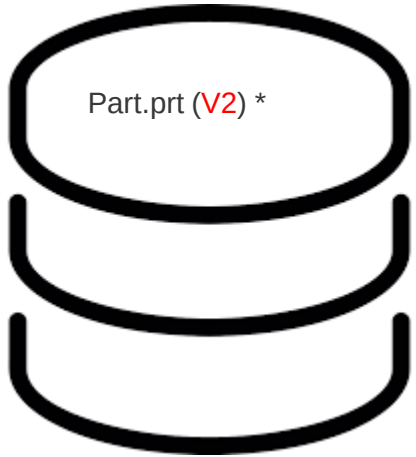
Fusion Team interaction with other PLM/PDM



Part.prt file used as an illustration of a non Autodesk CAD model
Part.f3d files is the translated file to Fusion model

Moldflow and Fusion 360

Fusion Team interaction with other PLM/PDM

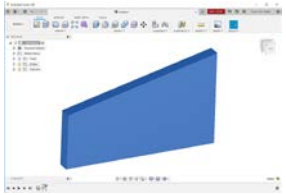


Design PDM System

Sync Service

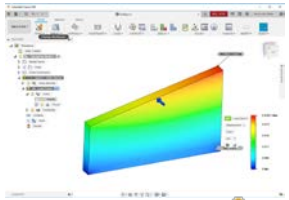
Part.prt (V2)
Part.f3d (V2)

Designer



Part.f3d (V2)

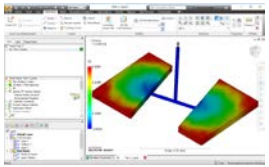
SIM Engineer



Out of date result

Simulation Sim Part (V2)

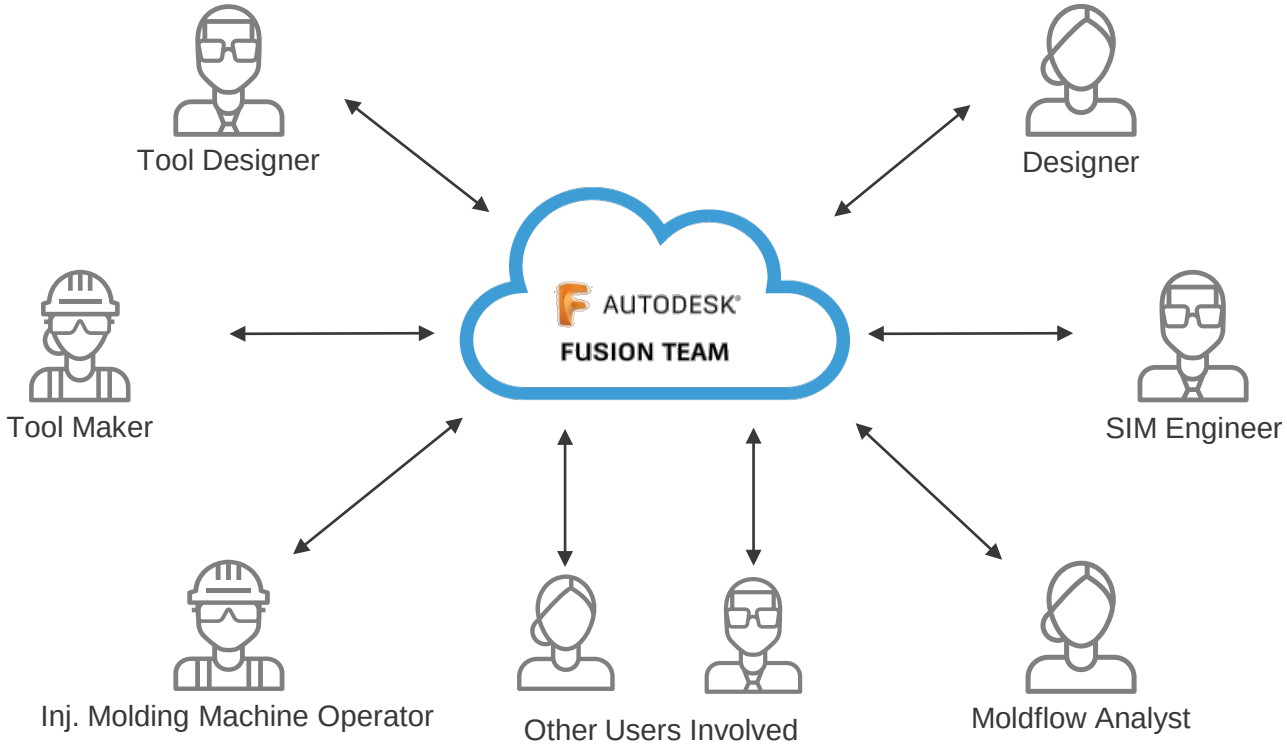
Moldflow Analyst



Moldflow (Part V1.sdy)
Moldflow (Part V2.sdy)

