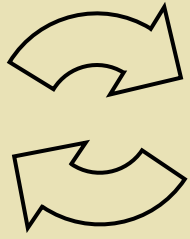


A collection of military medals and a compass are arranged on a wooden surface. The medals include a red ribbon medal with a star, a blue ribbon medal with a star, and a silver star medal with a central emblem. A pair of glasses and a compass are also visible.

Lean Training Ideas for TECOM

The Marine Corps needs *more* training time.

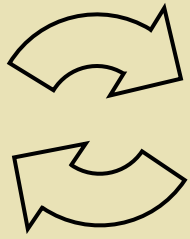
Industry best practices can improve our training pipeline.



What is *Lean*?

- ◆ At MIT in 1988, Dr. James Womack defined Toyota as a “lean” company.
- ◆ Lean is a discipline to improve complex processes: deliver value and eliminate waste.
- ◆ Lean uses the *least* resources to accomplish the mission.
- ◆ Lean eliminates *waste*. Wasted time, space, effort, money, people, and facilities.
- ◆ **The Marine Corps has always been lean.**

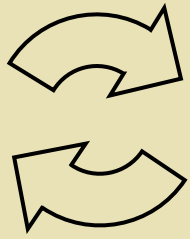




Seven Types of Waste in Manufacturing

- | | | |
|--------------------|---|---|
| 1. Transportation | Unnecessary transport of parts under production. | } |
| 2. Inventory | Parts waiting to be worked on.
Products waiting to ship. | |
| 3. Motion | Unnecessary movement of people to work on parts. | } |
| 4. Waiting | Unnecessary waiting by people to work on parts. | |
| 5. Over-Processing | Unnecessary steps and features added to products. | |
| 6. Over-Production | Excess amounts of products. | |
| 7. Defects | Errors in products. | |

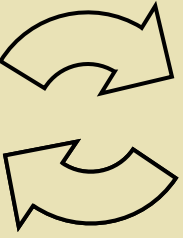




Seven Types of Waste in TECOM

- | | | | |
|----|-----------------|---|---|
| 1. | Transportation | Unnecessary transport of students. | } |
| 2. | Inventory | Students waiting to learn.
Students waiting to ship. | |
| 3. | Motion | Unnecessary movement of instructors. | } |
| 4. | Waiting | Unnecessary waiting by instructors. | |
| 5. | Over-Processing | Unnecessary activities. | |
| 6. | Over-Production | Excess amounts of students | |
| 7. | Defects | Undertrained students. | |

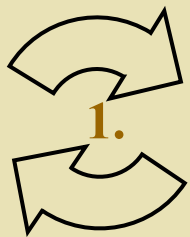




(5) Lean Principles Reduce Waste

- 
1. Specify Value
 2. Identify the Value “Stream”
 3. Flow
 4. Pull
 5. Pursue Perfection

Dozens of techniques support each principle.

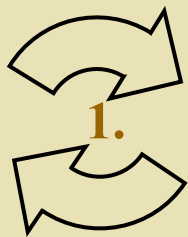


What is Value?

Value = The Voice of the Corps

- ◆ What type of Marine do we need?
 - What does our school need to teach?
 - What do our students need to learn?
- ◆ Value can *only* be defined by Marine units.
 - Value is distorted by training organizations, narrowly-focused experts, and instructors.
- ◆ Capturing input takes effort.
 - How well do our Marines meet unit needs?
 - What needs are *not* being met?
- ◆ POI may not meet unit needs.

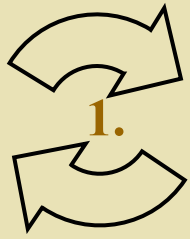




Identify Value in the Pipeline

- ◆ Every TECOM school is a series of processes
- ◆ All processes exist to increase Marine training
- ◆ Value is created by each process. But...
 - Some processes are duplicative
 - Some processes add value
 - Some processes do NOT add value

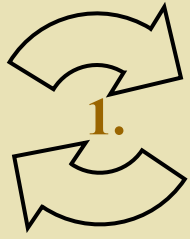




Some Processes are *Value-Added*

	Value Added	Non Value Added	
◆ Sleeping		√	(8) hours per day
◆ Eating		√	(2.25) hours per day
◆ PT	√		
◆ Drill	√		
◆ Free Time		√	(1) hour per day
◆ MCMAP	√		
◆ Haircuts		√	
◆ Instruction	√		





