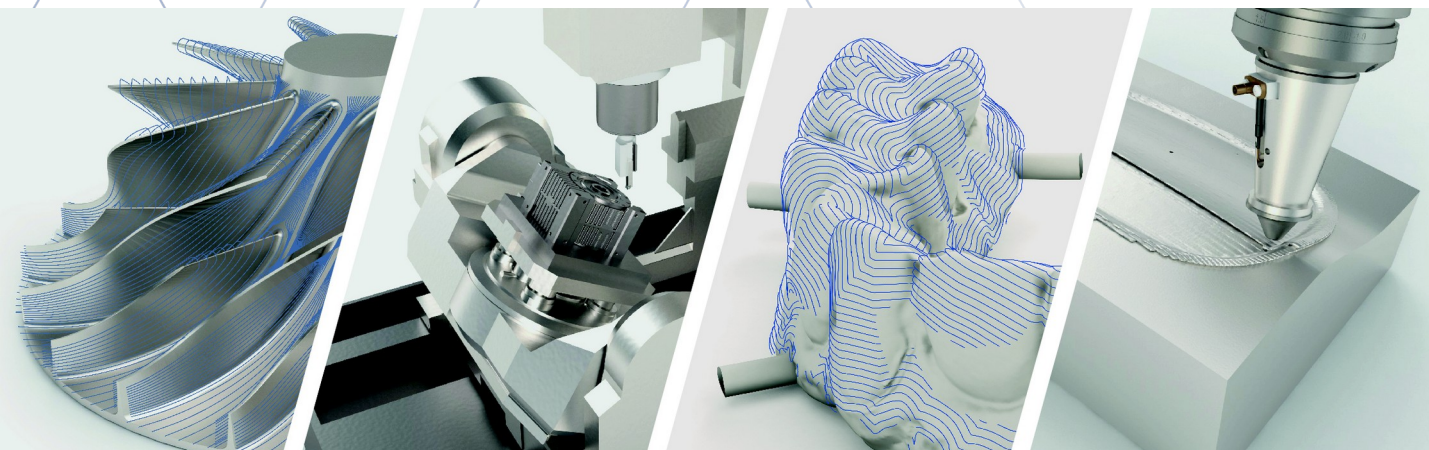


MIC 2022



ModuleWorks

Get There Faster.



Next Generation Shop Floor Programming

NGSP

Sebastian Viebach (Product Manager), Soroosh Eghbali (Head of Business)



