Changing The Image of America’s Shops

An NTMA 6S Presentation
What is the image of our industry?

- Dark
- Dirty
- Dingy
- Dangerous
- Dated
Why do we need to change our image?

1. **Trouble finding recruits to train**
   In the past we employed bodies, not the employee’s minds.

2. **Employees leaving our industry**

3. **Customers wanting; better, faster & cheaper parts.**

4. **Bankers image when acquiring funding**
What is 5S+1 or 6S

Definition;

A process for creating and maintaining an organized, clean, and high performance work place, which serves as a foundation for lean and continuous improvement activities.
5S History

A housekeeping and lean system developed post WWII in Japan at Toyota Corp.

Seri (Say ree) - Sort and Discard, Eliminate All unneeded items.

Seiton (Say ton) - Arrange and Order, Arrange all items that are left.

Seiso (Say zo) - Clean and Inspect, Clean all areas.

Seiketsu (Say ket soo) - Standardize and Improve, Maintain the first 3S

Shitsuke (Shee tsoo kay) - Belief and Discipline, Believe that the 5S are important
What are our 6Ss

- **Sort** (Get rid of clutter, Separate out what is needed for each area or operation)
- **Set in Order** (Have a place for everything and everything in its place)
- **Shine** (Clean work areas and equipment throughout the facility)
- **Standardize** (Establish Schedules and methods of performing the cleaning)
- **Sustain** (Audit and monitor the schedules, Stick to the rules)
- **Safety** (Are areas safe?)
Why 6S?

- A clean shop is an excellence sales tool.
  - Customer visits

- Employee retention.
  - Bright, clean, healthy and modern.
  - Individuals: a safer work environment, more pleasant workplace, more satisfying jobs, and a process that makes sense.

- Reduce cost
  - Less short term cleaning.

- Leaner.
  - All needed tools are at hand
  - All tools have a home, less searching.
  - Company: higher quality, lower costs, greater customer satisfaction.
The NTMA 6S Program

The Request

Agie Charmilles Chairman Harry Moser, Made a trip to Switzerland with the winners of the 2007 NTMA/NIMS National Apprentice Competition.

He and the apprentices identified “shop housekeeping” as an area for improvement by U.S. shops.

Stating that raising more U.S. shops to a “Swiss standard” would improve recruiting, employee retention, productivity and sales.
Harry challenged the NTMA Technology Team to develop a tool that NTMA members could use to bring up the image of their shops.

The Technology Team are all volunteers and are shop owners or managers and National Associate Members.
The first step

Define what a 6S shop should look like.

What is a 6S Class A Shop?

The NTMA envisions a Class A shop to look like the following:

Building Exterior:
- Landscaped, well painted or surface in good condition.

Building Interior:
- Floors, Painted, tiled or clean concrete.
- Wallways - clean and marked.
- Ceilings - Clean, dropped or painted.

Environment:
- Air cleaners, temperature controlled, well ventilated.
- Lighting - Bright 40fc or better, task lighting where needed.

Work Areas:
- Clean, neat, organized, Part handling boxes, carts or trays.
- Similar areas standardized, use of white boards when possible.
- Areas marked and identified, chips picked-up.
- Tool storage identified.

Material & Hardware:
- Stored neatly, marked or identified.

Lunch Room:
- Separate room or area away from manufacturing.

Part cleaning, assembly and finishing areas:
- Organized and cleaned using a schedule.

Oil, coolants hazards:
- Identified and stored safely.

Safety:
- Machine guards used and in place.
- Personal protective equipment used and enforced.

Quality Room:
- Clean and temperature controlled, OK to have quality equipment in cells.

Equipment:
- Modern, well maintained, cleaned using a schedule.
- Oil, chips and coolant spill control.

House Keeping:
- Scheduled trash and chip pick up and cleaning.
- Cleaning tools in central areas.

Office areas:
- Paperwork neat and in place.
- Floors clean.
- Clean modern washrooms, cleaned on a schedule.

Employee appearance:
- Shop logo'd or other appropriate clean attire.

