Tools to Help Keep Firefighters Safer

- Fire Scene Awareness
- The OODA Loop – What is it? How does it work for the fire service
- Observe – information prior to arrival and the initial events of the showing
- Orient – “walk around” or 360 degree size up – information from all sides and notify the fire crew of any dangerous conditions
- Decide – select a strategy – offensive / defensive / or transitional
- Act – carry out your plan.
- Continually gather new information on the progress and safety of your crew(s)
- Use OODA Loop to decide if you need to change

OODA Loop

The OODA loop encourages decision-makers to think critically, anticipate threats, and overcome them before they become critical

History of OODA Loop

- Developed during the 1950's to help combat pilots with critical thinking decisions
- A process, that once learned, can help shorten the time for making a decision
- Designed as a "loop" because situations can begin to change in a heartbeat
- Adopted in fire service because of ever changing conditions and new information obtained throughout the operations
- Begins early and continues throughout the fire or emergency incident

Colonel John Boyd, USAF

The OODA Loop
OBSERVE

The first step in the OODA Loop is to observe. At this stage, the main focus is to build a comprehensive mental picture of the situation with as much accuracy as possible.

Observe
1) Pre-plan a critical site before a fire occurs
2) Decide how you would fight this fire
3) Determine things as access and water supply

OODA LOOP

OBSERVE

ORIENT

Boyd referred to it as the "schwerpunkt," a German term which loosely translates to "the main emphasis." In this context, to orient is to recognize the barriers that might interfere with the other parts of the process.

OODA Loop

Orient

DECIDE

No surprises here. Having gathered information and oriented ourselves, we have to make an informed decision. Boyd described this step as the hypothesis stage. The implication is that we should test the decisions we make at this point in the loop, spotting their flaws and including any issues in future observation stages.
OODA Loop

**Decide**

With a decision made, now is the time to act upon it. This is when we see how good our decision has been. Did we observe the right information? Did we use the best possible mental fire models? Whatever the outcome, we then cycle back to the first part of the loop and begin observing again. Looking for critical changes over a reasonable time or we go to Plan B.

OODA Loop

**Act**

Using the OODA Loop

- How the Fire Service can use the OODA Loop
- Information gathered before arrival – dispatch
  - Type of fire? How many fire units and firefighters responding
- Information gathered on the scene
  - Your initial size-up, extent of the fire
  - 360 degree observation – noting hazards and hindrances

How the OODA Loop helps with Strategy

**Offensive**

Aggressive interior attack on the fire

**Defensive**

Exterior fire attack only – due to conditions e.g. structural collapse

**Transitional**

Initial exterior attack on a vented fire for knockdown, then switches to an aggressive interior attack for extinguishment

The Strategy helps develop the Tactics

**Tactics include:**

- Securing a water source – if possible – if not knowing what
- Amount of water is carried on your fire engine and how should it be used.
- Search and Rescue for potential victims e.g. “Rescue Mode”
- Choosing the correct size of fire hose line to overcome the fire
- Placing that fire hose line in the right location e.g. protecting victims and extinguishing the fire
- Ventilating the fire after there is “water on the fire”
Examples for determining Strategy and Tactics from the OODA Loop

Observe - start gathering information
Orient - what are the strong points and potential hazards - 360 degree
Decide - based on what you know or "suspect" - make a decision
Act - take actions to carry out your decision - set goals to show improvements
Begin again - re-evaluate based on progress such as achieving a goal
Have Plan "B" ready if no progress.

Prior to arrival at the scene we can see it is a working fire!

Why? Partial building collapse, creek on one side will hinder operations - several explosions
   Dangers to firefighters
   Fire and explosions continued for hours

Fire on your arrival
Importance of the 360 degree observation

Scene from next morning
Fire was allowed to burn itself out

What do you see on fire?
What do you see on 360 degree observation?
Note fuel pumps and abandoned truck

Again what do you see?
Fire on a different level of the structure revealed by the 360 observation

What do you see?
Fire on arrival
Is it a house fire?
An agricultural storage building

Sometimes it is too dangerous
Exterior Attack
Roof and wall collapse

What else can we learn from the OODA Loop

: Plan ahead
: Visit your major hazard sites
: Make a pre-plan that includes discussing possible strategies and the tactics based on your Observations
: Practice through training
Responding to the scene

Front of building

Back of buildings

Defensive attack saved all but the original building

Need for multiple water supplies, how many do you see?

Note: Water shuttle operations on the rear sector highway.
The loss to the fire building was $2.1M. Had the fire been allowed to spread to adjoining buildings, the loss would have been $15M.

The OODA Loop Works
Another tool to be used by professional, well trained firefighters
Like you!

Thank you for attending!
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