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Who Controls the Tools in Your Company?

A candid discussion of tool management

By Martin Plute,

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For additional information or literature

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Atrocities In the Tool Crib

Believe it or not, but in many of today's tool crib operations, the control of tooling inventories and their use is maintained by many manufacturers not too differently than what Henry Ford demanded for building his famous Ford Tri-Motor transport airplane in the 1930's. Do not take that as a compliment, nor believe that it is too absurd to be true today.

Today in North America nearly 450,000 manufacturing operations flourish. Add in the rest of the industrialized world and the total may be more than 1.3 million facilities. How many of those operations employ a modern tool management system? Less than 2% in the United States and less than 1.5% in the entire world -- *that many you say*. What makes this statistic even more staggering is the fact that tooling remains the third largest cost in a metalworking manufacturing facility. Conservative figures estimate yearly consumable tooling purchases exceed \$4 billion nationally. I have not seen any figures for worldwide, but a WAG -- \$15 billion and the cost of tooling is not descending.

Many manufacturers will claim they are in control of their tools. A few quick questions will point out how in control they are. Ask what the is current value of the tools in their tool crib, the value of tools in use on the shop floor, where any particular tool is in use at the present time or what was the cost of tools issued, returned, scrapped or reworked from any job running in their shop. If they answer, you can bet it's a guess. However, to be fair, let them show you some proof to back up their answer. You say nobody can answer those questions without doing some research! Right, in two keystrokes or the double click of a mouse button, an ITC TLC customer could call up the Job Status Costing screen and answer the question concerning the cost of issued, returned, reworked and scrapped tools for any job currently running in the shop, or he could request a Tool Status and tell you where any one of those tools are in use on the shop floor, or if it is in rework or in the tool crib or if they are on order and finally, they could run a total inventory review and give you the cost of all the tools in the crib or on the shop floor, or both, and by consumable, durable, assembly or gage/inspection classification. So I would not wait more than a couple of minutes for the answer to those questions.

What is Tool Management About?

Before we get to far, get a definition or picture in your mind of what is tool management. Your position and functional responsibility in the company and your involvement with tooling will have a lot to do with this definition. In fact everyone in the company will slant their definition accordingly. I am not going to help you much with this definition today. However, let's say, it's knowing where your tools are, what they are being used for and *it is knowing this little bit of information all the time*. I equate tool management with discipline, and how competently you can handle routine simple computer operations. Both are recognized roadblocks on any shop floor. Now throw into this mix the capability of monitoring tool usage, planning for tool availability and timely reordering of tools; you should now hold your ears, because the bellowing from the various managers who are worried about losing control of the tool budget, will be deafening.

The following sample reports serve to indicate the information that can be recorded from the tool crib attendants simple issue of tools to the shop floor and the return of those tools.

EXAMPLE OF A TOOL MANAGEMENT REPORT

- - - - - T O O L S T A T U S R E P O R T - 06NOV94

Tool #: ADRILL Description: A (.234D) (Tool On Order)
 DRILL 2-5/8 FL 3-7/8 OAL Type: Perishable - Returnable
 Reorder Point: 12 Unit cost: 1.650
 Auxiliary ID: DRIL Dim1: .234000 Dim2: 2.62500

Location		Qty	Value
CR14 02	Primary/New	9	14.85
ST12 02	Second/Used	0	0.00
	Total	9	14.85

In-Use At					
Machine	Job	User	Qty	Date	Value
A2377	956-C	9897	1	3MAY94	1.65
B2445	4234-A	PRESET	2	1NOV94	3.30
E8771	655-L	3112	1	29OCT94	1.65
		Total	4		6.60

Reserved					
for Machine	Job	User	Qty	Date	Value
A7112	877-B	*	1	4NOV94	1.65
C238	656-A	7091	1	30OCT94	1.65
		Total	2		3.30

