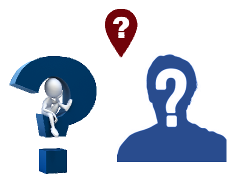
What should I know before I buy?

To be able to select the CAM Package which is right for you and/or your Organization, you need to honestly ask some important questions about the Organization, yourself, and the Intended Use of the CNC.

We will explore these questions one by one. After all, making a good decision is about having reliable information.



Q1: WHY should I buy CAM?

Because Math is hard!

CNCs are driven with, at the very least, complex instructions. Sometimes, these instructions are proprietary and/or encrypted! Making it almost impossible for anyone to "program by hand", or without some kind of assisted technologies.

We use CAM as a Calculator of sorts: We pay someone to do the math for us.

$$\oint \mathbf{B} \cdot d\mathbf{s} = \mu_0 I + \varepsilon_0 \mu_0 \frac{d\Phi_e}{dt}$$

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; ----------------------------
; FRESA COME LAMA FORZO IL RAPPORTO DIMENSIONALE
N620 P123=RDM("PUNTA","300","DiamLenRefRatio",-1,1)
:IF (RDM("ERR"))
; DATO NON PRESENTE
:ELSE
N630 RDM("PUNTA","300","DiamLenRefRatio")=5
:ENDIF
N640 PAA=1 PAY=1
N650 PAN=1 UT=0 ST1="" QX=-40.448 QY=183.176 QZ=-180.0 QAX=-27.748
; MOVIMENTO AL PUNTO DI LAVORO PORTANDO IN SICUREZZA
N660 AX=X,Y,Z,C,B TRZ=0 TP=1 G179 FX=100 FY=100 FZ=100
; CALCOLO CAM IN SPINDLE POINT
; ORIENTAMENTO IN MOVIMENTO
N670 G1 G300 Z=-199.0
N680 G1 G300 G280 X=QAX Y=QAY C=245.001 B=90.0
N690 PANC=245.001
N700 X=QAX Y=QAY G1 G300 G280 FX=100 FY=100 C=PANC B=90.0
N710 TRSX=12.7 TRSY=12.7 TRSZ=-LPZ ; DATI DELLA TRASLAZIONE
N720 ROTX=0.0 ROTY=0.0 ROTZ=0.0 ; DATI DELLA ROTAZIONE ASSI
N730 G81 ; ATTIVO ROTOTRASLAZIONE
N740 G1 G300 X=QX Y=QY Z=QZ
N750 M41 ; SINCRONIZZO COMANDI SU TP
; GEOMETRIA DEL TAGLIO
N760 G1 ZI=30.0 F=5.0
N770 G1 ZI=(PLPZ+4.0)
N780 G1 XI=211.026*PAA YI=452.567*PAY F=4.0
N790 G1 G300 ZI=-(PLPZ+4.0) FZ=5.0
N800 G1 G300 ZI=-30.0
  ;USCITA DAL PIANO ROTOTRASLATO
N810 G82 ; X=X ;RESET PIANO ROTOTRASLATO
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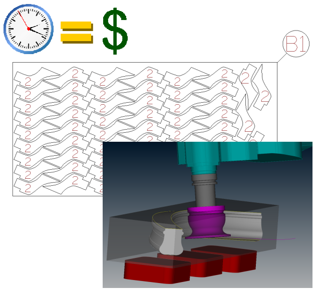
Q1: WHY should I buy CAM?

The answer is short:

PRODUCTIVITY!

Programming CNCs is something that can take a significant amount of time. Long are the days when we used to program 20 drills, one toe kick and a dado/groove.

This problem is exacerbated by things such as Nesting and 4/5-Axis machining which makes it unrealistic for a person to try to produce these optimized results quickly, accurately and reliably.



Q2: Should I be the person driving this?

Realize early on that CAM (and CAD) are Computer-Assisted technologies. This means that you will have to spend a significant amount of time in front of a PC and not in the Shop. This also means that you will be expected to be a reasonable computer User.

Be honest with yourself if this is not your cup of tea, you must select a package which handles all aspects of the Design (CAD) and Fabrication (CAM) Automatically. You may also choose to pass this responsibility to someone else!

•Are you this guy?

•Are you this lady?

Q2: Should I be the person driving this?

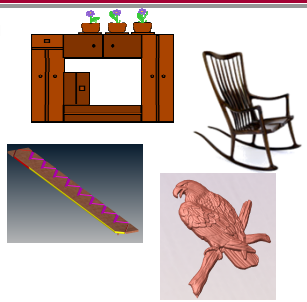
Keep in mind the following:

The Hardware itself must be reliable, accurate and flexible enough for your needs, but the programming of the CNC (CAD/CAM) software is where you will spend MOST of your time.

