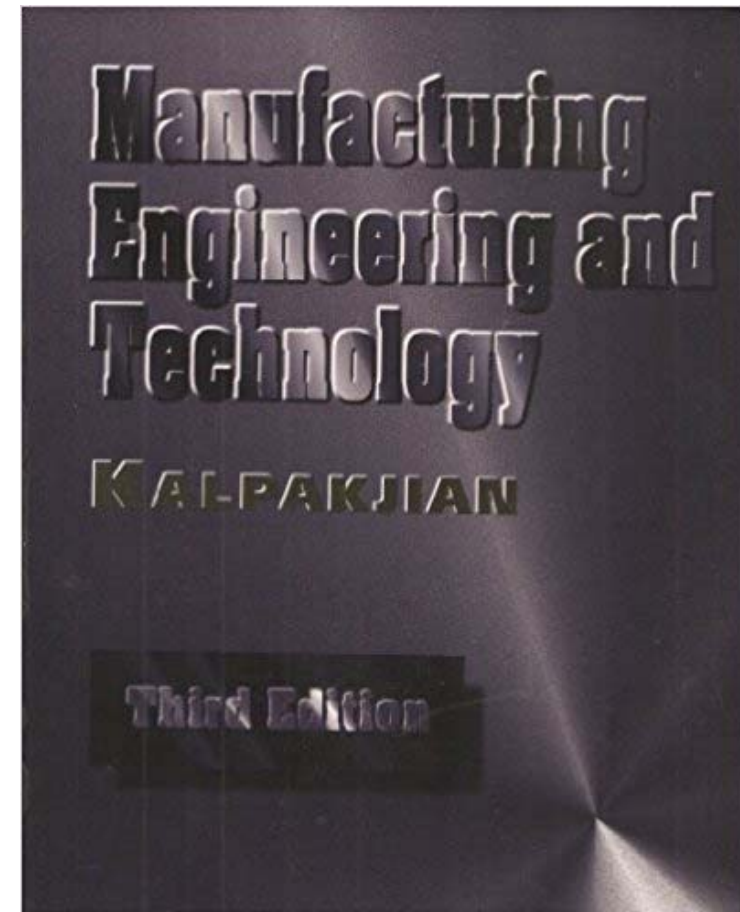
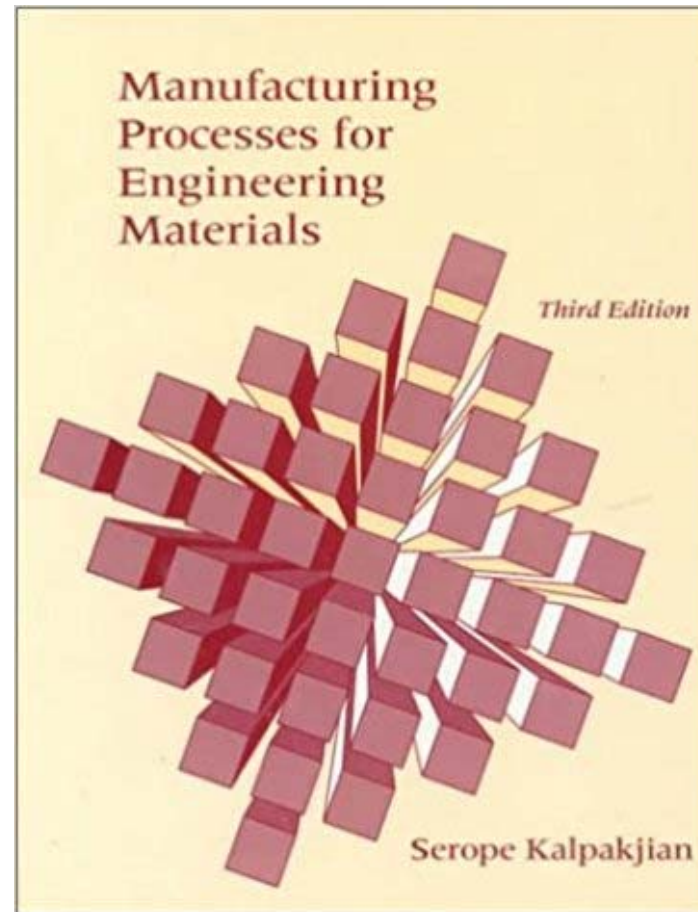