Fusion 360

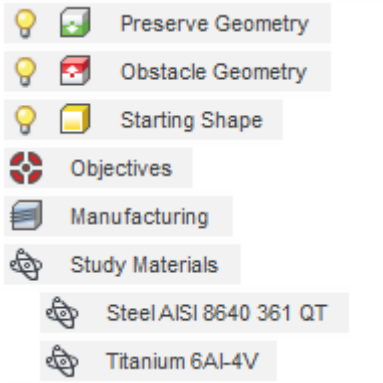
Connecting different user types

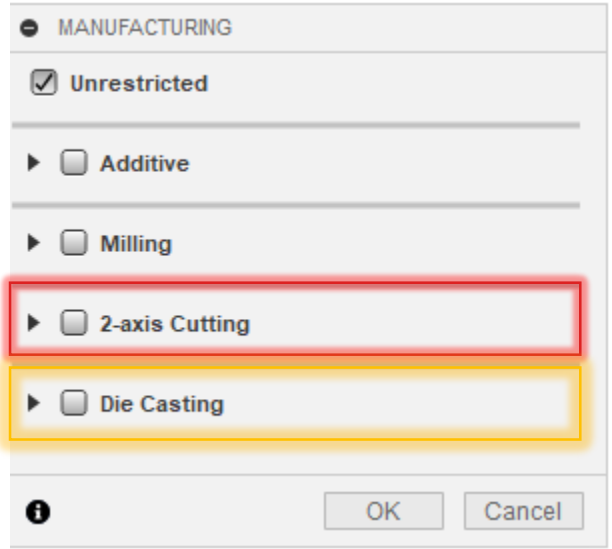


Fusion 360 – Generative Design

Generative Design Tech in Fusion 360 | Process

Select possible manufacturing method(s)





Available in preview as of May

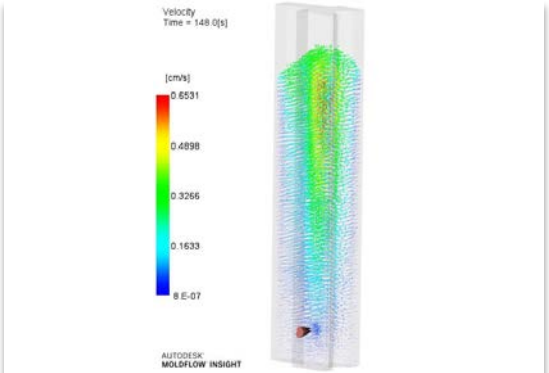
Available in Preview as of mid June

Moldflow

What's Next

Moldflow – What's Next

Tentative Content

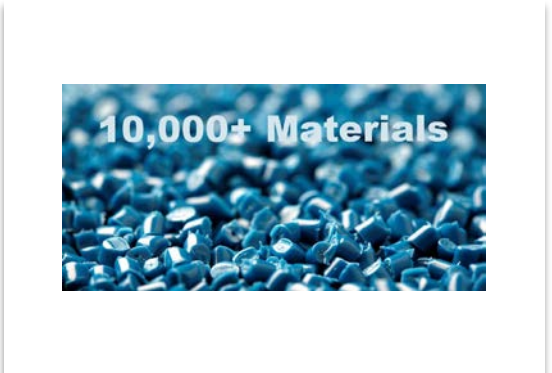


Market Impact

- CAD Translator Updates
- PU Foaming
- Reactive Microcellular Injection Molding
- Support for FEA Solvers – Helius PFA