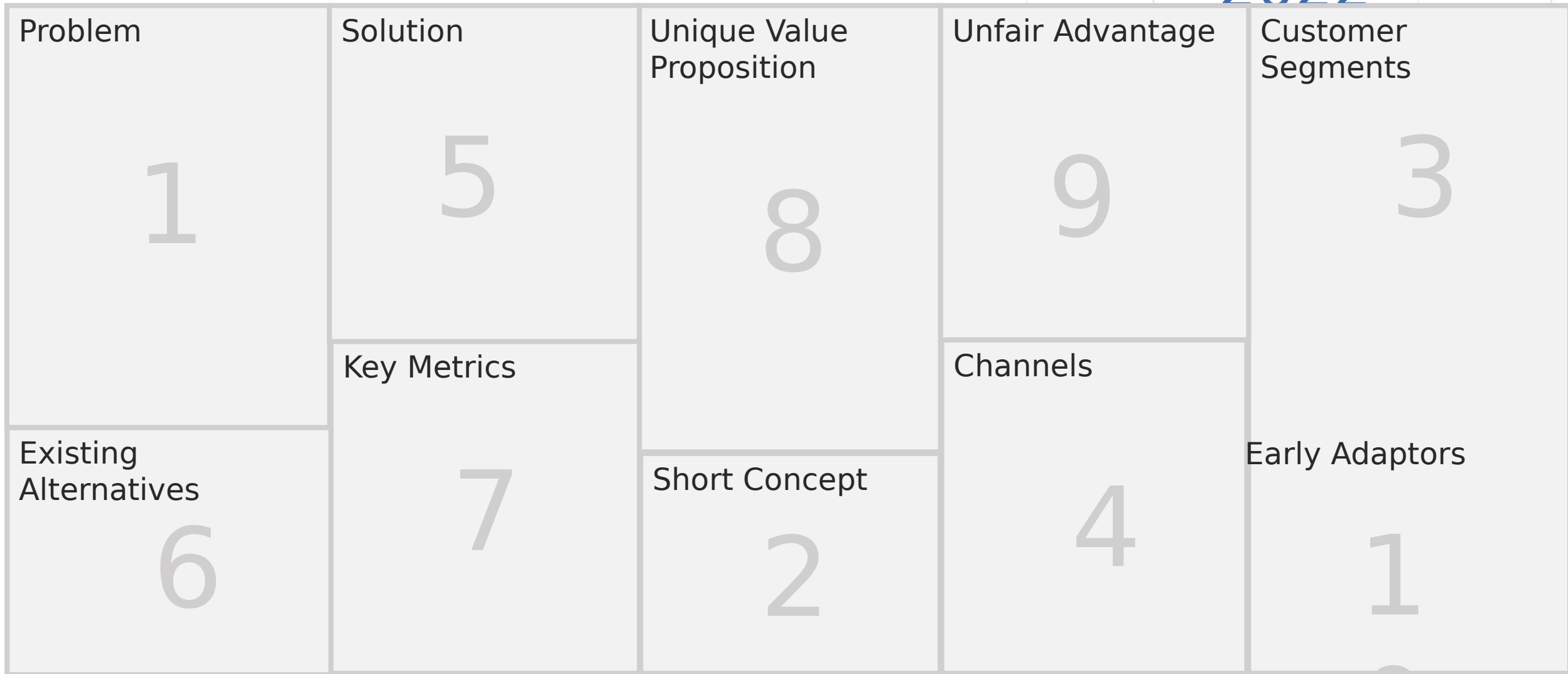
Soroosh Eghbali

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Sebastian Viebach

Product Manager
sebastianv@moduleworks.com



0

Evolution in Manufacturing

Preparing



Manual Mills



3-Axis



5-Axis



Multi-Tasking

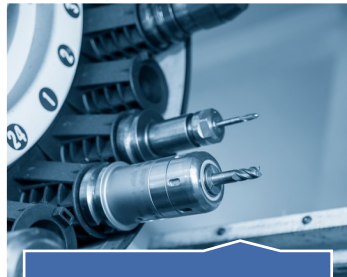
Processing



Tool



Clamps



Tool Magazine



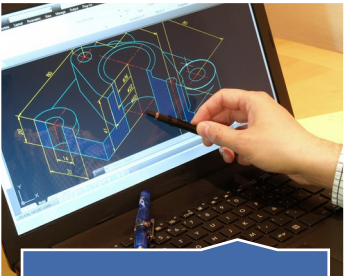
Automated Setup



2D-Drawing



CNC



CAD/CAM



Multi-Axis CAM



BABY BOOMER

1955-1964

GEN X

1965-1980

GEN Y

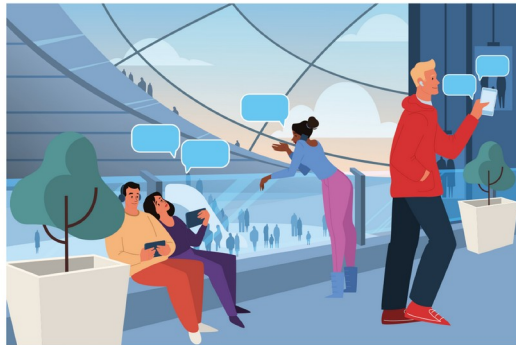
1981-1996

GEN Z

1997-2012



Consumer Buying Behavior – Next Generation

MIC
2022**SILENT GENERATION****BABY BOOM GENERATION****GENERATION X****MILLENNIALS****GENERATION Z****GENERATION ALPHA**

What about the evolution of on-control programming?