Rework Dept.	Qty	Value
ACMETL	1	1.65
TOOLRM	5	8.25
A-54	3	4.95
Total	9	14.85

ACTIVE INVENTORY REVIEW 31MAR94

Tool #	Description	Mach #	Job #	User #	Date	Qty
CNGA432	1/2IC,80DIAMOND CARBIDE INSER	1045	654321	100000	17MAR94	2
CNGA432	1/2IC,80DIAMOND CARBIDE INSER	123456	654321	098765	17MAR94	1
CNMG432E	1/2IC,80DIAMOND CARBIDE INSER	1045	654321	100000	17MAR94	2
CNMG432E	1/2IC,80DIAMOND CARBIDE INSER	123456	654321	098765	17MAR94	1
CNMP432E	1/2IC,80DIAMOND CARBIDE INSER	1045	654321	100000	17MAR94	2
CNMP432E	1/2IC,80DIAMOND CARBIDE INSER	123456	654321	098765	17MAR94	1
CNMS432E	1/2IC,80DIAMOND CARBIDE INSER	1045	654321	100000	17MAR94	2
CNMS432E	1/2IC,80DIAMOND CARBIDE INSER	123456	654321	098765	17MAR94	1
MCLNL165	NEG, 5LEAD,1SQ,80DIAMD INSR TTL	1045	654321	100000	17MAR94	1
MCLNR165	NEG, 5LEAD,1SQ,80DIAMD INSR TTL	1045	654321	100000	17MAR94	1

Setting up a control procedure for your tooling is equivalent to drawing the battle lines in a turf war. Except, in this case, it is a war for the tooling budget dollars. You say there is no budget for tooling, which is why I say it should be controlled. You are spending money for tooling every day, budget or no budget, justification or no justification. If you aren't, then you're not manufacturing anything.

Beginning to get the idea that this is about money, as much as it is about tools. Why would every tool distributor and tool manufacturer love to be your sole source for tooling? Answer: He wants to be your partner and help you improve your manufacturing presence. Every tool manufacturer or distributor now has a program for purchasing tooling that will save you tremendous amounts of money. A new name is appearing almost daily for these purchasing programs, for example: Full Service Supply, Integrated Supply, Sole Source Supply, Supply Chain Partnering, to name a few. Do these new tool-purchasing programs benefit your use or management of tools on the shop floor or just how you go about the purchasing function?

**ON ORDER Report
By Requisition/P.O.**

31MAR94

Tool	Description	Vendor	Requisition or Order Number	Order Date	Due Date	Order Qty	Rec'd Qty	Bal Due		
UNI1SOLIDHOLDR	1.0" 4.0"NOSE	SOLID UNIVERSAL HOLDER	DOWTY/UNIVERSAL	090221-TLC1	30DEC93	16JAN94	18	6	12	
UNI5SOLIDHOLDR	5.0" NOSE	SOLID UNIVERSAL HOLDER	DOWTY/UNIVERSAL	090221-TLC1	30DEC93	15JAN94	12	6	6	
UNI6SOLIDHOLDR	6.0" NOSE	SOLID UNIVERSAL HOLDER	DOWTY/UNIVERSAL	090221-TLC1	30DEC93	15JAN94	12	0	12	
UNI4.25SLDHLDR	4.25 NOSE	SOLID UNIVERSAL HOLDER	DOWTY/UNIVERSAL	090221-TLC1	30DEC93	15JAN94	12	0	12	
DRLCOLLET	STANDARD VALENITE DRILL COLLET ASS'Y	DOWTY/VALENITE	090221-TLC2	30DEC93	15JAN94	12	6	6		
TD1/4	1/4D, 2.8FL, 4OAL, SS	JBR	TWISTDRILL	ITC	100	23OCT93	30OCT93	6	0	6
11-00990	ALIAS ALLOWS ADDITIONAL ORDERING INFORMATION									
ANOTHER TOOL	ENTER DESCRIPTION OF TOOL HERE		CODE 4567	1234567890	3MAY94	2JUN94	24	0	24	
NEWTOLNUMBER	This tool has no description		CODE 4567	1234567890	3MAY94	2JUN94	24	0	24	
UNICOLLETHOLDR	STD 2.75 NOSE	UNIVERSAL COLLET HOLDR	UNIVERSAL	2802	28FEB94	30MAR94	10	5	5	
13029	1.0 STD.	ENDMILL ASSEMBLY	ITC	A1	27JAN94	12FEB94	3	0	3	
TD1/2	1/2D, 4.5FL, 6OAL, SS	JBR	TWISTDRILL	ITC	MFP	4JUN94	27JUN94	12	0	12
MCKNR164	NEG, 15LEAD, 1SQ, 80DIAM	INSRTTLHOLDER	973615	T-123	16JUL94	30JUL94	12	0	12	
GLOVES	SHOP GLOVES	ITC		YY-123123	1APR94	1MAY94	200	0	200	