# Blue Sky Talk

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**3<sup>rd</sup>** edition  
(1997, 1995)

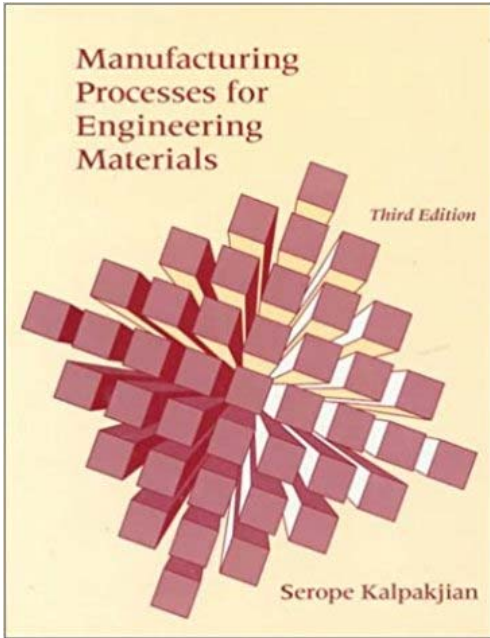


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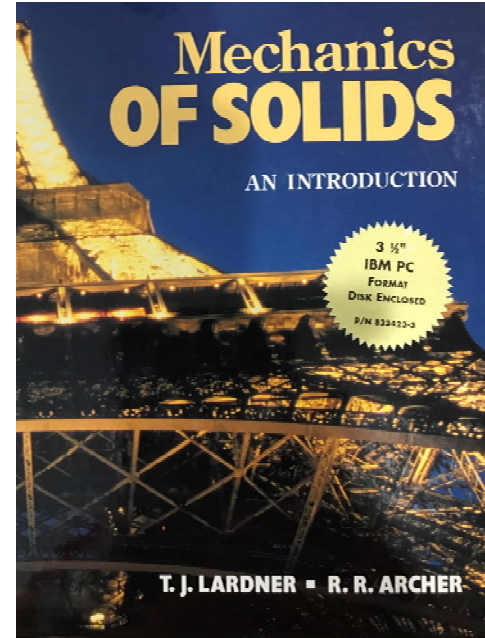
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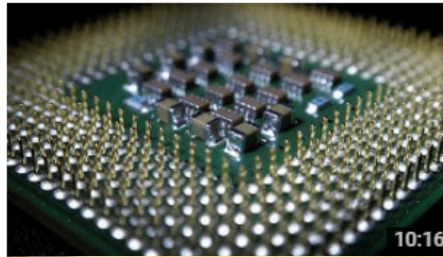


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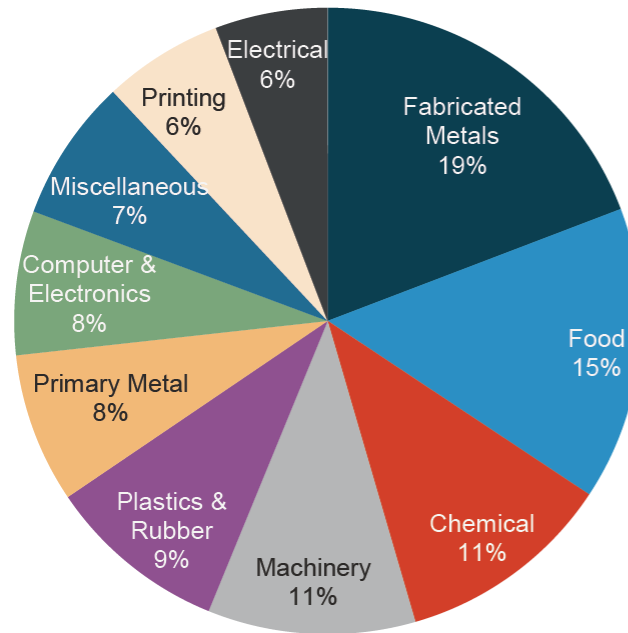
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## Manufacturing companies in Chicago

