

Results of the Geometry and Mesh Generation Survey 2016

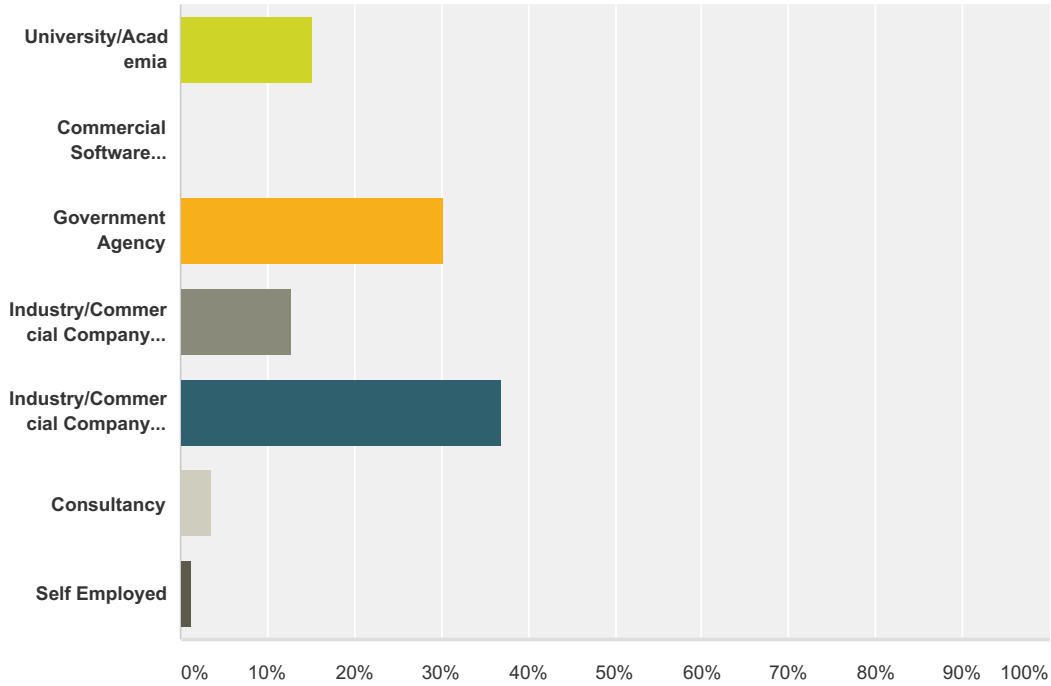
Q1 Contact Information [optional]

Answered: 94 Skipped: 71

Answer Choices	Responses	
Name	100.00%	94
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	98.94%	93
Phone Number	0.00%	0

Q2 Which term best describes the organization you work for? (Please select one.)