Productivity & Customer Intimacy

- Simulation Compute Manager
- Birefringence visualization



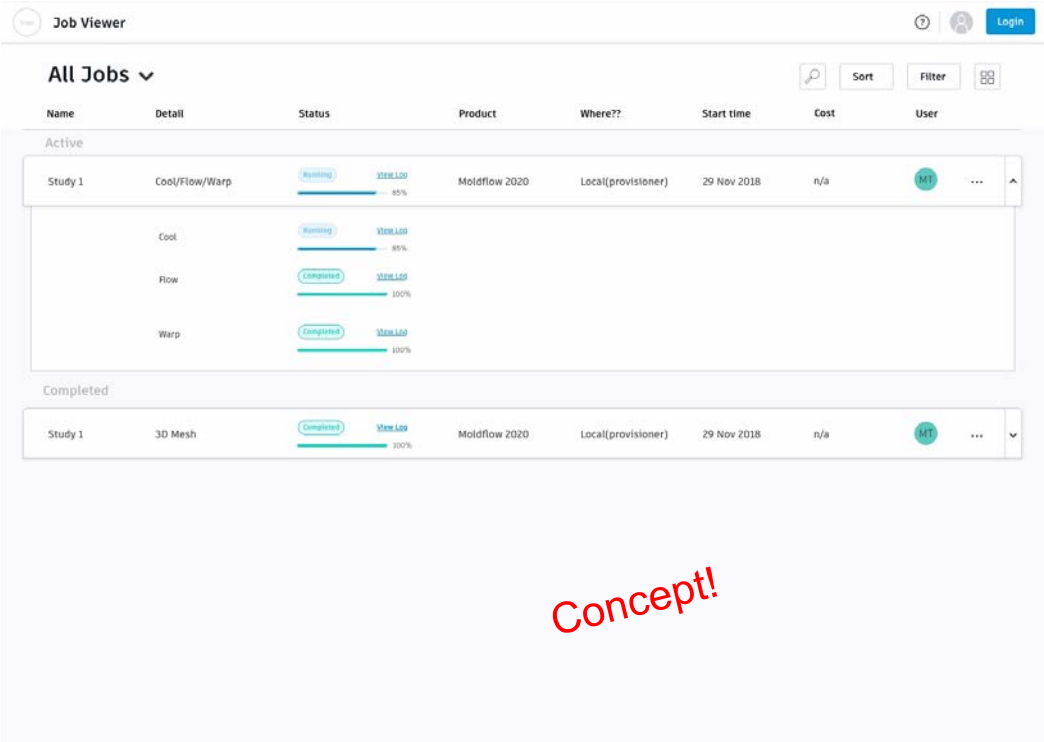
Leadership

- Material Database Updates
- Solver API enhancements
  - Convected quantities
  - Fiber Orientation
- Retractable core-pin support
- Shrinkage accuracy improvement in 3D

Moldflow

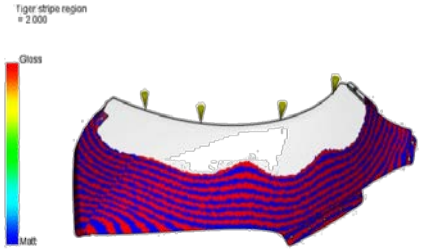
Simulation Compute Manager (SCM)

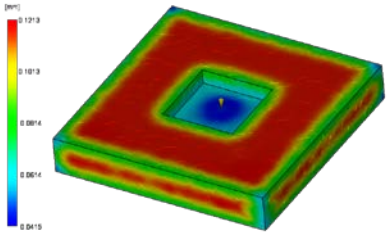
- Simpler, faster and more robust
- Strong analysis queue focus.
- Browser based UI
- Follow analysis progression from PC, tablet or mobile device