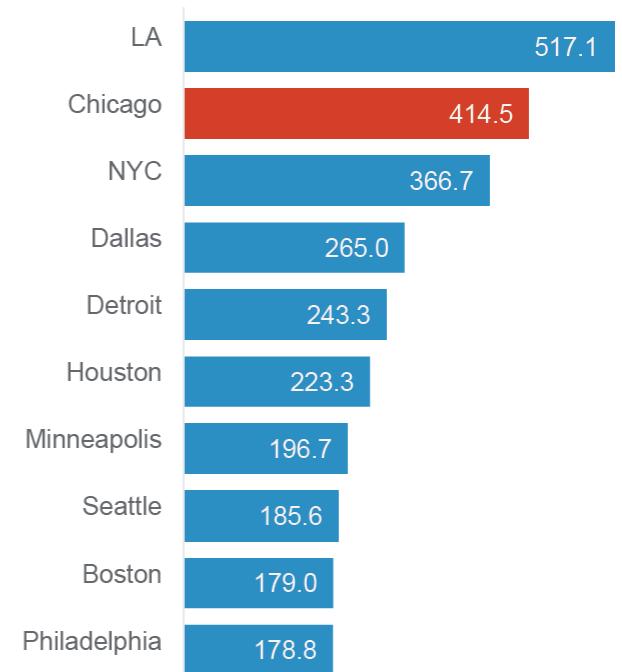
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## Average number of employees per company