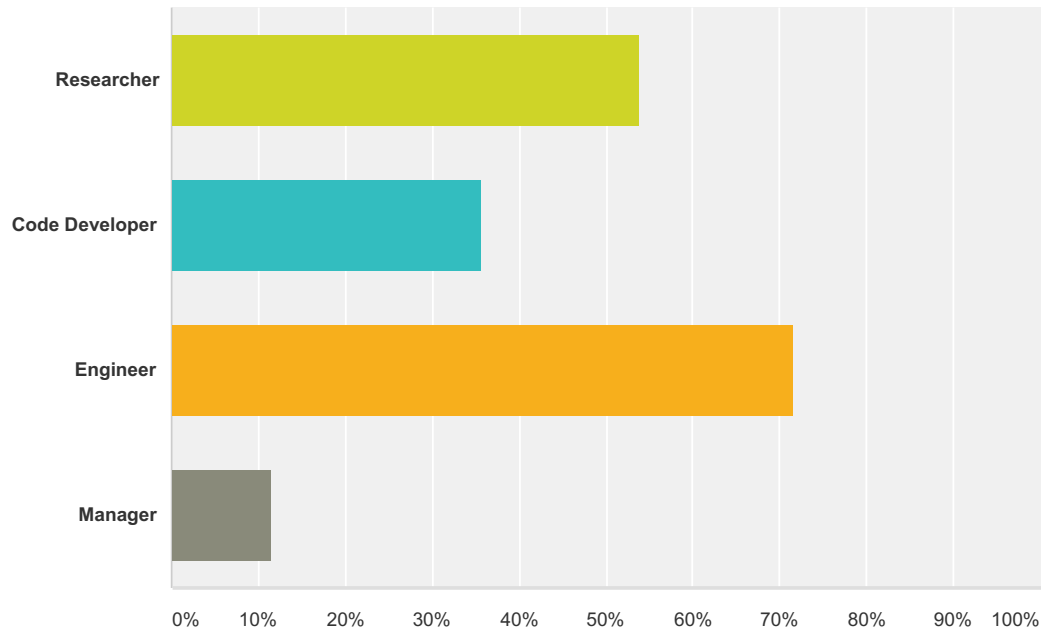
Answered: 165 Skipped: 0



Answer Choices	Responses
University/Academia	15.15% 25
Commercial Software Developer	0.00% 0
Government Agency	30.30% 50
Industry/Commercial Company(< 100 company employees)	12.73% 21
Industry/Commercial Company(> 100 company employees)	36.97% 61
Consultancy	3.64% 6
Self Employed	1.21% 2
Total	165

Q3 Which term best describes your role in that organization? (Please select all that apply.)

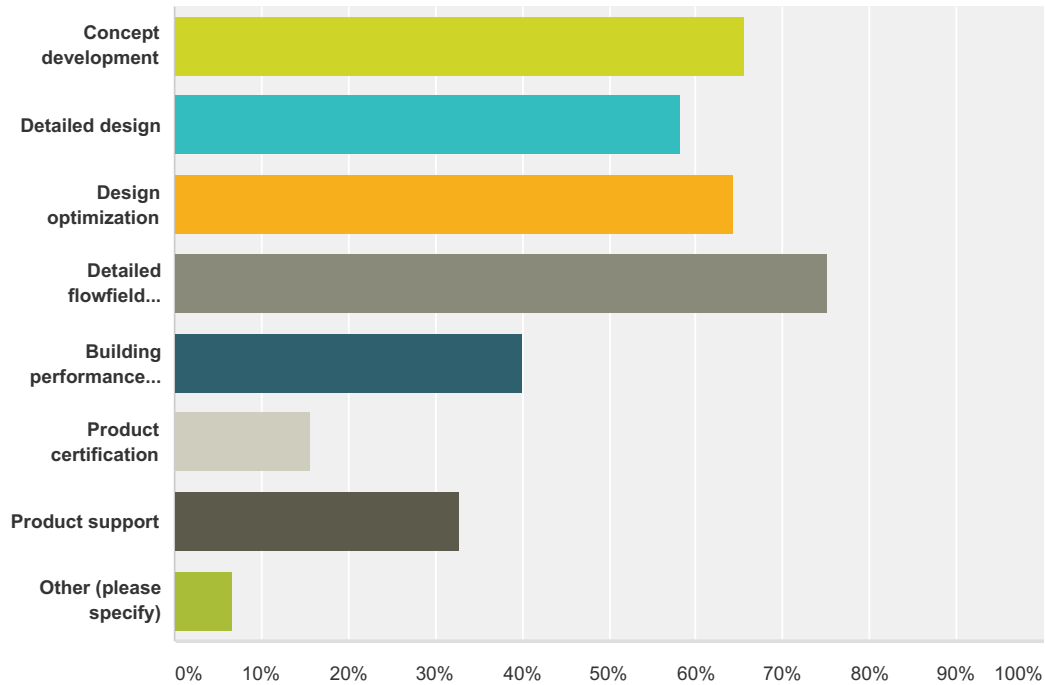
Answered: 165 Skipped: 0



Answer Choices	Responses
Researcher	53.94% 89
Code Developer	35.76% 59
Engineer	71.52% 118
Manager	11.52% 19
Total Respondents: 165	

Q4 During what phases of a product's design, development and deployment do you typically apply CFD or other computational analysis methods? (Please select all that apply.)