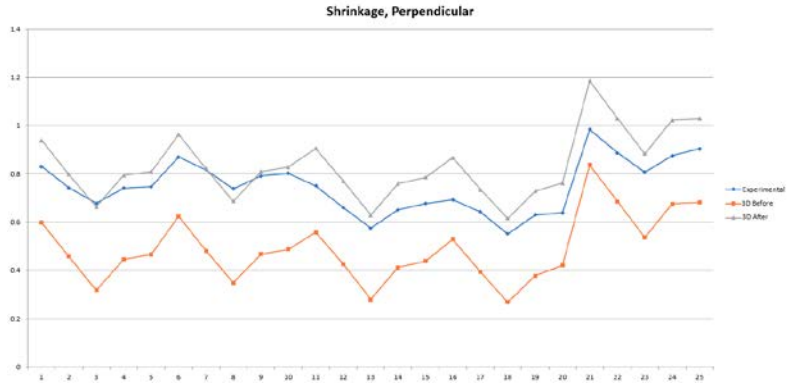
Moldflow Research and Development

Ongoing Projects





- 3D Sink Marks on non-rib geometries
- PU Foaming (Chemical Foam Molding)
- Reactive Microcellular Foam Injection Molding
- Birefringence visualization
- Tiger Stripe predictions
- Improvement for 3D Weld-surface formation/movement
- Improved weld-strength model
- Updated FEA solver support for Helius
- Shrinkage accuracy improvement for 3D (crystallization effects)
- Solver API enhancements to support convected quantities and fiber orientation
- Improvements for mechanical property calculations for fiber/mineral filled materials
- Support for multiple insert contact in 3D Warp
- Viscoelastic stress relaxation
- Improved calculation of flow front temperature (3D)
- Improved handling of valve gate opening (3D)
- Use of Machine Learning to improve shrinkage correction
- Warp analysis including effects of assembly constraints and shrinkage allowance
- Use of shrinkage molding data for improved 3D warp/shrink accuracy (i.e. CRIMS for 3D)
- Improved pressure estimation used during automatic injection time, gate location, runner balance and molding window calculations.



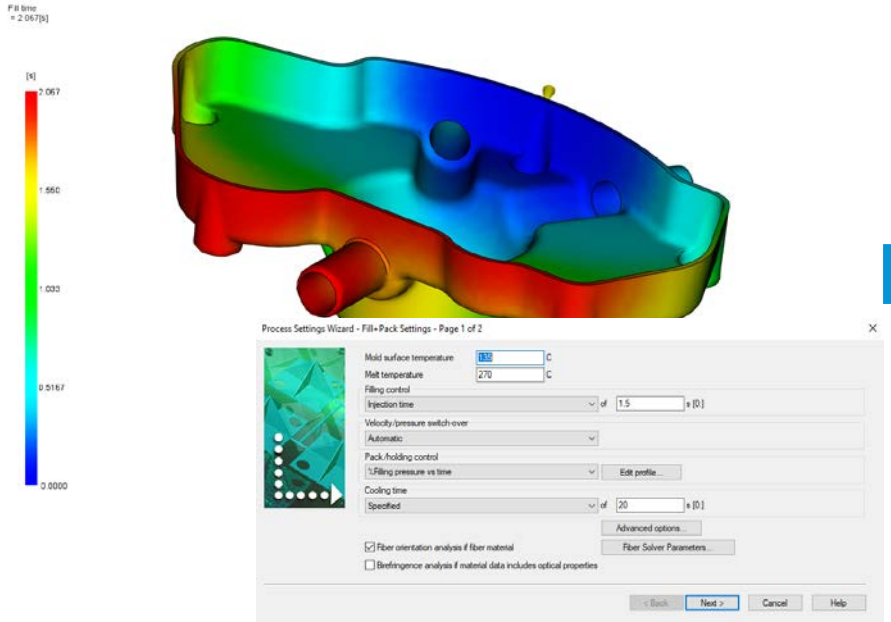
Moldflow

External Partnerships

- Composite Injection OverMolding (TPRC)
- Fiber breakage in Barrel (U of Bradford)
- Improvement models of cell growth and nucleation during Microcellular Foam Inj Molding (U. of Toronto)
- Microchip encapsulation of large wafer/panels (iNEMI)
- Wall Slip (U of Tokyo)
- Fiber orientation and fiber concentration effects on viscosity/flow