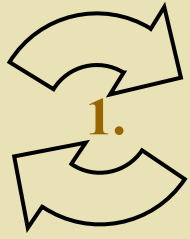
Define *Value-Added*

- ◆ The customer – our units – really *wants* it
- ◆ The activity *transforms* the recruit
- ◆ The activity is done *correctly* the first time

Define *Non-Value-Added*

- ◆ NOT valued by our Corps or our units
- ◆ NOT transforming
- ◆ NOT correctly done

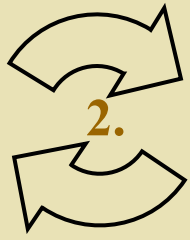




Find Non-Value-Added Processes

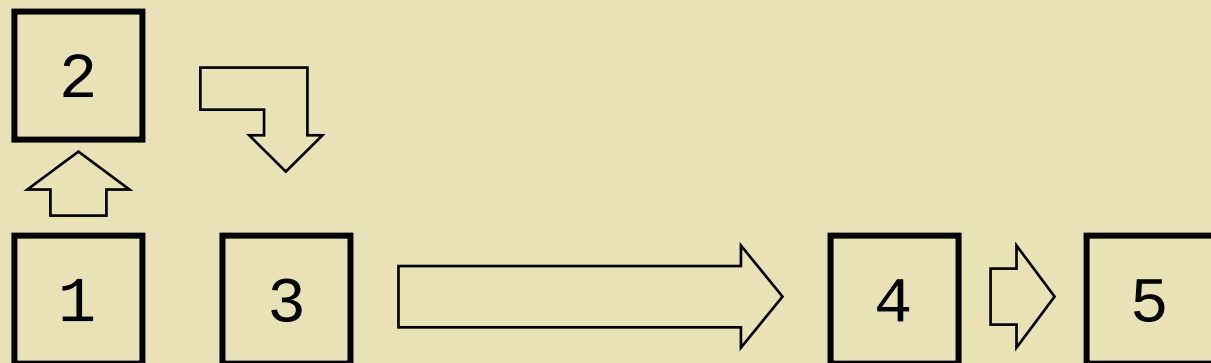
- ◆ Some *seem* important:
 - Admin, Legal, Reports, Approvals, Testing, Inspections
- ◆ Some are needed:
 - Sleep, Chow, Free Time, Medical, Testing
- ◆ Some are waste:
 - Transportation, Waiting, Movement

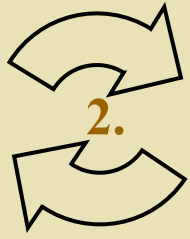




How Can We “See” a Process?

- ◆ **Draw a Map:** everyone *sees* the process.
- ◆ Close the circuit: Steps move toward completion, information moves back.
- ◆ Draw an ideal state. Draw a future state.
 - Combine steps. Eliminate steps. Change steps.

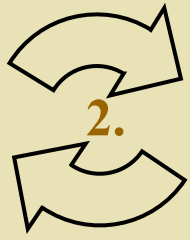




Training Process Maps

- ◆ We think we know a process until we try to draw it:
 - 50% Non-Value-Added activity is not shown.
 - Maps show complexity and redundancy.
- ◆ “Go and see.” Observe the process. Invisible work *cannot* be improved.
- ◆ *All* processes can be improved.
- ◆ *Every* process should add value.

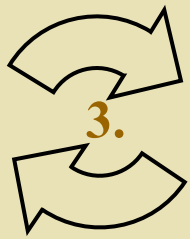




What is a “Perfect” Process?

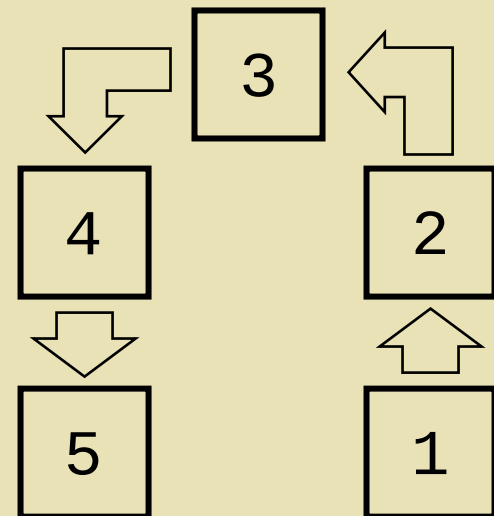
- ◆ *Valuable*: “Does this step add value? If we deleted this step, would the Corps miss it?”
- ◆ *Capable*: “Does this step produce the same quality result every time?”
- ◆ *Available*: “Can this step be performed every time it is needed?”
- ◆ *Adequate*: “Is there enough capacity to perform this step without waiting?”
- ◆ *Flexible*: “Can the step quickly change from doing one activity to doing another?”