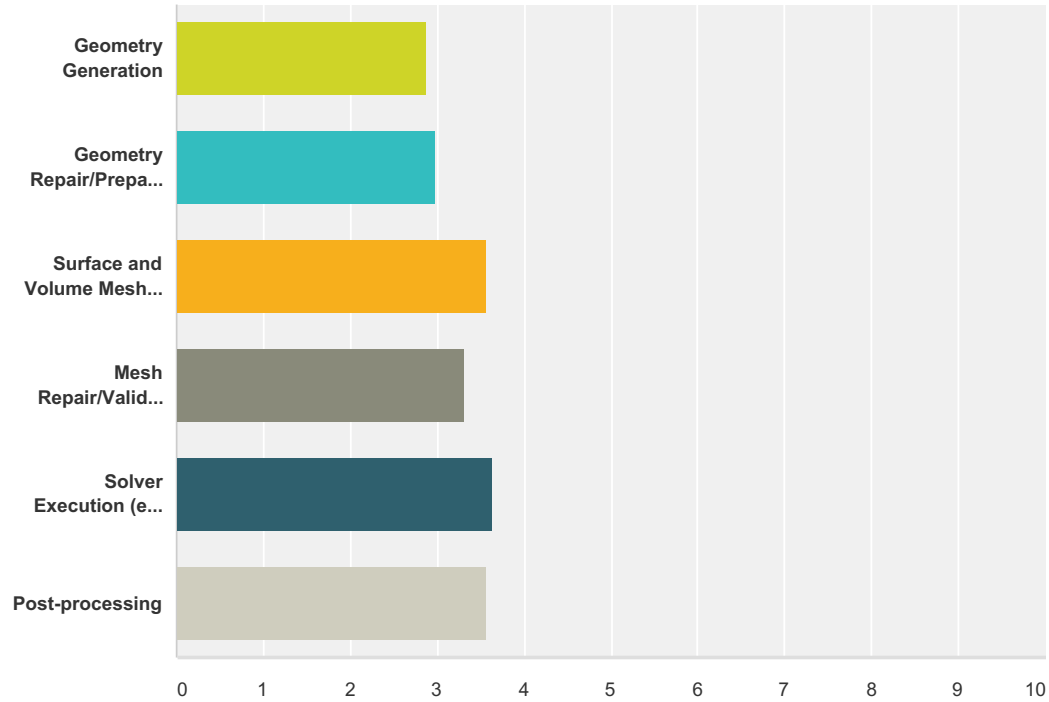
Answered: 165 Skipped: 0



Answer Choices	Responses
Concept development	65.45% 108
Detailed design	58.18% 96
Design optimization	64.24% 106
Detailed flowfield analysis	75.15% 124
Building performance characterization databases	40.00% 66
Product certification	15.76% 26
Product support	32.73% 54
Other (please specify)	6.67% 11
Total Respondents: 165	

Q5 Rate your level of expertise in each of the following CFD (or other method) application areas.