Moldflow

Connecting to Injection Molding Machines

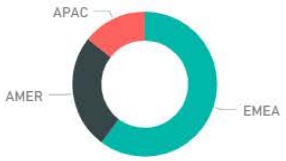


Moldflow – Education Seats

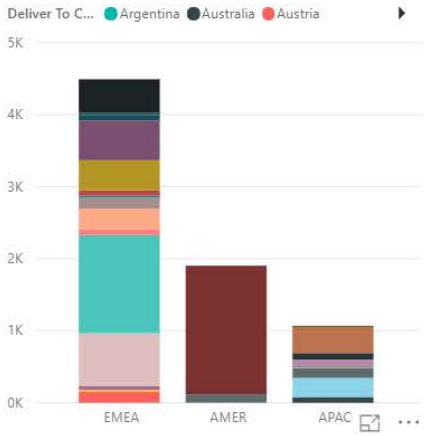
SIM EDU GRANTS

Product Line
- ACMPAN
- MFIA
- NETFE
- NTFABLS

Seat Count by Geo

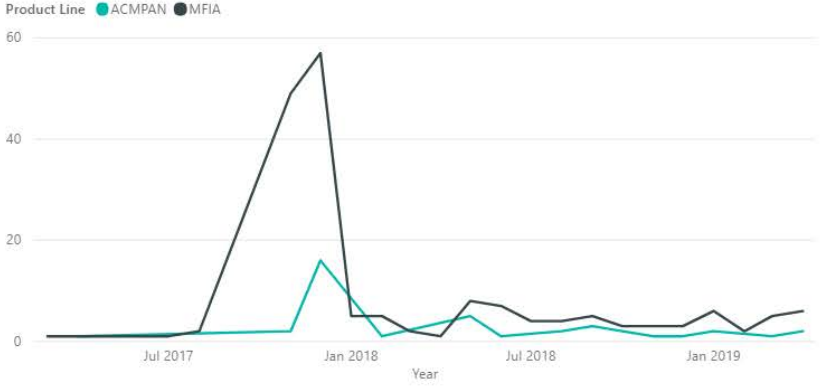


Seat Count by Geo and Deliver To Country



Number of EDU Grants created

Count of EDU Accounts by Year, Quarter, Month and Product Line



EDU Accounts	Seat Count	Product Line	Deliver To Country	Geo
Inst Politécnico de Leiria	360	MFIA	Portugal	EMEA
Penn State University	300	ACMPAN	USA	AMER
Penn State University	300	MFIA	USA	AMER
Universitat Politècnica de Valencia	300	MFIA	Spain	EMEA
University Of Malta	150	MFIA	Malta	EMEA
Yuhan University	150	MFIA	South Korea	APAC
VTC Pro - Act T&D Ctr (Precision Eng)	132	MFIA	Hong Kong	APAC
University of Sheffield	130	ACMPAN	United Kingdom	EMEA
Lehigh University	125	MFIA	USA	AMER
Mondragon GOI Eskola Politeknikoa	125	ACMPAN	Spain	EMEA
Mondragon GOI Eskola Politeknikoa	125	MFIA	Spain	EMEA
Queens University Belfast	125	MFIA	United Kingdom	EMEA
Università di Padova	125	MFIA	Italy	EMEA
Universität Erlangen Nürnberg	125	MFIA	Germany	EMEA
BEIJING INSTITUTE OF PETROCHEMICAL TECHNOLOGY	100	MFIA	China	APAC
Clemson Univ	100	MFIA	USA	AMER
Lorenzetti Alessandra	100	MFIA	Italy	EMEA
Ostbayerische Technische Hochschule	100	MFIA	Germany	EMEA
Swansea University	100	MFIA	United Kingdom	EMEA
Total	**7464**			