Shop age: The older the shop, e.g. wooden shop partitions, cracked, stained, concrete floors, etc. the better the housekeeping has to be.
The Technology Team decided to use a 5S type tool to standardize the housekeep process.

The Team search for a good simple audit tool that could be used to give a class rating to our members so they know where they stand in relationship to others.

No simple audit tool could be found, so the team took statements from sample audits and reconfigured them to meet the metal working industry.
The NTMA 6S Program

An 6S audit was developed;

- Listing 5 statements in the 6 elements.
- Each statement would be weight 1 to 5 by percentage of completeness.
  - 1 = 0, 2 = 25%, 3 = 50%, 4 = 75%, 5 = 95% (would any process be 100% complete?)
- The max score of each element would be 25, 150 total for audit.
- Companies would be classed by how they scored on the audit.
  - Class A Shop: 150-136
  - Class B Shop: 135-116
  - Class C Shop: 115-90
  - Class D Shop: Below 90

The NTMA will give any Class A shop the 6S Excellence Award.

- The shop must be reviewed, by a peer and or photos supplied for each element.
- The audit and photos must be sent along with the 6S application to the NTMA to be eligible for the award.

Our goal is to use this audit as a tool to upgrade the image of metalworking shops across America.

It will be a challenge. We estimate that less then 4% of all shops will meet the Class A requirements on the first audit.
The NTMA 6S Audit

Company: ____________________________

Our goal is to bring the U.S. machining work environment up to consistently world-class standards.


All confirmed Class A shops will receive a 6S Excellence award.

Score shop’s percentage of compliance with each measure, 1=0%, 2=25%, 3=50%, 4=75%, 5=95%-100%

Sort: Get rid of clutter. Separate out what is needed for the operations.  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Is the shop environment uncluttered? 1 2 3 4 5
2. Are all raw stock and tools stored neatly? 1 2 3 4 5
3. Are provisions and parts identified with status and properly stored? 1 2 3 4 5
4. Was employee 6S training provided and documented? 1 2 3 4 5
5. Are unnecessary personal belongings properly stored, away from public areas? 1 2 3 4 5

Photo Ideas: stored provisions and/or tools, general overall shop photos.  Sort Self Total: __________  __________

Set-In-Order: Have a place for everything and everything is in its place.  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Is the complete shop organized? 1 2 3 4 5
2. Are all work and storage areas defined and marked? 1 2 3 4 5
3. Are all tools required for the operation at hand? 1 2 3 4 5
4. Are shadow boards in use? 1 2 3 4 5
5. Are items put away after use? 1 2 3 4 5

Photo Ideas: Identified storage, shadow boards, work area photos.  Set-In-Order Self Total: __________  __________

Shine: Clean work areas and equipment. The best cleaning is not to need cleaning.  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Is the shop, office and rest rooms clean and presentable? 1 2 3 4 5
2. Are the walkways free of oil, coolant, debris and/or chips? 1 2 3 4 5
3. Is the shop file? (Task and general lighting)? 1 2 3 4 5
4. Is the equipment cleaned and maintained? 1 2 3 4 5
5. Is the building well maintained? 1 2 3 4 5

Photo Ideas: walkways, corridors of building, office shot, overall shop photos.  Shine Self Total: __________  __________

Standardize: Establish schedules and methods of performing the cleaning and organizing.  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Does each area have a schedule to perform maintenance? 1 2 3 4 5
2. Are the schedules adequate for the areas or machines? 1 2 3 4 5
3. Are the methods adequate for the areas or machines? 1 2 3 4 5
4. Are similar work areas, standardized? 1 2 3 4 5
5. Are trash bins, chips and scrap/recycle containers emptied on a regular basis? 1 2 3 4 5

Photo Ideas: similar work areas, chip storage areas.  Self Total: __________  __________