Manufacturing 10 Largest Sectors Based on Employment, 2016



Manufacturing Employment, Chicago & Top 10 Metros (Thousands), 2016

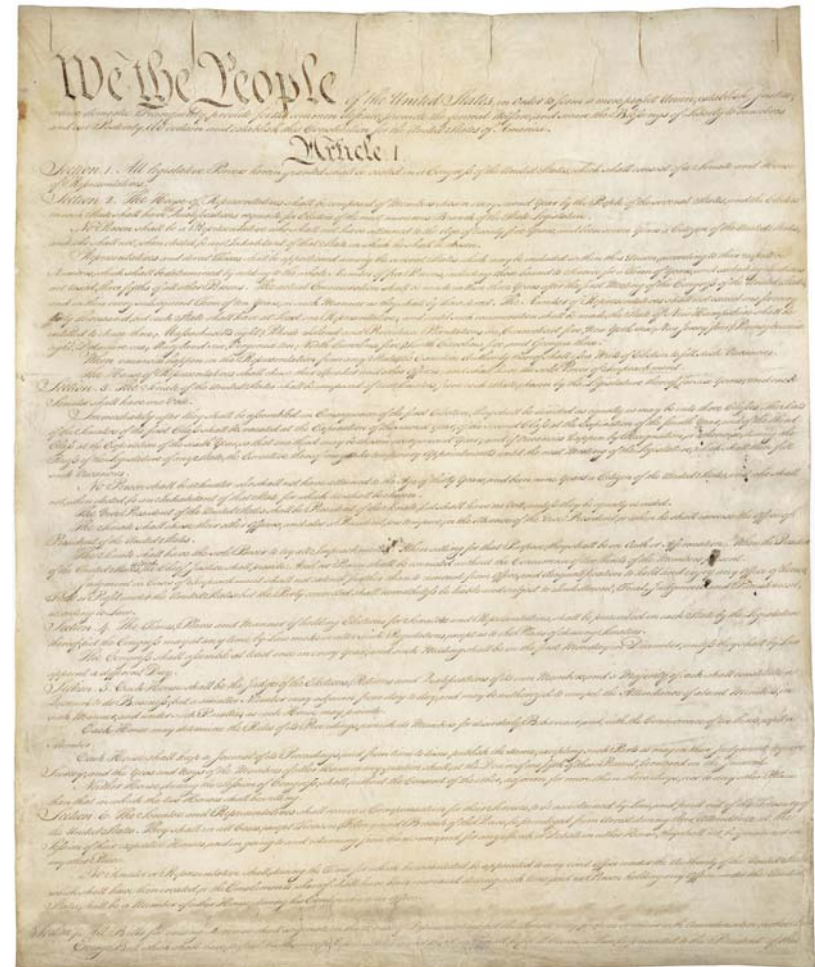


From: World Business Chicago

Can we **SIMPLIFY** the way we  
communicate about manufacturing  
processes?

7,591

words in the U.S. Constitution including the 27 amendments



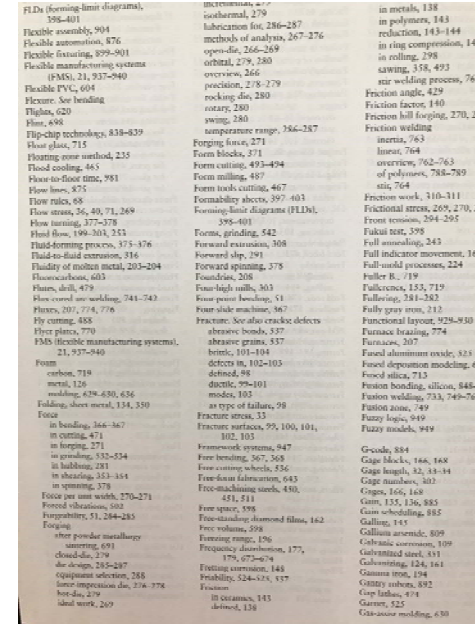
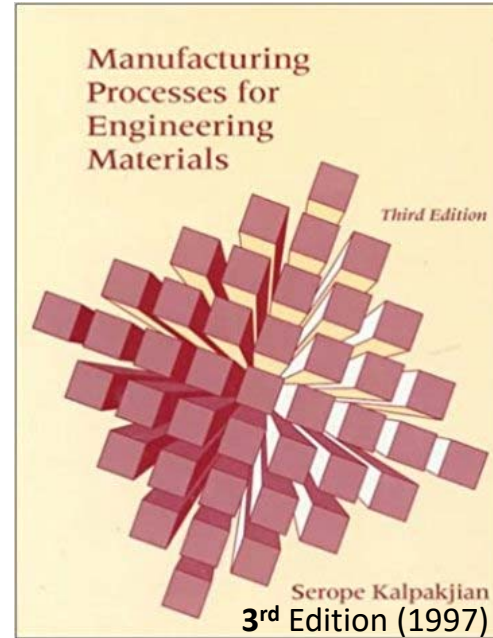
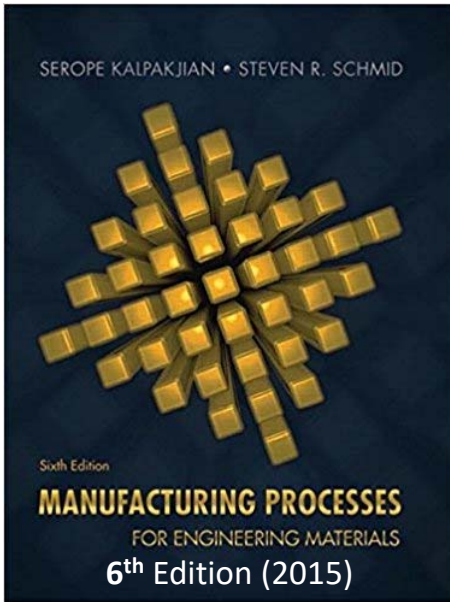


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# Today's Process Selection Status

*No methodology exists to automatically allocate manufacturing processes based on user requirements*

## USER REQUIREMENTS

Geometry requirements  
Quality requirements  
Economic requirements

Etc.