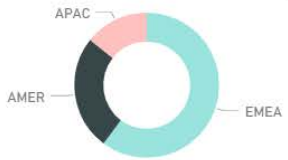
Seat Count by Deliver To Country

Moldflow – Education Seats

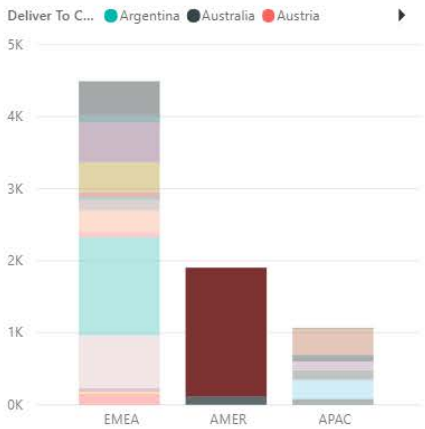
SIM EDU GRANTS

Product Line
- ACMPAN
- MFIA
- NETFE
- NTFABLS

Seat Count by Geo

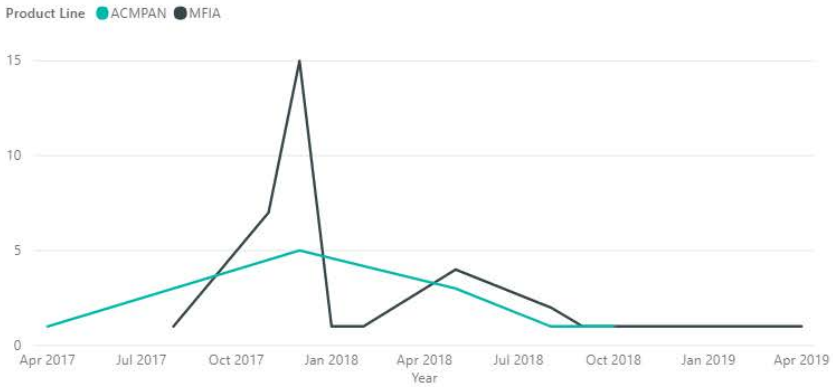


Seat Count by Geo and Deliver To Country



Number of EDU Grants created

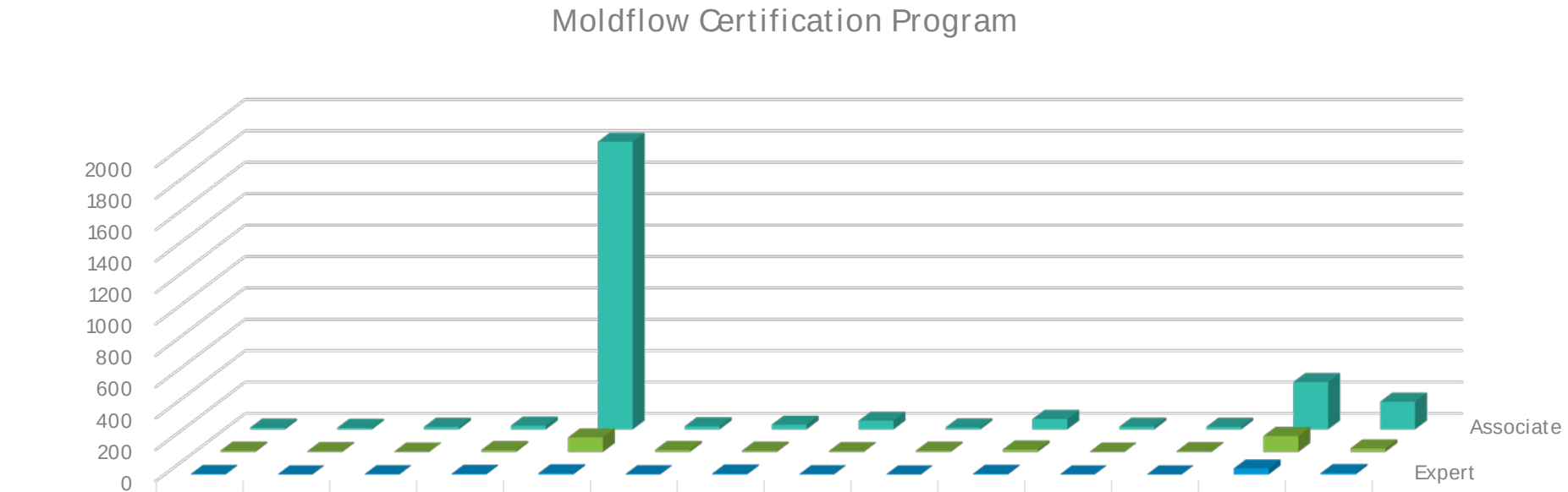
Count of EDU Accounts by Year, Quarter, Month and Product Line



EDU Accounts	Seat Count	Product Line	Deliver To Country	Geo
Penn State University	300	ACMPAN	USA	AMER
Penn State University	300	MFIA	USA	AMER
Lehigh University	125	MFIA	USA	AMER
Clemson Univ	100	MFIA	USA	AMER
UMASS Lowell	100	ACMPAN	USA	AMER
UMASS Lowell	100	MFIA	USA	AMER
Univ of Wisconsin-Stout	80	MFIA	USA	AMER
Clemson Univ	50	ACMPAN	USA	AMER
Georgia Institute of Technology	50	MFIA	USA	AMER
IUPUI Indiana Univ	50	MFIA	USA	AMER
Penn State Erie, The Behrend	50	ACMPAN	USA	AMER
Schoolcraft College	45	MFIA	USA	AMER
Rochester Institute of Technology	40	ACMPAN	USA	AMER
Rochester Institute of Technology	40	MFIA	USA	AMER
Univ of Minnesota	35	MFIA	USA	AMER
Cegep de Thetford	34	MFIA	Canada	AMER
St Clair College	30	MFIA	Canada	AMER
Pennsylvania College of Technology	26	MFIA	USA	AMER
Baylor Univ	25	MFIA	USA	AMER
Total	**1903**			

Seat Count by Deliver To Country

Moldflow – Certification Program



	Australia	Austria	Brazil	Canada	China	France	Germany	India	Italy	Korea	Mexico	UK	USA	Other
Expert	2	0	1	3	7	1	5	1	0	4	0	0	38	8
Professional	7	4	2	11	92	12	7	5	7	15	1	4	101	22
Associate	11	9	16	24	1831	20	30	55	12	66	17	16	301	176

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