MIC
2022



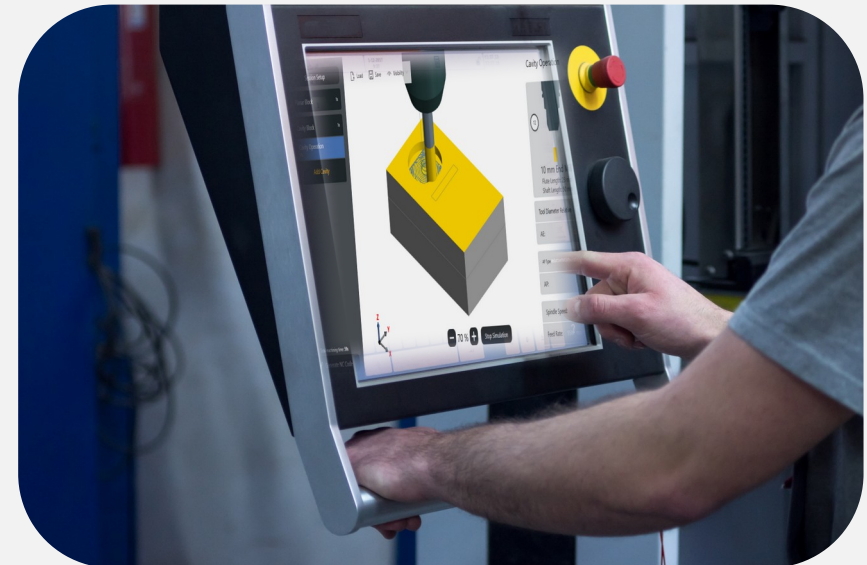
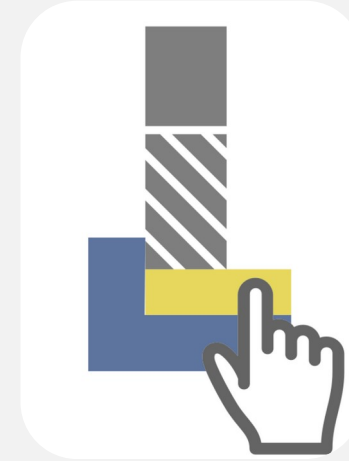
Are the current On-Control programming systems matching with state-of-art technologies, and the Next Generation consumer behavior and expectations?



Next Generation Shop Floor Programming (NGSP)

ModuleWorks NextGen Shopfloor Programming is an innovative and **highly automated embedded machining solution for on-control programming** on the shop floor.

NGSP benefits **Machine Tool Builders and Controller Manufacturers** who want to deliver technology leadership and gain differentiation by offering a smart, automated programming solution that integrates seamlessly into their product.