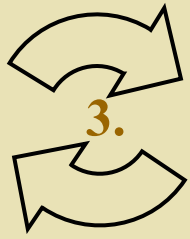




What is Flow?

- ◆ Flow is near-continuous processing.
- ◆ No stops. No waiting between steps. No delays. No excess transport between steps.
- ◆ No storage between steps. No inventory buildup.
- ◆ In manufacturing, most wasted time is waiting for the next machine, the next specialist.

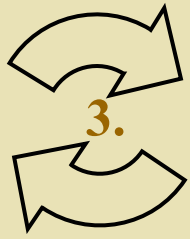




What is a Monument?

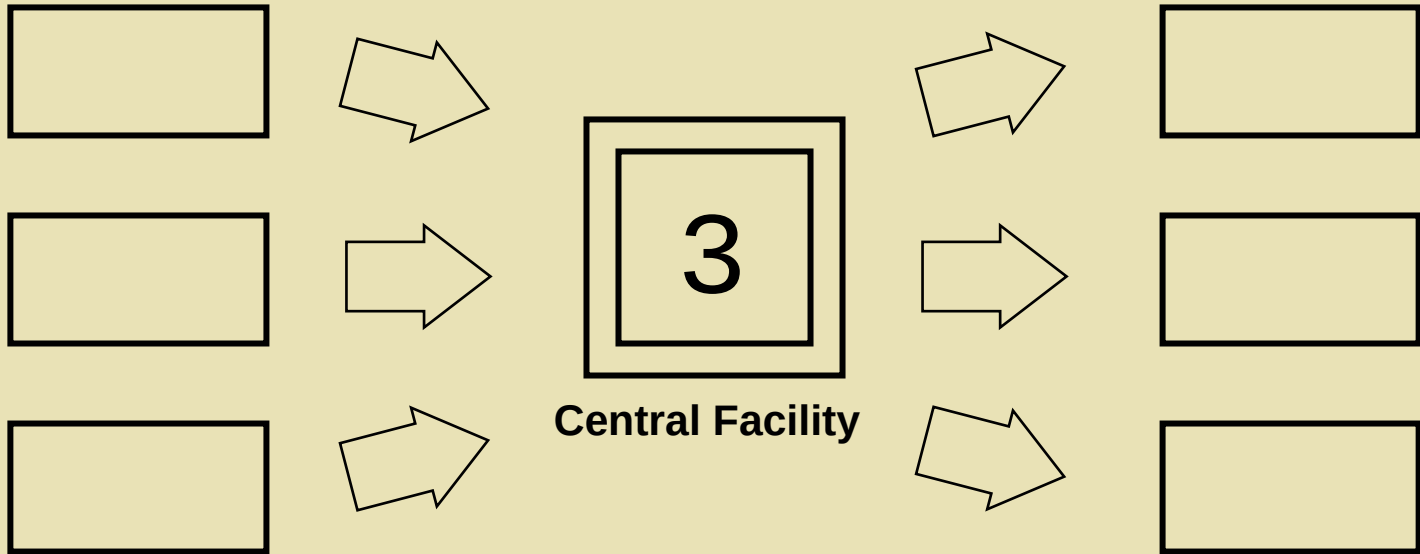
- ◆ A “monument” is a large centralized facility used by multiple units & multiple processes.
- ◆ Monuments prevent flow and create waste: Poor layout causes excess transport and waiting, excess scheduling and coordination.
- ◆ Monuments create inventory backup.
- ◆ Flow requires multiple right-sized facilities, not large, centralized facilities.
 - Large is more efficient but less *effective*.





