**CATIA Workbench Inventory**

CATIA contains 92 different workbenches. This is a list of brief descriptions explaining what each workbench is designed to do.

* **Infrastructure**
	+ Product Structure
		- *For giving a representation of component structure*
	+ Material Library
		- *Define materials properties to be used in other workbenches*
	+ CATIA V4, V3, V2
		- *Open previous CATIA version’s files*
	+ Catalog Editor
		- *Create and manage catalog components*
	+ Photo Studio
		- *For creating images and simple animations of a product*
	+ Immersive System Assistant
		- *Manage virtual reality systems*
	+ Real Time Rendering
		- *For defining detailed material specifications on a component*
	+ Product Data Filtering
		- *Creating a filtering mechanism (for an exchange process)*
	+ Feature Dictionary Editor
		- *Administrator tool to manage workbenches*
* **Mechanical Design**
	+ Part Design
		- *Generate 3D Models*
	+ Assembly Design
		- *Assemble 3D Models*
	+ Sketcher
		- *Create sketches that can then be used to create 3D models*
		- *Can be accessed form any applicable workbench*
	+ Product Functional Tolerancing and Annotation
		- *Add tolerances and annotations for a product*
	+ Weld Design
		- *Weld assemblies together*
	+ Mold Tooling Design
		- *Designing injection molds*
	+ Structure Design
		- *Create structural designs*
	+ 2D Layout for 3D Design
		- *Combines the Part Design and Annotations workbenches*
	+ Drafting
		- *Create drawings for a project*
	+ Core & Cavity Design
		- *Analyze a mold*
	+ Healing Assistant
		- *Analyze and fix problems with surfaces*
	+ Functional Molded Part
		- *Create parts designed to be molded*
	+ Sheet Metal Design
		- *Simplified version of generative sheet metal workbench design for sheet metal*
	+ Sheet Metal Production
		- *Analyze sheet metal production*
	+ Wireframe and Surface Design
		- *Simplified version of the generative shape design workbench*
	+ Generative Sheetmetal Design
		- *Create sheet metal parts*
	+ Functional Tolerancing & Annotation
		- *Annotation workbench for parts*
* **Shape**
	+ FreeStyle
		- *Create and modify 3D splines and surfaces visually*
	+ Sketch Tracer
		- *Import guide images to be used in other shape workbenches*
	+ Imagine & Shape
		- *Manipulate surfaces and shapes like clay*
	+ Digitized Shape Editor
		- *Modify shapes from a 3D scan*
	+ Generative Shape Design
		- *Create surfaces and wireframes*
	+ Quick Surface Reconstruction
		- *Create surfaces form 3D scans*
	+ Shape Sculptor
		- *Manipulate and sculpt shapes*
* **Analysis & Simulation**
	+ Advanced Meshing Tools
		- *Create meshes of parts for finite element analysis*
	+ Generative Structure Analysis
		- *Finite element analysis*
* **AEC Plant**
	+ Plant Layout
		- *Create a layout design for a plant*
* **Machining**
	+ Lathe Machining
		- *Defining NC programs used for machining 3D cylindrical parts using 2-axis turning and drilling operations*
	+ Prismatic Machining
		- *Managing NC programs using 2.5 axis machining technique*
	+ Surface Machining
		- *Similar to the Advanced Machining workbench, but with only the surface machining features*
	+ Advanced Machining
		- *Create 3, 4, and 5 axis machining operations*
	+ NC Manufacturing Review
		- *Visualize NC machining operations*
	+ STL Rapid Prototyping
		- *Build and manage STL files*
* **Digital Mockup**
	+ DMU Navigator
		- *Modify and handle digital mockup*
	+ DMU Space Analysis
		- *Take measurements form a product or part including length, area, moment of inertia, and collisions*
	+ DMU Kinematics
		- *Simulate assembly movements*
	+ DMU Fitting
		- *Simulate parts moving inside an assembly*
	+ DMU 2D Viewer
		- *Digital mockup for 2D components*
	+ DMU Fastening Review
		- *Annotate fasteners for the automotive industry*
	+ DMU Composite Review
		- *Review a product with composite geometry*
	+ DMU Optimizer
		- *Compute an optimized geometrical representation of data for mockup verification*
	+ DMU Tolerancing Review