## CYBER-PYSICAL SYSTEM

Manufacturing process knowledge  
Acquired manufacturing data  
Machine and tooling capabilities  
Part life-time performance  
Etc.

# What do we have now?

## 1. Network:

*mfg.com, DMDII, DARPA Open Mfg*

## 2. Machine Diagnosis and Process Control:

*Industrial 4.0, SMII*

## 3. Materials/Structure/Property Simulations:

*Material Genome Initiative*

# BlueSky Idea

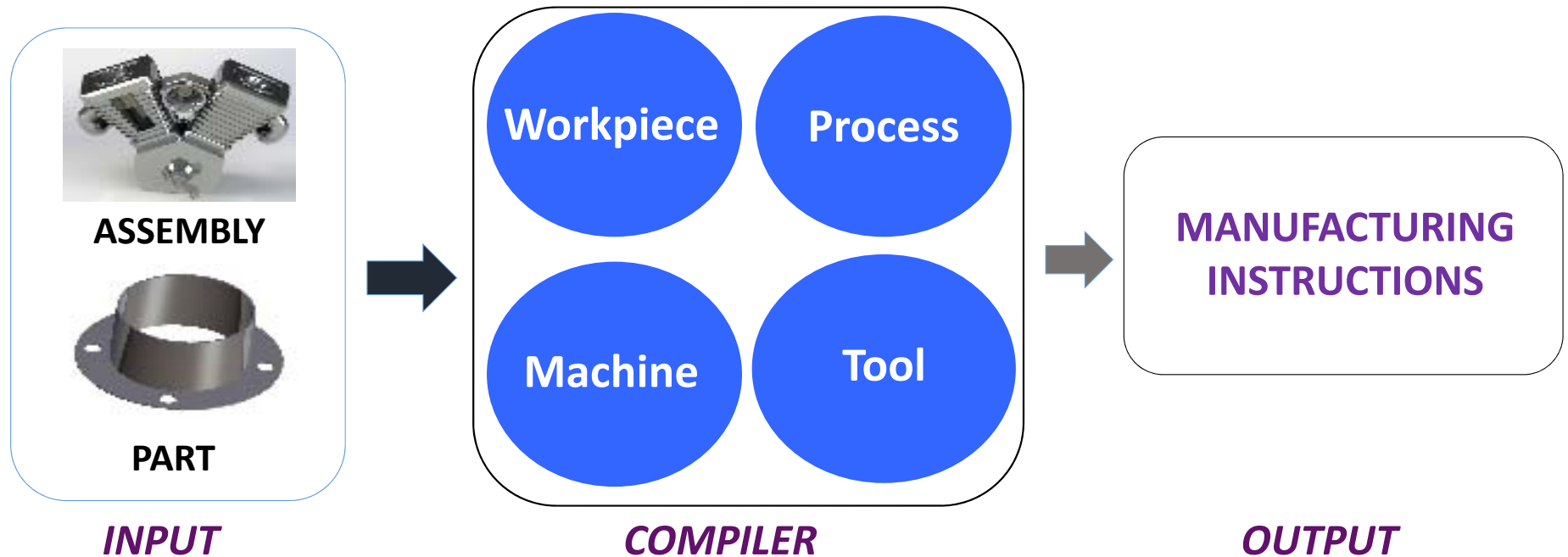
Mfg

Process

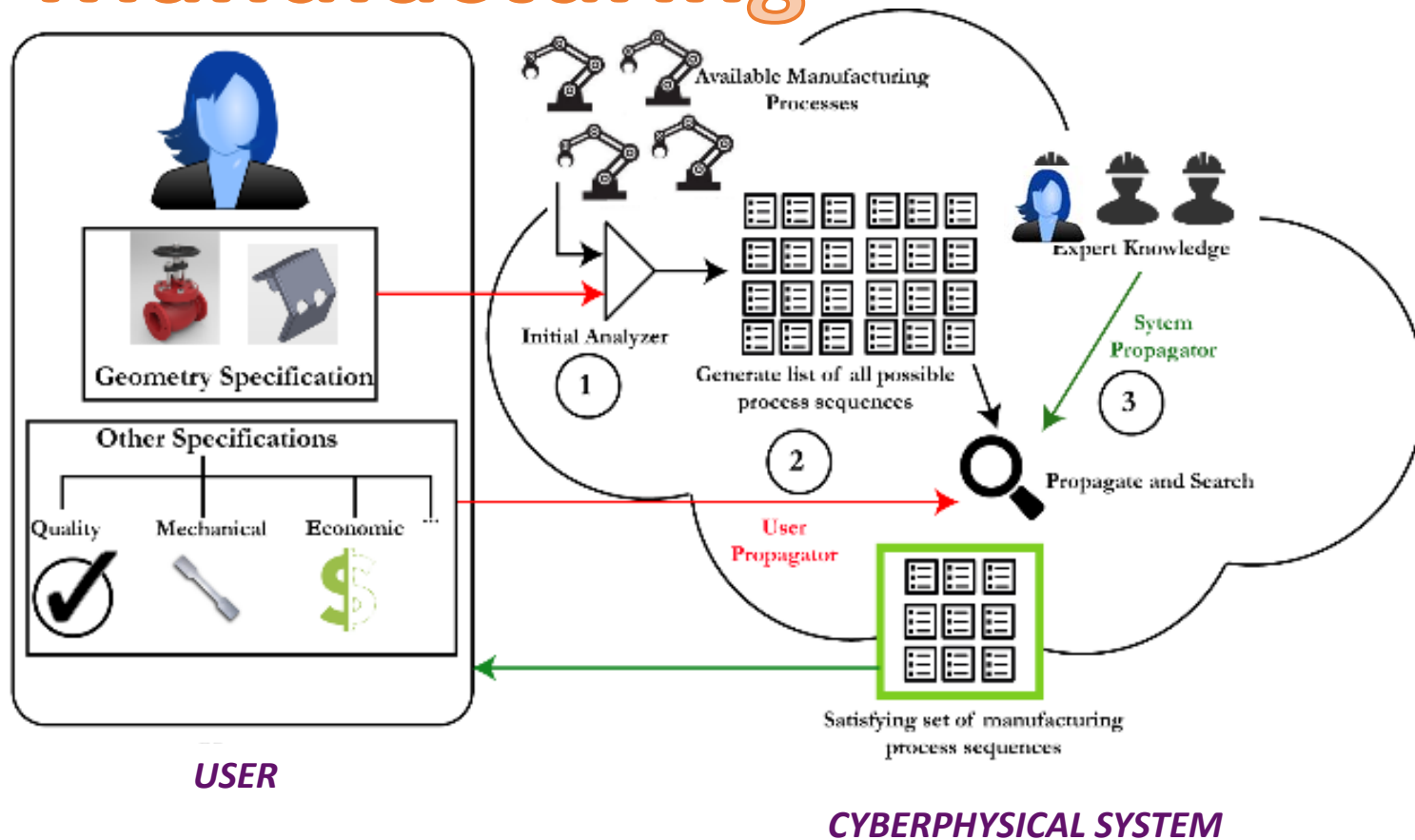
Compiler

# Vision

**Compile/translate the geometric and functional descriptions of a part/assembly into specific manufacturing instructions with the resulting part performance predicted.**



# Uber Manufacturing



**EMPOWER** small businesses

**ENSURE** information flow

**ENRICH** creativity

**Manufacturing Process Compiler**





Thank You

Questions?

Northwestern | McCORMICK SCHOOL OF ENGINEERING

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