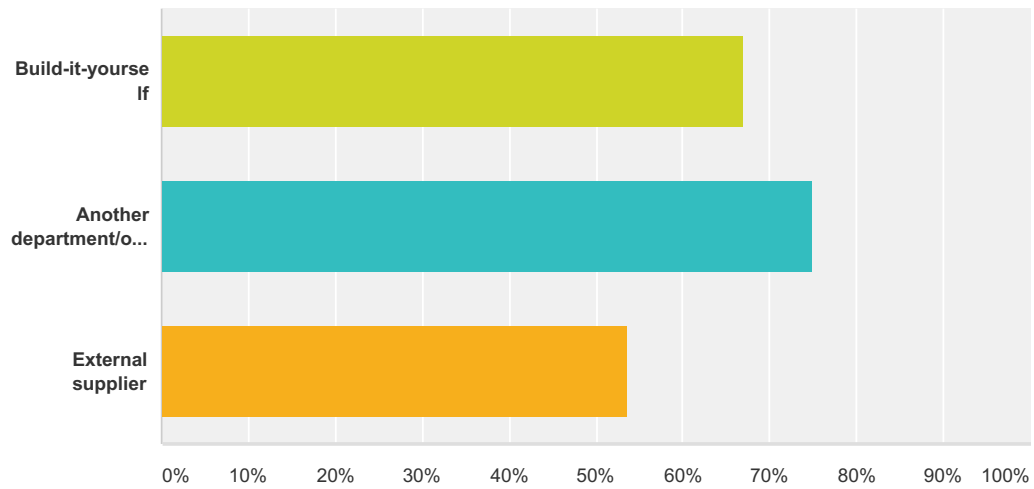
Answered: 165 Skipped: 0



	No Knowledge	Novice	Intermediate	Expert	Total	Weighted Average
Geometry Generation	3.68% 6	28.83% 47	42.33% 69	25.15% 41	163	2.89
Geometry Repair/Preparation	1.23% 2	23.93% 39	49.69% 81	25.15% 41	163	2.99
Surface and Volume Mesh Generation	0.61% 1	2.42% 4	35.15% 58	61.82% 102	165	3.58
Mesh Repair/Validation	1.23% 2	8.02% 13	48.15% 78	42.59% 69	162	3.32
Solver Execution (e.g. Flow Solver execution for CFD).	1.23% 2	6.13% 10	20.86% 34	71.78% 117	163	3.63
Post-processing	0.62% 1	4.32% 7	31.48% 51	63.58% 103	162	3.58

Q6 Where do you get your starting geometry from? (Please select all that apply.)

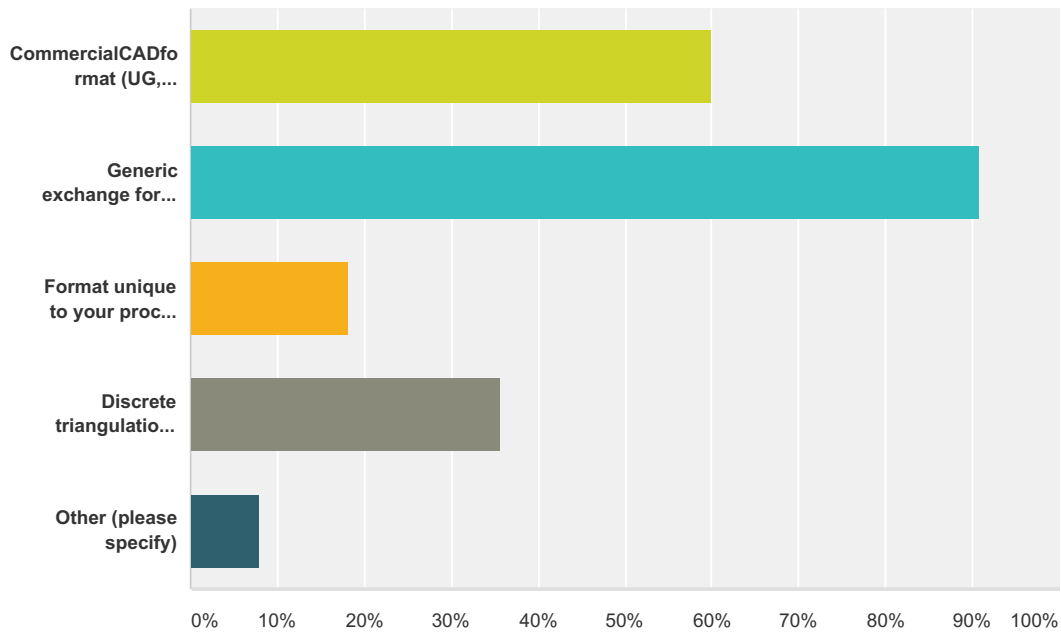
Answered: 164 Skipped: 1



Answer Choices	Responses
Build-it-yourself	67.07% 110
Another department/organization in your company	75.00% 123
External supplier	53.66% 88
Total Respondents: 164	

Q7 What format does your starting geometry typically come in? (Select all that apply.)