Flow is Stopped by a Monument

Training Units

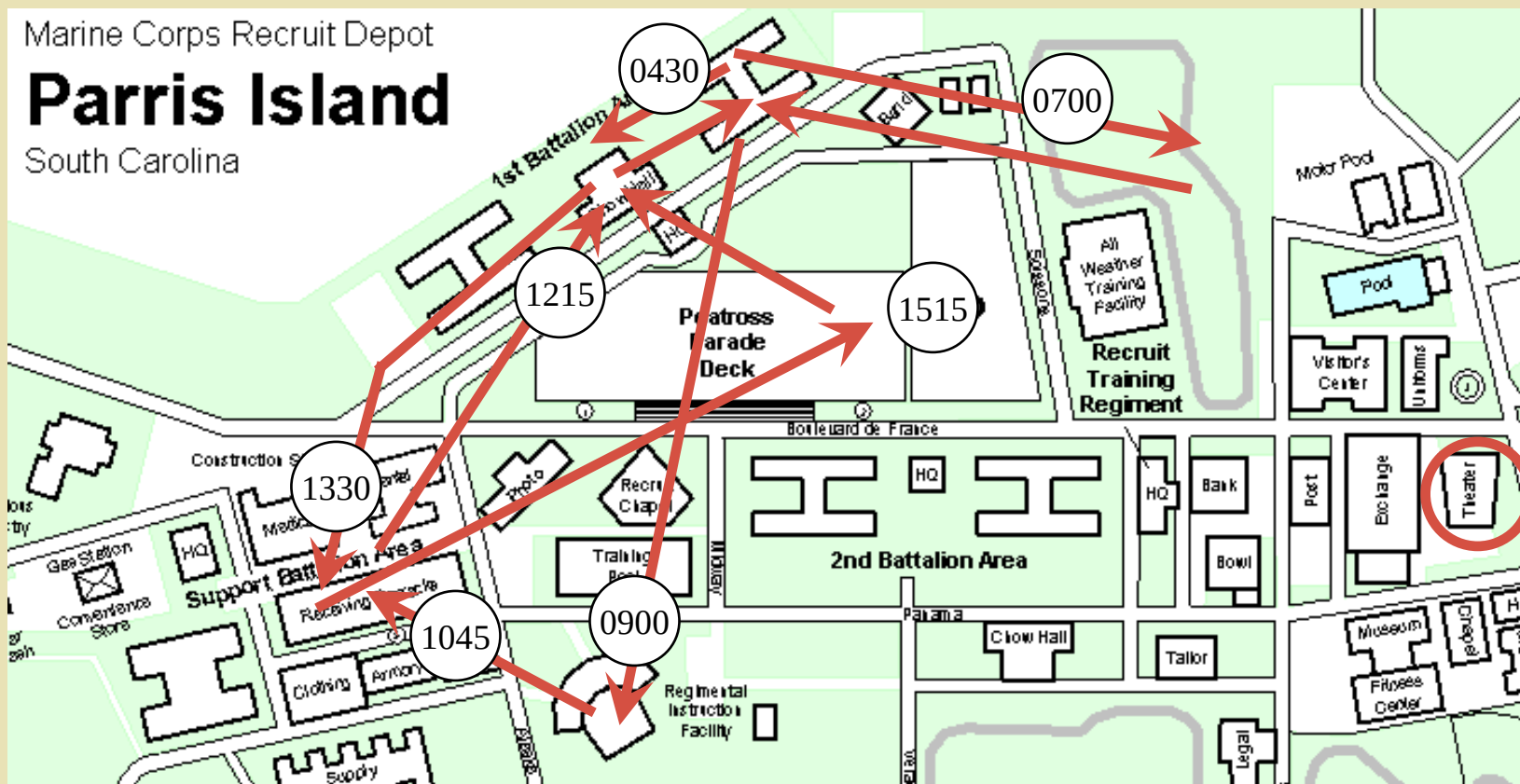


- ◆ Transport. Wait to get in. Wait for instruction. Transport.
- ◆ Scheduling. Conflicts. Communication. Seat restrictions. Support requirements. Instructor availability.
- ◆ The *monument* sets the schedule and the standards!



All Transportation is Waste

- ◆ Moving and Transporting students is waste
 - Distant central facilities *increase* movement
 - Poor schedule practices *increase* movement



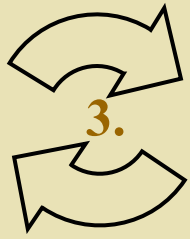


Flow at TECOM

- ◆ Students waiting for the next event...
- ◆ Students waiting during the event...
- ◆ Central monuments training large units...
 - Wait before, wait after, wait during
 - Increase movement times
 - Schedule inflexibility and conflicts
- ◆ Flow requires local control: cross-trained instructors and facilities are always capable.
- ◆ Flow reduces tight scheduling requirements: cut hand-offs in half, cut wait time in half.

Is Not Flow!





Complexity is the Enemy of Flow

- ◆ Complexity adds time, effort, and errors.
- ◆ Complexity increases training requirements.
- ◆ Reduce process complexity.
All processes should flow.
Tight, fast processes are best.
- ◆ Standardize all tasks.
Simplify all schedules.
Shrink class size. Increase repetitions.