In addition, there are 11 tool items on file that have been received as complete

What does ITC do?

ITC provides a family of tool management products: Economy Level, Original (16-Bit), Master Level (32-Bit) and our new Advanced Tool Management System – **ATMS** from ISIS Informatics Limited. Tool Location Control (TLC) systems can be purchased for as little as \$50 or as much as \$25000. ITC's TLC systems run under a variety of computer platforms and Operating Systems, i.e., UNIX, Windows 95, 98, NT and various brands of Network systems. The most sought after version of our software is our 5 User TLC Organizer system for \$8500. However, our most sophisticated tool management system, TLC Professional, also available as a 5-user system (\$12500), is in-use by only 20% of our 3500+ worldwide users. Ideally, our smaller system users will trade up to this system someday in the future.

ITC markets its products through independent distributors, O.E.M.'s and consultants. ITC also represents other products that influence the use of tools in manufacturing. These products can involve tool information storage, tool presetting, tool ordering or tool identification. ITC can provide individual consulting services for those companies who believe their needs are greater than our standardized product offering.

ITC has been providing tool management systems to the world since 1980. We were the first commercial supplier of computerized tool management systems and have set the standard to which competitive systems are compared. ITC has over 3500 installed copies of its software in the world operating in 8 different spoken languages. ITC truly supplies a World-Class Tool Management system.

What does a Tool Management System do?

Tool Management Systems come from a handful of vendors, in a variety of products with different philosophies. However, they all must have one thing in common otherwise they are useless. They must know that the tool left the tool crib.

A Tool Management System allows you to get a handle on these common problem areas that have been documented by various American and International surveys.

AMERICAN SURVEYS

- 30 - 60% OF A SHOP'S TOOLING IS SOMEWHERE ON THE SHOP FLOOR *LOST & EXPENSED*
- 15 - 20% OF SCHEDULED PRODUCTION CANNOT BE MET BECAUSE *TOOLING IS NOT AVAILABLE*.
- 40 - 60% OF A FOREMAN'S TIME IS SPENT *EXPEDITING*, **NOT MANAGING** TOOLING RELATED PROBLEMS.

INDUSTRY STATED NEEDS

- TOOL CONTROL IS *STRATEGIC* TO THE ENTIRE COMPANY. IT CAN PROVIDE TIMELY INFORMATION ABOUT THE ACTIVITY & STATUS OF TOOLING TO EVERY DEPARTMENT.
- FMS & CELL CONCEPT MANUFACTURING HAVE SUFFERED PERFORMANCE SETBACKS BECAUSE OF *POOR* TOOL MANAGEMENT.
- JIT IMPLEMENTATIONS CANNOT BE COMPLETE UNTIL TOOL MANAGEMENT TECHNIQUES HAVE BEEN DEFINED & IMPLEMENTED.

INTERNATIONAL CONSENSUS

- TOOLING IS OFTEN CITED AS A *SIGNIFICANT* CONTRIBUTOR TO PRODUCTION BOTTLENECKS.
- TOOLING IS A MAJOR SOURCE OF *UNCERTAINTY*.
- TOOLING **CONTRIBUTES** TO DELIVERY DELAYS, COST OVER-RUNS AND INFERIOR PRODUCT QUALITY.