Sustain: Audit and monitor the schedules. Stick to the rules.  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Are the maintenance and schedules audited? 1 2 3 4 5
2. Is there a system to display the audit results? 1 2 3 4 5
3. Is there any type of recognition system to reinforce the program? 1 2 3 4 5
4. Are the maintenance and schedules adequate to sustain results? 1 2 3 4 5
5. Are the programs discussed at key meetings? 1 2 3 4 5

Photo Ideas: Photo of displayed audit results and maintenance schedule.  Sustain Self Total: __________  __________

Safety: Are the areas safe?  Self 0-25-50-75-95 Review 0-25-50-75-95

1. Are all potentially hazardous areas marked? 1 2 3 4 5
2. Is personal protective equipment in use, at all times where required? 1 2 3 4 5
3. Is OSHA information posted and up to date? 1 2 3 4 5
4. Is there adequate room between equipment, walkways and storage area? 1 2 3 4 5
5. Participation in the NTMA Safety Award Program, (Award winner gets a $)

Photo Ideas: marked hazardous areas, shop photos.  Safety Self Total: __________  __________

Rev. 03  Sign & Date Below  Self Audit Total: __________  Reviewed Total: __________
NTMA 6S Award Application

This award will be presented to all companies who score as a Class A shop on the NTMA 6S Award Self Audit. Please allow up to 4 weeks to receive your NTMA 6S Excellence Award.

Company: ____________________________________________

Address: _____________________________________________

City: ___________________ State: ______ Zip: _____________

Chapter: _____________________________________________

Contact: _____________________________________________

Phone: __________________ Fax: ________________________

NTMA Members: To achieve the 6S status, an onsite audit shall be performed by at least one NTMA chapter member to verify your audit results or you must submit at least one photo for each of the 6 elements and related documents (see photo ideas on audit sheet). You can substitute the photos with a short shop video, covering all 6 elements. E-mail photos and/or related items to: king@ntma.org, Subject: 6S Award Documentation.

Non NTMA Companies: If your company is not a member please submit the audit form and your photos to the address below, without approvals. We will have a member from a nearby NTMA Chapter perform an onsite audit review; it should not take more than an hour.

Onsite audit performed on: _____________________________

By: __________________ Company: _____________________

PRINT NAME

Approval: __________________

Please Submit to: National Tooling and Machining Association

9300 Livingston Road

Ft. Washington, MD 20744

Or fax to: (301) 248-7104 or (301) 248-7174

A signed copy of the completed NTMA 6S Award Self Audit shall be attached.
The NTMA 6S Program

Our goal is to bring the U.S. Metalworking work environment up to world class standards.

6S Excellence Award

The National Tooling & Machining Association acknowledges that,

Company

has met the housekeeping standards by achieving a Class A shop rating as set by the association. Their company has shown their pride and commitment to improving the image of our industry.

Roy Sweatman, Chairman of the Board, 2008
The NTMA 6S Program

Implementing 6S

• Role of Management:
  • Educating, creating teams, scheduling time, providing resources, encouragement, and recognition.

• Role of your Employees:
  • Encouraging coworkers, participating, implementing, contributing ideas, and promoting 6S efforts.

• Implementation Instructions:
  • The NTMA Technology Team has developed basic implementation Instructions.
  • To also aide with the implementation, they developed a worksheet on each element.
  • Both are in final review and will be posted with the other forms on their website.
The NTMA 6S Program

The following slides will explain each element of the 6S program.

- Sort
- Set in Order
- Shine
- Standardize
- Sustain
- Safety

Each element will start with the five statements from the audit.
Sort:

Get rid of clutter.
Separate out what is needed for the operations.

- Is the shop environment uncluttered?
- Are all materials and tools stored neatly?
- Are provisions and parts identified with status and properly stored?
- Was employee 6S training provided and documented?
- Are unnecessary personal belongings properly stored, away from public areas?

Photo ideas: stored provisions and/or tooling, general overall shop Photos.
Sort Hints:

- Get rid of clutter.
- Separate out what is needed for the operations.

