Case Study

CNC FOR INDUSTRY 4.0

Keywords: *CNC, Industry 4.0, Smart Factory*

Background to Case Study

Computer Numerical Control (CNC) is a method of automating the control of machine tools by using software embedded in a microcomputer attached to the tool. The CNC equipment uses a computer program, written in G code, customized for each product. The program contains instructions and parameters for the CNC machine, such as the path, positioning and speed of the tool. CNC systems are integrated with computer-aided design (CAD) and computer-aided manufacturing (CAM) software. The parts is drawing with a (CAD), then the file is translated into G-code and loaded onto the CNC.

This case study presents development of processing technologies on Mazak machines and NC programs by Mazarom.
Mazak has developed SMOOTH technology, a CNC that has the ability to bring the principles of industry 4.0 connectivity, productivity and data analysis.

Introduction to the Case Study and it's growth within Industry 4.0.

The CNC are the representative machines of the Industry 4.0. The introduction of CNCs and design software in factories has irreversibly transformed the way to do production.

Digitization of production leads to increased productivity by reducing the manufacturing time of the product with low costs, which automatically determines a higher profit.

The digitization of companies involves the automation of production and the interconnection of processes in an integrated system that includes human resources, material resources and IT systems.

All these elements of the system must communicate with each other both inside the organization and outside it.

The benefits CNC for Industry 4.0 are: increase productivity at the level of workpieces, greater accuracy and speed, provide flexibility and repeatability.

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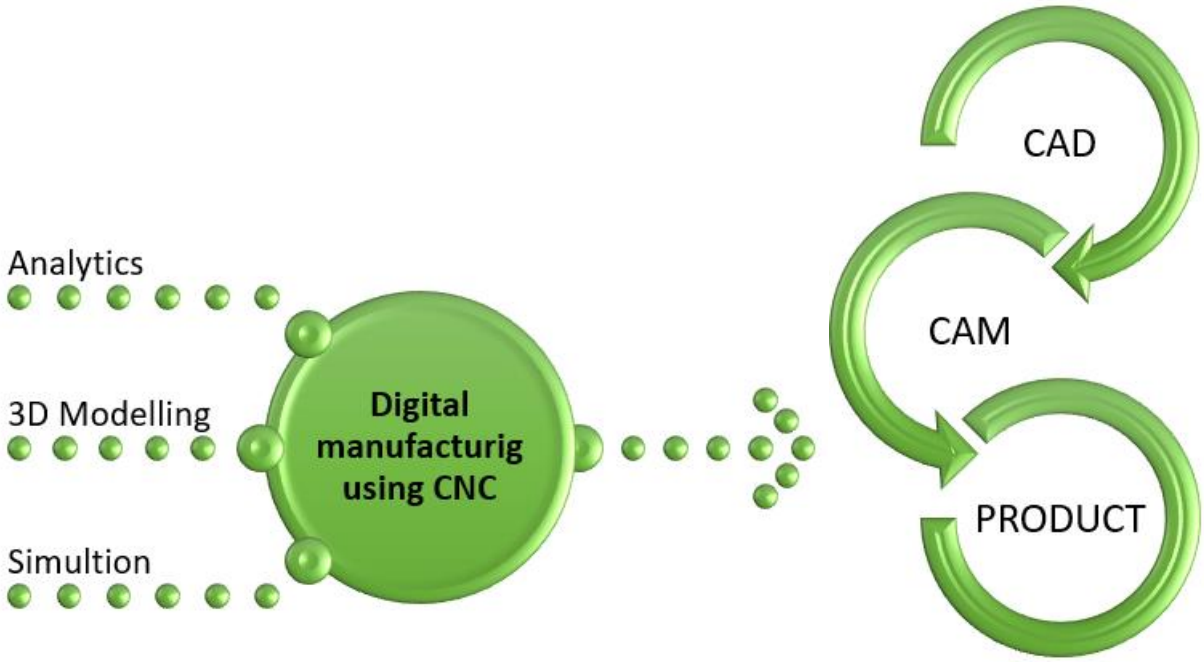
The Case Study and Industry 4.0 Elements: A Pictorial Overview

The components of the digital manufacturing using CNC machines.



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The Element Explored within Industry 4.0 Application. https://www.bosch.ro/ MAZAROM Source https://www.mazarom.ro/	**Mazarom** *Mazarom offers applied engineering services, training and service for CNC machines, hosting two Technology Centers, one in Bucharest and a permanent presentation Showroom, Application Centers, Training and Sales, Service and Technical Assistance for CNC machine tools in Baicoi.* *The company also offers service activities for CNC machines, such as:* *Advice on choosing the right cars* *Installation of Mazak machine tools* *Advice on the choice of cutting tools and cutting regimes* *Service activity during the warranty and post-warranty period of Mazak CNC machine tools.*  *Source:* https://www.mazarom.ro/ro/industria-4.0
Application Target Audience	*The results of the case-study are intended for use by SMEs, entrepreneurs, managers*
Resources Used:	*References* https://www.mazarom.ro/
Further Reading:	"What is Computer Aided Manufacturing (CAM)?," 2019. [Online].

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	Available: https://www.autodesk.com/products/fusion-360/blog/computer-aided-manufacturing-beginners/ . “Getting Started with G-Code,” 2019. [Online]. Available: https://www.autodesk.com/industry/manufacturing/resources/manufacturing-engineer/g-code

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