What Do ITC's Customers Do?

They save money, about 30% (or more) per year on the purchase of tools. However, purchased tools are a small part of the savings realized from tool management. They reduce or eliminate, tool shortages, overstocking, tool expediting, machine down-time, shop floor bottlenecks, and setup time. They recover tools through rework and repair. They reduce or eliminate the paperwork associated with the reordering and purchasing of tools. They evaluate tool performance, machine performance, and vendor performance. They generally buy more expensive tools but spend less per piece part for tooling. They are more cost competitive than a similar company without tool management. They usually are the leaders in their specialty or field of endeavor. They implement technology that provides benefits to their operational needs.

How Do They Implement Tool Management?

Most ITC customers implement their system through the same steps. Of course, every company is different and has quirks of operation that they need to adjust, but basically the following steps are similar.

1. A tool inventory is conducted. All tooling, jigs, cams, fixtures, holders, collets, gages, drills, inserts, etc. are identified and counted. This is done both in the tool crib and on the shop floor.
2. This information is transferred to the TLC system database along with employee, machine, job, ordering and vendor information. Tool kits and assemblies can be defined at this time.
3. The crib attendants input the daily tool check in and check out transactions, this sets the accuracy of the database. This includes transactions of reworks, scraps, restocks and new tool additions or obsolescent tool deletions. These transactions can be recorded by keyboard input, inductive chip, barcode units or other electronic input techniques that are compatible to your hardware selection.

That is a simplification of how a system is implemented, but the hard cold fact is that this information must be input before you can start. If anyone claims differently, they have not been in a tool crib. The availability of this information and *its proper updating* is what **sets the stage for the accuracy** of the tool management system.

The discipline of updating this information allows accurate reports on tool usage, for tool reordering and for performance monitoring. This information in the hands of a manufacturing manager, gives that manager enough insight to tell if a machine is malfunctioning or if a job has a process flaw, if the material is not to specification, if the feeds and speeds are in error or if an operator is having a bad day. This *on-the-floor in-use feedback* of tool performance and usage is what prevents bottlenecks. It's like instant SPC for tool usage. You now can spot restocking needs as they occur, not when they are at zero levels.

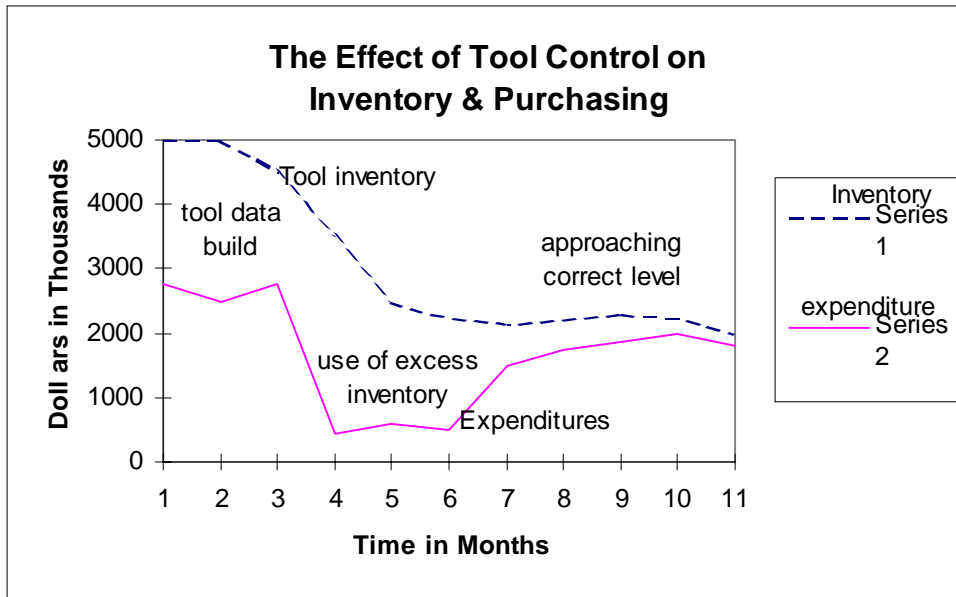
How Does This Affect Your Cozy Vendor Relationships?