- Train your employees, before you start.
  - Purchase Posters
  - Purchase Videos
    - The 5S Garage
    - SME
      - 2007 Top Ten Symmons Ind.
  - Use this presentation
  - Request a 6S CD
Sort Hints:

- Get rid of clutter.
- Separate out what is needed for the operations.

- Start the cleaning
- Go through each area Red Tag and remove any tools, material and equipment that is not being used.
- Set up a Red Tag storage area.
- Let the employees working in the area make decisions on what is needed in their area.
Sort Examples:

Get rid of clutter.
Separate out what is needed for the operations.

Before

After
Sort Examples:

Get rid of clutter.
Separate out what is needed for the operations.

Before

After
Sort Examples:

Get rid of clutter.
Separate out what is needed for the operations.

Before

After
Sort Examples:

Get rid of clutter.
Separate out what is needed for the operations.

Before

After
Sort Examples:

Get rid of clutter.
Separate out what is needed for the operations.

Before

After
Set in Order:

Have a place for everything and everything in its place.

- Is the complete shop organized?
- All work and storage areas should be defined and marked?
- Are all tools required for the operation should be at hand?
- Are shadow boards in use?
- Are items put away after use?

Photo ideas: identified storage, shadow boards, work area photos.
Set in Order Hints:

Have a place for everything and everything in its place.

- Keep only the equipment needed in the area.
- Time to make work areas more lean.
  - Move equipment around to give better flow.
- Central tool and cleaning storage area.
  - Part / pallet storage areas taped out.
- Use White board for tool storage.
  - Standardize storage containers.
  - Mark location, outside of cabinets & shelves.
Set in Order Examples:

Have a place for everything and everything in its place.

Use Shadow Boards to aide the organization.
Set in Order Examples:

Have a place for everything and everything in its place.

Organized Storage

Organized Assembly
All tools that are needed are on hand
Set in Order Examples:

Have a place for everything and everything in its place

Part Assembly Areas

White Boards
Set in Order Examples:

Have a place for everything and everything in its place

Inspection Drawer

White Boards
Shine:

Clean work areas and equipment throughout the facility.

- Are the shop, office and rest rooms clean and presentable?
- Are the walkways free of oil, coolant, debris and/or chips?
- Is the shop well lit? (Task and general lighting)
- Is the equipment cleaned and maintained?
- Is the building well maintained?

Photo ideas: walkways, outside of building, office shot, overall shine photos.
Shine Hints:

Clean work areas and equipment throughout the facility.

- Clean Equipment
- Paint floors, walls or walkways
- Stripe walkways
- Upgrade Lighting
Shine Examples:

Clean work areas and equipment throughout the facility.

Clear walkways
Shine:

Clean work areas and equipment throughout the facility.

Clear walkways

Crowded Shops can still be clean
Examples of Clean Shops
Examples of Clean Shops
Shine Examples:

Clean work areas and equipment throughout the facility.

Office space

EDM Shop
Standardize:

Establish schedules and methods of performing the cleaning and organizing.

- Does each area have a schedule to perform maintenance?
- Are the schedules adequate for the areas or machines?
- Are the methods adequate for the areas or machines?
- Are similar work areas, standardized?
- Are trash bins, chips and scrap/recycle containers emptied on a regular basis?

Photo ideas: similar work areas, chip storage areas
Standardize:

Establish schedules and methods of performing the cleaning and organizing.

Standardize work areas
Standardize:

Establish schedules and methods of performing the cleaning and organizing.

Standardize deburring areas
Sustain:

Audit and monitor the schedules. Stick to the rules.

- Are the maintenance and schedules audited?
- Is there a system to display the audit results?
- Is there any type of recognition system to reinforce the program?
- Are the maintenance and schedules adequate to sustain results?
- Are the programs discussed at key meetings?

Photo ideas: photo of displayed audit results and/or maintenance schedules.
Sustain Hint:

Audit and monitor the schedules. Stick to the rules.

- Audits
  - Design a simple 5 or 6 step audit.
  - Customized to each department or area.
  - Post a simple chart in each department for each area.
  - Post a simple chart for each department
  - Give out a simple department award, monthly
    - Have your employees design an award.
    - Review and decide who gets an award at your monthly management meetings
Sustain Example:

Audit and monitor the schedules. Stick to the rules.