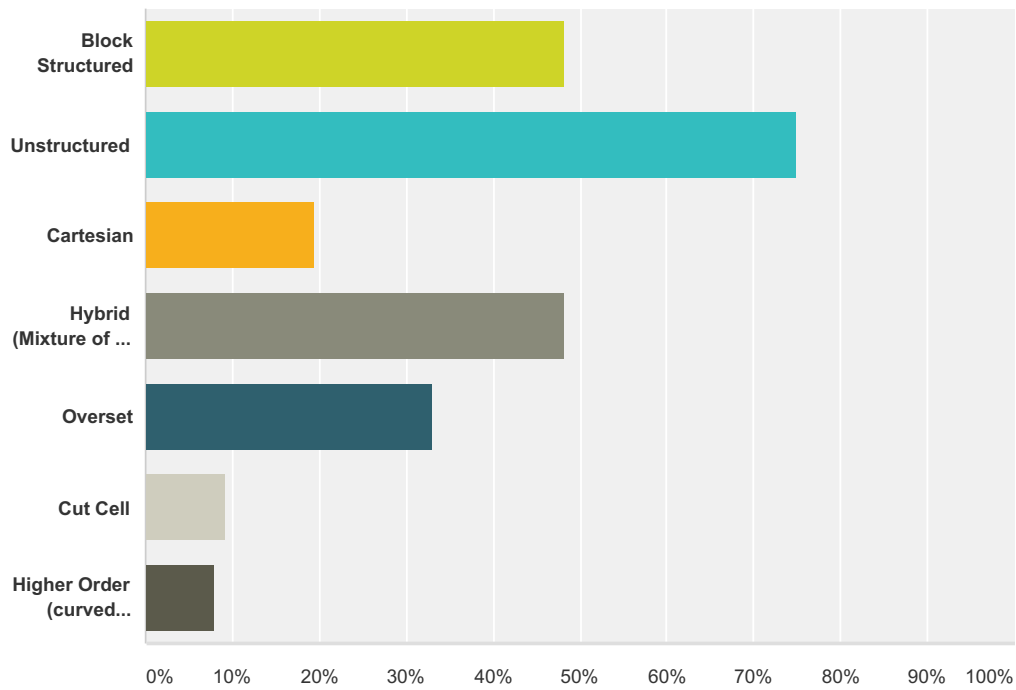
Answered: 165 Skipped: 0



Answer Choices	Responses
Commercial CAD format (UG, CATIA, PRO-E, ...).	60.00% 99
Generic exchange format (STEP, IGES, ...).	90.91% 150
Format unique to your process (in house proprietary, ...).	18.18% 30
Discrete triangulation (STL, ...)	35.76% 59
Other (please specify)	7.88% 13
Total Respondents: 165	

Q8 Which mesh types do you generate on a regular basis? (Please select all that apply.)