ITC sells through O.E.M.'s, consultants and independent distributors. I get to see and hear a lot about selling tools to manufacturing. I also instruct a 2-day course on the basics of tool management. The course has introduced me to over 700 companies and manufacturing individuals. One question that is always asked, *How do we go about ordering our tools?*, or some version of this question as it pertains to purchasing. In a well-implemented tool management installation, the action of tracking tools and their use simplifies the tool ordering procedure. However, to a non-tool management system user, this benefit eludes them and all they can focus on is tool purchasing. Believe me, once your tool crib is under control, this problem becomes trivial. However, most tool distributors do not want you to bring your tool crib under control without them. Their solution to tool management is to manage tool purchases. Managing tool crib inventories by reorder replenishment level is after-the-fact management. They know that once you begin analyzing your tool usage and tracking the tool activity that your ordering requirements and habits will change.

Most tool distributors do not want an independent tool management system in your shop. They want one they can control: one where they are the only vendor or recipient of the tool order or it's their KANBAN card you use or some other condition that ties you solidly to them as your supplier. I cannot blame them, it's the repeat sales that generate their income and the business is

very competitive. That's why there are so many offerings of lunches, TV's, baseball-football-basketball-hockey and mud wrestling tickets, fifths of scotch, and other cordial customer gifts throughout the business year. These gifts are a good way to show appreciation for your business, but many times they are used to buy your business. This method of selling has been around for a long time and I know I missed a few of the more infamous gifts that are used. The most successful use of this selling technique is when both the sales representative and the buyer do not know or care about the quality or usefulness of the products they are selling or buying.

An ITC distributor that sells tools is generally using ITC's tool management products and solutions to show his customer an efficient way of reducing his tool costs. Tool management users reduce the number of vendors from whom they buy tools, as well as reduce the number of tools they buy. An ITC distributor knows this and if a tool management system allows you to buy smarter it will extend your profitability and your chances of being in business in the future. You may equate some of this profitability to his assistance and you may retain him as a vendor. If he helps you technically, his technical expertise is of value and you may retain him as a vendor. Technical service may be enough of an edge to qualify as one of your vendors. If he can also help you financially, he is of greater value to you as a vendor. An ITC distributor uses the TLC tool management software to show his customer where to make decisions that save money on purchasing tools. **To be your tool vendor he knows he has to earn the position.**



The above chart demonstrates the typical tool inventory activity during the 1st 12 months of installation. As you begin using up your excess inventory your purchasing activity goes way down. This is when your vendors start becoming very nervous. This is the time to start negotiating those discount agreements and delivery guarantees. As your inventory begins reaching the correct level your purchasing activity will increase.

By monitoring tool consumption you can evaluate different brands of a tool and their performance under your manufacturing conditions. You can sometimes justify buying a more expensive version of the tool if the monitoring indicates increased production or the ability to run better feeds and speeds, or produce better finishes, etc. Monitoring reorders and delivery of tools allows you to evaluate your tool vendors' performance and their attention to your tool supply needs. There are many ways to group your tool inventory so you can *ask vendors to quote better prices* based on new tool quantity requirements, blanket order quantities, vendor stocking and take advantage of the new tool delivery programs available today.

Is Tool Management Political?

I believe any department that controls money in an organization plays politics to maintain its control within that organization. Tool management definitely influences the money spent on tooling. That puts the purchasing department right in the middle of the decision. They will want to know about the steps that you are taking to put in a tool management system. Even if you had not intended to change anything about how you purchase tools within the system, purchasing will have something to say about what you do. The moment any monitoring or tracking of tools begins in a company, other department heads will also suddenly want to know why.