If the Machine is working properly, then the challenges and day-to-day rewards (or frustrations) fall into the category of Software and Talent, not on the Hardware.

Q3: What am I making with the CNC?

This is a very important question, because it will drive all aspects of the acquisition, from selecting the right CNC machine, to the Design Software (CAD) to the Manufacturing Software(CAM).



Once again, you must be honest:

- Are you interested in "pushing the boundaries" of the CNC, or will simple Casework suffice?
- Is the CAM specialized for a specific Industry/Application like Stairs, Furniture?
- Does it do Everything I need it to do?

Q4: Is this CAM Software Machine-Specific?

You must ask the questions: What happens if I switch CNC Brands? Do you have Multiple CNCs to deal with?

You may have HUNDREDS of hours invested in your designs as well as the time it took for you to CAM them. Adding to the heartburn is the time and training you invested in Mastering your CAM System.

Will all this investment go away if I buy a new/different CNC, or can my CAM System effortlessly transition to a new system?

Q5: What the heck is a Post-processor?

A Post-processor is a LINK which TRANSLATES the milling-drilling-routing-sawing instructions you see in your CAM Screen into machine-specifc motion.

If you are getting the CAM from the Machinery OEM, then this is typically not an Area for concern. If, however, if you are independently shopping around for CAM, you must be VERY vigilant of these facts:

- Is the transfer of data from CAM to Machine seamless? Do I have to change anything?
- Are the instructions given to the machine taking FULL Advantage of the machine's capabilities?
- Are we controlling the machine with Best-Practices?

Q6: What kind of training and support is available?

The best software in the World, is only as good as the person behind the clicker.

Ask:

- How long is your introductory Course?
- What is the Cost per person?
- Do you offer Regional Training?
- What is the support policy and available hours?

Q7: How much is this system?

CAM Companies, like any other company, are in business to create revenue.

Your job is to answer the very difficult question of what is the VALUE of the tools you are being sold, as they relate to your business.

A "free" software package may be the most expensive thing you will ever buy. Time is the most scarce resource we have. Conversely, a really expensive package, may not address all aspects of your fabrication needs.

Q8: Can I DESIGN in it, or is this only CAM?

The reality is that most packages you will find today on the Market, including many Vendors with important presence at AWFS, already have a CAD Interface.

You may choose to buy a particular CAD/CAM System and basically ignore or minimize the use of their Design Features.

Additionally, you may choose to buy a CAD/CAM System for it's Batch-Processing and Automation capabilities.

Show me where my Money is going!

Demo! Demo! Demo!

Hopefully, after asking yourself the previous questions, you will have narrowed it down to 2/3 Candidates. What now?

Ask for a Demo! Make the Software Sales staff show you how their solutions will work for you. Whenever possible use your OWN files/ideas.

Only by asking for a real-life demo will you know what truly is involved in Fabricating your designs and sending them to the CNC!

It's NEVER too late!

Going back to where we started… Time IS Money!

A tremendous mistake I always see is that people forget to challenge the Software Maker. If there is something you don't like, or you think is taking way too long to accomplish, SEEK a better solution!

Just because you've been using a package for 5 years doesn't mean that you shouldn't ask the questions in this presentations every 3-5 year cycle.

Labor is the most expensive thing. Software Labor is even more so.

Questions Anyone?

Time to grill the Presenter!

Some Useful Links

Conducting my research for this Presentation, I ran into a few links that are a good source of information, to help you go deeper into the Question of CAM:

http://bobcad.com/how-to-choose-a-cad-cam-system/

https://www.hypertherm.com/en-US/learn/cutting-education/understanding-cadcam-software/considerations-when-choosing-a-cadcam-nesting-software-solution/?region=NART

http://www.woodweb.com/knowledge_base/Selecting_the_Right_CAM_System.html

http://m.americanmachinist.com/cadcam-software/justifying-investment-cnc-technology

Specific CAM Suggestions

If you are looking to Process Solid Files, you may want to consider:

- Alphacam
- MasterCAM
- Solid-CIM
- SolidCAM/HSM

If you are planning on 'Artistic' or 'Carving':

- Alphacam Art / Vetric's Aspire
- ArtCAM
- MasterCAM Art
- EnRoute

If you want to batch-process DXF Files, perhaps from a Cabinet Design Software:

- Alphacam
- MasterCAM
- EnRoute
- ArtCAM Insignia

If you need PARAMETRIC CAD/CAM and or API:

- Alphacam
- MasterCAM