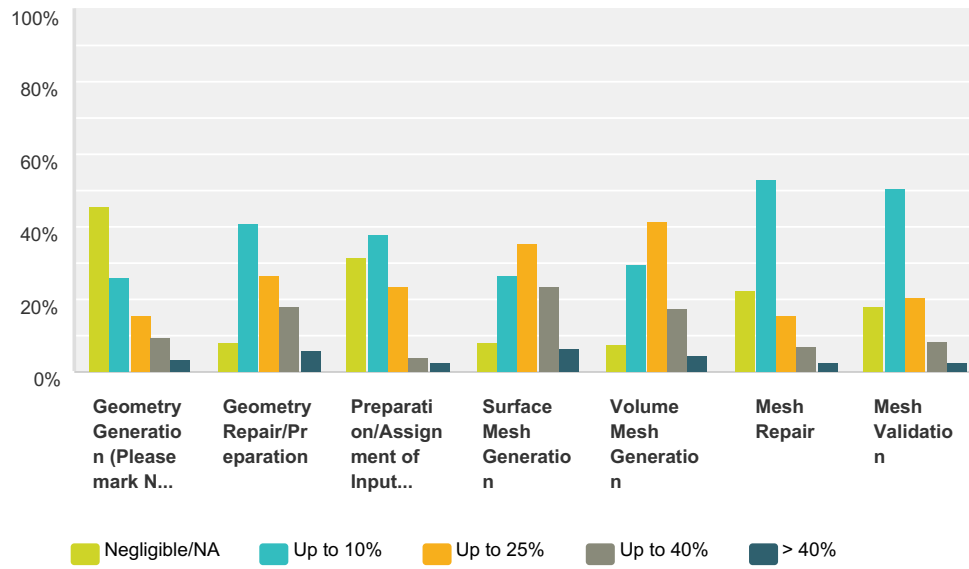
Answered: 164 Skipped: 1



Answer Choices	Responses
Block Structured	48.17% 79
Unstructured	75.00% 123
Cartesian	19.51% 32
Hybrid (Mixture of two or more mesh types)	48.17% 79
Overset	32.93% 54
Cut Cell	9.15% 15
Higher Order (curved elements)	7.93% 13
Total Respondents: 164	

Q9 For a typical first time application on a new geometry model, select the amount of timespent with the following activities, as a percentage of the total amount of time spent geometry and meshing. (Responses may not sum to 100%)

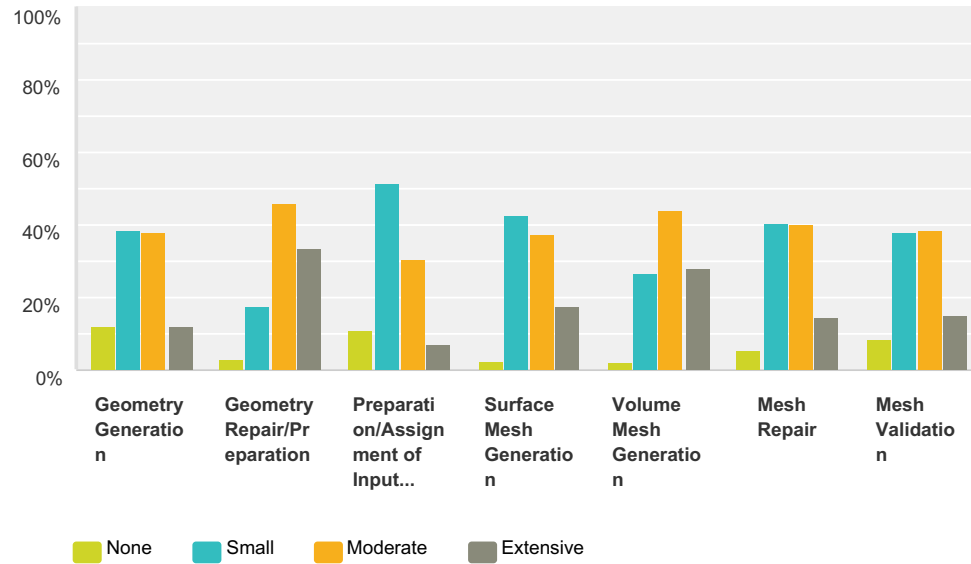
Answered: 163 Skipped: 2



	Negligible/NA	Up to 10%	Up to 25%	Up to 40%	> 40%	Total	Weighted Average
Geometry Generation (Please mark NA if you start with a provided geometry model).	45.34% 73	26.09% 42	15.53% 25	9.32% 15	3.73% 6	161	2.00
Geometry Repair/Preparation	8.07% 13	40.99% 66	26.71% 43	18.01% 29	6.21% 10	161	2.73
Preparation/Assignment of Input Data (e.g. assignment of mesh sizing, or other inputs to the process. Mark N/A if inputs are accountedfor during other activities such as Surface Mesh Generation)	31.58% 48	38.16% 58	23.68% 36	3.95% 6	2.63% 4	152	2.08
Surface Mesh Generation	7.98% 13	26.38% 43	35.58% 58	23.31% 38	6.75% 11	163	2.94
Volume Mesh Generation	7.41% 12	29.63% 48	41.36% 67	17.28% 28	4.32% 7	162	2.81
Mesh Repair	22.29% 35	52.87% 83	15.29% 24	7.01% 11	2.55% 4	157	2.15
Mesh Validation	18.01% 29	50.31% 81	20.50% 33	8.70% 14	2.48% 4	161	2.27

Q10 Based on experience with your geometry/grid process, rate the level of improvement needed in the following areas.