Money is not the only motivation in politics, power and greed are two good candidates. How many times have you heard a manufacturing manager or machine operator say, *I asked for one kind of tool and they send me a cheap substitute or the wrong grade or material?* How many times have you heard the reason this job is late or delayed or is not setup, **is because the tool crib does not have any tools?** If I were able to prove to you that these tools were specified incorrectly, that the tool order was changed or the production plan re-scheduled by someone other than the tool crib attendant, you would begin to understand the power, greed and CYA motivations.

Some people in your organization do not want you to know exactly what is going on with the tools on the shop floor. Shop floor information about tool usage may support arguments that responsibility for the problem is rooted elsewhere in the company and not in the tool crib.

Note to the reader. This is one of the points I stress to a prospective buyer of ITC's software. If this does not agree with you, be sure that, if and when I finally do get to the individual in your company that is interested in this point, I will remember to bring up your name.

Will you be an ITC Tool Management Customer?

Many businesses are not allowed to run like a business, there is too much politics, too much socialization, too much wasted time in meetings and other non-productive activities. These non-productive structures may not allow a company to see the year 2001. For the philosophy of tool management to take hold in a company some procedures must be adopted and adhered. Everyone in the company must want to do better, to bring tools under control and work toward that goal. Tool management requires discipline and if you can not instill a discipline for tool procedures, then your tool management goals are destined to fail. There is more than just tool inventory control at stake. Everyone in a manufacturing company influences tooling to some degree. If procedures are not defined, established and followed, then it does not matter what tool management system you have or what computer you run it on, it is not going to work. If you do not make a commitment to do shop floor tool management then you are wasting time and money.

When you can account for the whereabouts of your tools, you have the basis of a tool management system. If you do not know where they are; you cannot report, account, charge, plan, order, or control their use. Today there is more acceptance of this philosophy than there was 19 years ago, when I first started implementing tool management systems, and the last 5 years has seen the most promising level of interest in tool management. This has been the hardest point I have ever seen for manufacturing people to understand. **If you don't know the tool ever left the tool crib, how could you ever maintain an inventory count?** You would not believe some of the answers I have heard concerning this point of accountability.

Computer knowledge is probably the biggest problem I have seen impeding the installation of more tool management systems. Most manufacturing people and some computer systems people do not know what operating systems are, nor do they understand how an operating system, an application program and their hardware function together. The role of multi-user software and networked hardware is slowly getting to these managers. Still the more I try to explain the implementation of these ingredients with tool management philosophies, I continue to be amazed at the low knowledge level of people who claim they are using high technology on a daily basis.

So I continue to give seminars on tool management and spread the word through our newsletter and various articles. I am not going to beg anybody to become a user of a tool management system. If they cannot see the benefits for themselves, they will not be able to use it properly and the information contained in it will be flawed. **There is no value in forcing a company into a system philosophy they cannot implement and enforce.** The best way to do business and maintain customer satisfaction is to sell to the companies that have realized the potential savings and strategic value of managing tool usage information within the manufacturing environment.

In the final analysis, I can only wait for a company that hangs on to their older tool crib management philosophy, or lack thereof, to change its' philosophy. Then I have a chance to welcome them as an ITC TLC tool management user.

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Biography of Martin Plute:

Martin Plute
President and Chairman of the Board
ITC Integrated Systems, Inc.

Mr. Plute has been involved in manufacturing for over 30 years. His technical experience includes machine and tool design, process planning, manufacturing engineering, N/C programming systems, CAD/CAM application systems, and since 1979, tool management systems. He has held various positions involving shop floor production, design, engineering, product development, marketing, sales, finance and corporate management.

Mr. Plute is a founder of ITC Integrated Systems, Inc. and has been a primary leader of tool management system development since 1979. He has introduced ITC's tool management concepts throughout the world and has innovated many of the accepted concepts in use today.

Want more of Martin Plute's observances and philosophies on Tool Management, get his book *Tool Management Strategies*, \$49.95 .

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