Are the maintenance and schedules audited?

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Safety:

Are the areas safe?

- Are all potentially hazardous areas marked?
- Is personal protective equipment in use at all times, where required?
- Is OSHA information posted and up to date?
- Is there adequate room between equipment, walkways and storage areas?
- Do you participate in the NTMA or OHSA Safety Award Programs?

Photo ideas: marked hazard areas, shop photos.
Safety Hints:

Are the areas safe?

- Mark fire, electrical and Chemical Hazards with floor tape
- During the set-in-order process keep safety in mind.
  - Make sure you have the proper space required for safety and maintenance.
- Look into the NTMA Safety Award Program
Safety Example:

Are the areas safe?

Hazardous areas marked
Safety Example:

Safety Awards

Safety Award
2007

The National Tooling & Machining Association acknowledges the superior safety performance of its member firm

Toth Technologies

NTMA Chairman of the Board
Does the NTMA 6S Program Work?

After the NTMA Technology Team designed the basic audit, they requested 29 member companies use the audit to evaluate the process.

The 29 pilot companies audited themselves before any 6S training.

Many pilot companies used the audit as a training and process tool.

Many audited themselves many times during the 6 month pilot process.
The NTMA 6S Pilot Site Report:

“Before” audit: A shops 14%, B shops 31%, C shops 41%, D shops 14%

“After” audit: A shops 21%, B shops 51%, C shops 28%, D shops 0%

10% of pilot companies had all ready been working on a 5S program.

62% were familiar with the 5S process.

96% stated they would and are using the audit as a 6S tool.

14% stated that they might never reach a Class A shop environment but felt that a class B shop would be equally good for their market industry.

84% had little to no issues with employee acceptance after 6S training.

The easiest element to implement was Safety, then Shine followed by Sort. The most difficult element to implement was Sustain, then Standardize followed by Set-in-Order.
Pilot Site Testimonials

“We do not have to waste time cleaning before customer visits.”

“We implemented 6S as an employee retention tool, we should of done it years ago.”

“We no longer are wasting time searching for tools. Every tool has a home.”

“Our shop manager pasted our company logo and department descriptions to the top of the audit form. We are using them as part of our quality program.”
Tools for Implementation

The NTMA Technology Team can provide the following tools for Implementation of your 6S program.

Power Point Presentations;
  “Changing The Image of America’s Shops”
  6S Training

6S Worksheet
6S Implementation Instructions
6S Audit
What is the Image of a Class A Shop
6S Award Application
Does the NTMA 6S Program Work?

Yes It’s a great tool

www.ntma.org
Presented By
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Thanks

Questions??
Changing The Image of America’s Shops

6S Photo Example

An NTMA 6S Presentation
Sample audit and photos

This is the completed audit and the following slides were submitted by Toth Technologies.
Sort, Training

6S LEAN PROGRAM

Sort
Get rid of clutter.
Separate out what is needed for the operation.

Set in Order
Is there a place for everything
and is everything in its place.

Shine
Clean the work area and equipment.
The best cleaning is not to clean.

Standardize
Establish tasks, schedules and methods
of performing the cleaning and organizing.

Sustain
Audit and monitor the tasks & schedules.
Stick to the program.

Safety
An organized and clean work area is a safe area.
Sort, Standardize
Project Cart
Set-in-order
Assembly Room
Set-in-Order
Cart Storage areas
Shine

Walkway, Main
Shine
Walkway, Prototype Milling
Standardize Work Areas
Production Milling
Standardize Work Areas

Deburring Area
Sustain Audit Display Board

![TOTH TECHNOLOGY 6S PROGRAM](image-url)
Safety
Marked Hazards
Safety Award
2007

The National Tooling & Machining Association acknowledges the superior safety performance of its member firm

Toth Technologies

NTMA Chairman of the Board
General Shot
Production Milling Area
Thanks

Questions??