		- *Visualize and analyze dimensions and tolerances*
* **Equipment &System**
	+ Electrical Cabling Discipline
		- Electrical Connectivity Diagrams
			* *Create cable diagrams*
		- Conduit Design
			* *Create, modify, analyze and manage physical designs of conduit systems*
		- Raceway Design
			* *Create, modify, analyze and manage physical designs of raceway systems*
		- Electrical Cableway Routing
			* *Rout, delete and modify cable routes*
		- Waveguide Diagrams
			* *Create, modify, analyze and document waveguide diagrams*
		- Waveguide Design
			* *Create, modify, analyze and manage physical designs of waveguide systems*
	+ Electrical Harness Discipline
		- Electrical Assembly Design
			* *Assemble electrical objects*
		- Electrical Part Design
			* *Add electrical behavior at the part level*
		- Electrical Harness Assembly
			* *Create electrical harness assembly*
		- Electrical Harness Installation
			* *Design physical harnesses*
		- Electrical Wire Routing
			* *Manage the definition of electrical wires*
		- Electrical Harness Flattening
			* *Flatten 3D harnesses in order to create associated 2D drawings*
		- Electrical 3D Design Assembly
			* *Create electrical 3D design assemblies*
		- Electrical 3D Design Part
			* *Create electrical 3D design parts*
	+ HVAC Discipline
		- HVAC Diagrams
			* *Create, modify, analyze and document HVAC diagrams*
		- HVAC Design
			* Create, modify, analyze and manage physical designs of hanger systems
	+ Multi-Discipline
		- Equipment Arrangement
			* *Build and manage equipment*
		- Hanger Design
			* *Create, modify, analyze and manage physical designs of hanger systems*
	+ *Preliminary Layout*
		- Systems Space Reservation
			* *Define a space reservation network*
		- System Routing
			* *Design system routing*
	+ Piping Discipline
		- Piping and Instrumentation Diagrams
			* *Create, modify, analyze and document piping and instrumentation diagrams*
		- Piping Design
			* *Creating, modifying, analyzing and managing physical designs of piping systems*
	+ Tubing Discipline
		- Tubing Diagrams
			* *Create, modify, analyze and document tubing diagrams*
		- Tubing Design
			* *Creating, modifying, analyzing and managing logical designs of tubing systems*
	+ Structure Discipline
		- Structure Functional System Design
			* *Create systems (used in ship building)*
		- Structure Functional Object Design
			* *Creating objects (also used in ship building)*
		- Compartment and Access
			* *Create compartments and accesses for ships*
	+ Circuit Board Design
		- *Design circuit boards from a mechanical perspective*
* **Digital Process for Manufacturing**
	+ Process Tolerancing & Annotation
		- *Same as the Product Functional Tolerancing & Annotations workbench in Mechanical Design*
* **Machining Simulation**
	+ NC Machine Tool Simulation
		- *Validate machine setup and tool paths on a digital representation of a physical NC machine*
	+ NC Machine Tool Builder
		- *Build NC machines of the NC Machine Tool Simulation workbench*
* **Ergonomics Design & Analysis**
	+ Human Measurements Editor
		- *Create detailed digital humans*
	+ Human Activity Analysis
		- *Analyze how a human will interact in a working environment*
	+ Human Builder
		- *Create, manipulate and analyze how manikins can interact with a product*
	+ Human Posture Analysis
		- *Analyze all aspects of manikin posture*
* **Knowledgeware**
	+ Knowledge Advisor
		- *Embed knowledge (corporate standards for instance) into a design*
	+ Knowledge Expert
		- *Build up and share knowledge*
	+ Product Engineering Optimizer
		- *Optimize a design structure*
	+ Product Knowledge Template
		- *Capturing the design methodology defined interactivity*
	+ Product Functional Design
		- *Describe the functional systems of a product to be designed and visualized*

**Works Cited**

"Webpages - Workbenches." *Home - SharePoint - Collaboration Workspaces*. Web. 17 June 2010. <https://espace.cern.ch/cad-service/services/webpages/workbenches.aspx>.