Pull

- ◆ “Take one, make one.”
- ◆ Wait until one is needed, then produce another one very quickly.
- ◆ Every process should operate on a pull basis. Execute only when needed.
- ◆ No one upstream should produce anything until the next step downstream asks for it.
- ◆ Pull requires universally visible information sharing across the organization.





Pull at TECOM

- ◆ Who retired today? Who was wounded?
- ◆ What signal was received by the entry-level training process?
- ◆ Within the pipeline, what signal was received upstream to continue to produce?
- ◆ TECOM overproduces *throughout* the system because of a lack of information.
- ◆ Do not put Marines in a wait status: T2P2. Excess barracks and supervisors are wasted.

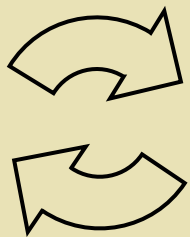




Pursue Perfection

- ◆ Continuous Process Improvement: “Don’t let a day go without improvement.”
- ◆ If you see “re-” in front of a process, it’s a candidate for waste elimination.
- ◆ Standardized all work.
- ◆ Do not pass along defects.
- ◆ Flow: “Do all steps occur in a continuous tight sequence with little waiting?”
- ◆ Pull: “Does each step only occur at the command – the pull – of the next step?”

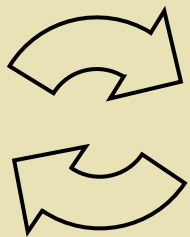




What is To Be Done at TECOM?

1. **Train everyone to see waste.** Train leaders on Lean.
2. Define value. Survey OpForces to define what training is needed. Re-write T&R / POI.
3. Map entry-level training. Find duplicity. Find waste.
4. Improve facilities: multiple smaller facilities.
5. Train leaders how to *schedule*: smaller classes more often.
6. Cross-train instructors for more flexibility
7. Document all processes with SOPs. Go and see.
8. Flow. Simplify complex processes to save time & effort.
9. Pull. How many Marines are needed down the pipeline?
Share real-time information across all schools.
10. Do not pass along undertrained Marines.
11. Use new-found time to *increase* training.

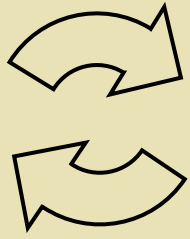




What is To Be Done at PISC?

1. Define *value*: “What is a Marine?”
Is NAVMC 3500.18 MCCS what we want?
Ask the OpForces: what are we *not* delivering?
2. Draw each training week. Find wasted time. Cut movement. Cut non-value added processes.
3. Flow. Simplify processes. Rationalize facilities use. Right-size facilities.
4. Schedule *platoons*. Unshackle platoons from companies. Reduce class size to reduce wait time and increase unit leader responsibility.
5. Cross-train instructors. Maximize DI skills.
6. Use new-found time to *increase* training.

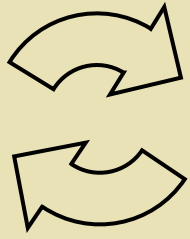




The Marine Corps is Fortunate

- ◆ The Marine Corps trains one product: Marines. Zero color, model, or material changes. Zero order changes. Zero set-up times. Zero changeover times.
- ◆ The Marine Corps has:
Zero fear of job loss. Zero unions.
Zero labor issues. Zero salary disputes.
Zero hourly workers. Zero overtime.
- ◆ The Marine Corps already has a lean culture of team players. Zero individualism.



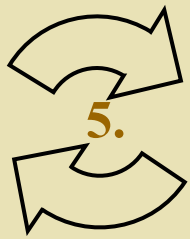


USMC Glossary

Use heritage language and terminology



◆ Batch size	Class size or unit size
◆ Inventory	Student load
◆ Monument	Central Facility
◆ Standardized Work	SOP
◆ Batch and Queue	Hurry up and Wait
◆ Value Stream	Training Pipeline
◆ Wait time	Wait time
◆ Defects	Undertrained Marines
◆ Waste	Waste



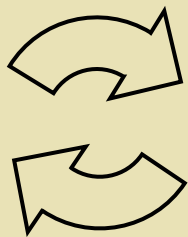
People Improve the Process

“We get brilliant results from average people managing brilliant processes.”

“Others get average results from brilliant people managing broken processes.”

**“Don’t search for brilliant managers.
Perfect your processes.”**





References

- 
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