TABLE 9.3: Examples of Advances in Process and Manufacturing Technologies

TECHNOLOGY	DESCRIPTION	APPLICATIONS
Standard for exchange of product, model data (STEP)	An ISO standard for representing and exchanging the design and manufacturing-related information of a product in computer-interpretable format.	A Eurofighter designed by four industry partners using STEP technology to exchange product design and manufacturing data.[8]
Computer-aided process planning (CAPP)	The use of computer technology to assist in planning the processes required to manufacture a part or product. Provides a link between product design and manufacturing.	CAPP can be used to link a product's design with the machines and tools used in the production process.[9]
Automated storage and retrieval system (ASRS)	A computer-controlled system that uses various methods for the automatic placement and retrieval of loads to and from specific storage locations within a warehouse.	Automated storage and retrieval systems are useful in situations that require controlled access to high-value and sensitive materials that need be stored and retrieve loads in harsh environments that may be hazardous to workers.[10]
Automated guided vehicles (AGVs)	Electronically guided mobile vehicles are directed by wires or markers embedded on the floor or by radio frequencies, vision, or lasers to move materials in manufacturing, warehousing, and service facilities.	AGVs are used in many industries in the manufacturing sector for efficient, cost-effective movement of materials and for improving operations in many manufacturing facilities and warehouses.