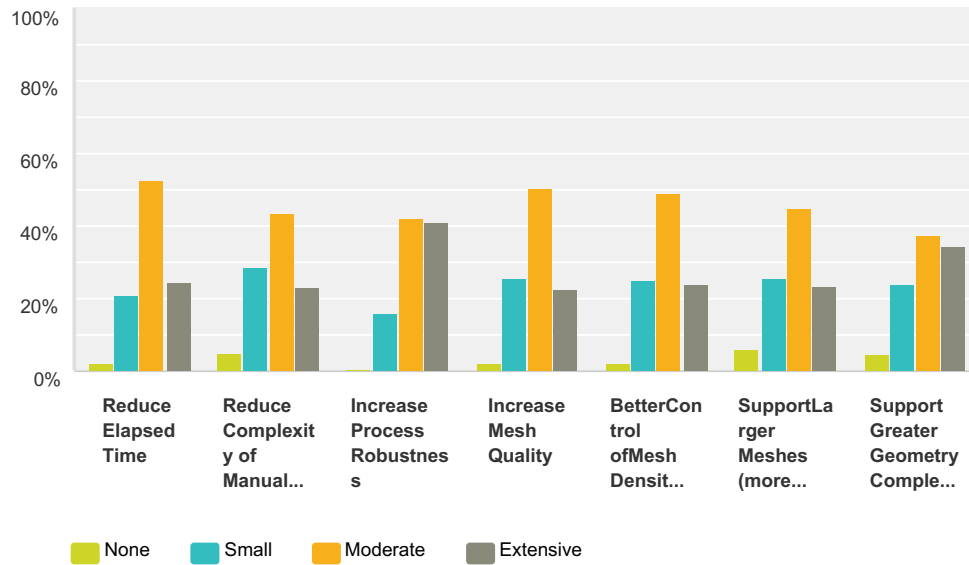
Answered: 164 Skipped: 1



	None	Small	Moderate	Extensive	Total	Weighted Average
Geometry Generation	11.76% 18	38.56% 59	37.91% 58	11.76% 18	153	2.50
Geometry Repair/Preparation	3.14% 5	17.61% 28	45.91% 73	33.33% 53	159	3.09
Preparation/Assignment of Input Data (e.g. assignment of mesh sizing or other inputs to the process)	10.83% 17	51.59% 81	30.57% 48	7.01% 11	157	2.34
Surface Mesh Generation	2.50% 4	42.50% 68	37.50% 60	17.50% 28	160	2.70
Volume Mesh Generation	1.85% 3	26.54% 43	43.83% 71	27.78% 45	162	2.98
Mesh Repair	5.59% 9	40.37% 65	39.75% 64	14.29% 23	161	2.63
Mesh Validation	8.70% 14	37.89% 61	38.51% 62	14.91% 24	161	2.60

Q11 Based on your geometry/grid process, rate the level of improvement needed for the following characteristics.

Answered: 163 Skipped: 2



	None	Small	Moderate	Extensive	Total	Weighted Average
Reduce Elapsed Time	1.88% 3	21.25% 34	52.50% 84	24.38% 39	160	2.99
Reduce Complexity of Manual Input	4.97% 8	28.57% 46	43.48% 70	22.98% 37	161	2.84
Increase Process Robustness	0.62% 1	16.15% 26	42.24% 68	40.99% 66	161	3.24
Increase Mesh Quality	1.86% 3	25.47% 41	50.31% 81	22.36% 36	161	2.93
Better Control of Mesh Density/Distribution	1.84% 3	25.15% 41	49.08% 80	23.93% 39	163	2.95
Support Larger Meshes (more elements/nodes)	6.17% 10	25.31% 41	45.06% 73	23.46% 38	162	2.86
Support Greater Geometry Complexity	4.29% 7	23.93% 39	37.42% 61	34.36% 56	163	3.02