Next Generation Shopfloor Programming

Session Setup

Planar Block 1x

Cavity Block 1x

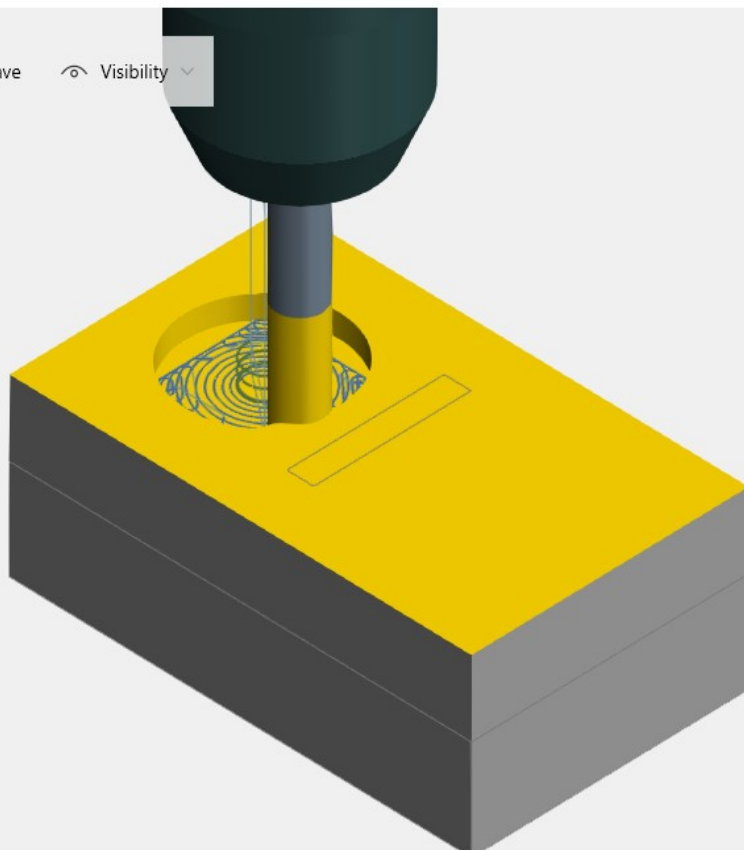
Cavity Operation 47s

Add Cavity

Total machining time: 59s

Generate NC Code

Load Save Visibility



70 % Stop Simulation

Cavity Operation

12

10 mm End Mill

Flute Length: 23 mm

Shaft Length: 50 mm

Tool Diameter Relative ☒

AE: 25 %

AP Type RelativeToFluteLength

AP: 20 %

Spindle Speed: 5000 rpm

Feed Rate: 5500 mm/min

Plunge Feed Rate: 900 mm/min

NGSP – Metrics

NGSP

Conversational

Confirm
Cycles

3D-Feature
Detection

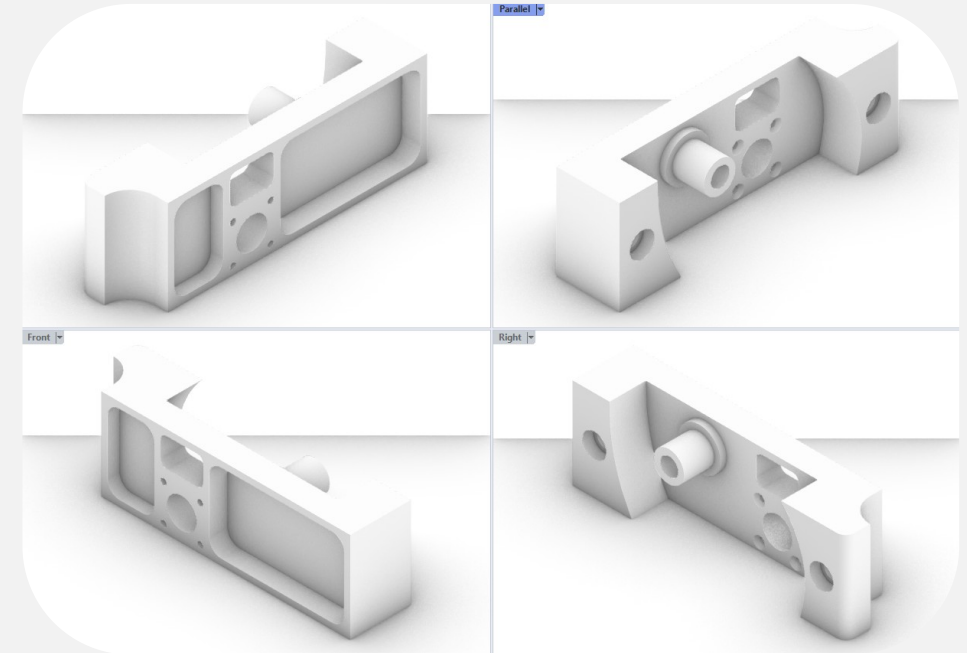
Edit Settings

Create Cycles

2D-Contour

- ✓ ~ 5-min (beginner programmer)
- ✓ ~ 3-min (average programmer)

- ☐ G-Code/ISO Programming
- ☐ Conversational on-control Programming
 - ~ 20min (expert programmer)



70% faster than
conventional
programming

NGSP – Value Propositions

MIC
2022

Cost



Time



Quality

Reduced
Programming &
Machining Time

Less Training

Consistent
Programming
Output

Machining
Feature
Detection

Built-in Machining Knowledge
Intelligence

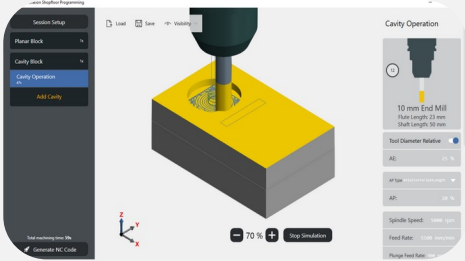
State-of-Art Manufacturing Technology



Problem



Solution



Unique Value Proposition

Cost

Reduced Programming & Machining Time

Machining Feature Detection

Time

Less Training

Built-in Machining Knowledge Intelligence

Quality

Consistent Programming Output

State-of-Art Manufacturing Technology

Unfair Advantage

Unique position of MW as single source provider

Customer Segments

Manufacturing Organizations

Machine Tool Operators

Key Metrics

70% faster than conventional programming

Channels

CNC/MTB

Early Adaptors

YOU (co-working & evaluating partners)

Existing Alternatives



Short Concept





Thank you for your attention

NGSP - Roadmap



MIC
2020

2.5 D machining

Benchmark shop floor systems
Add missing functionality

- Fine boring
- Thread milling
- Slotting enhancements
- T-Slotting
- Touch Probe functionality

Intelligent Programming

Reduce number of interactions

- Create multiple operations automatically
- Select fitting tools automatically
- Select cutting parameters automatically
- Reordering of operations to reduce tool changes

Turning

Introduce NGSP Turning

- OD/ID Machining
 - Threading
 - Grooving
 - CutOff

3D Machining

3 Axis 3D Machining

- Constant Z
- Constant Cusp

Connection to CNC machines

Reuse machine database

- Tools
- Machine geometries
- Cutting Data

Optimise Program by Machine Data

- Spindle Load
- Axis Load
- Spindle Vibrations



ModuleWorks

Get There Faster.

www.moduleworks.com
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