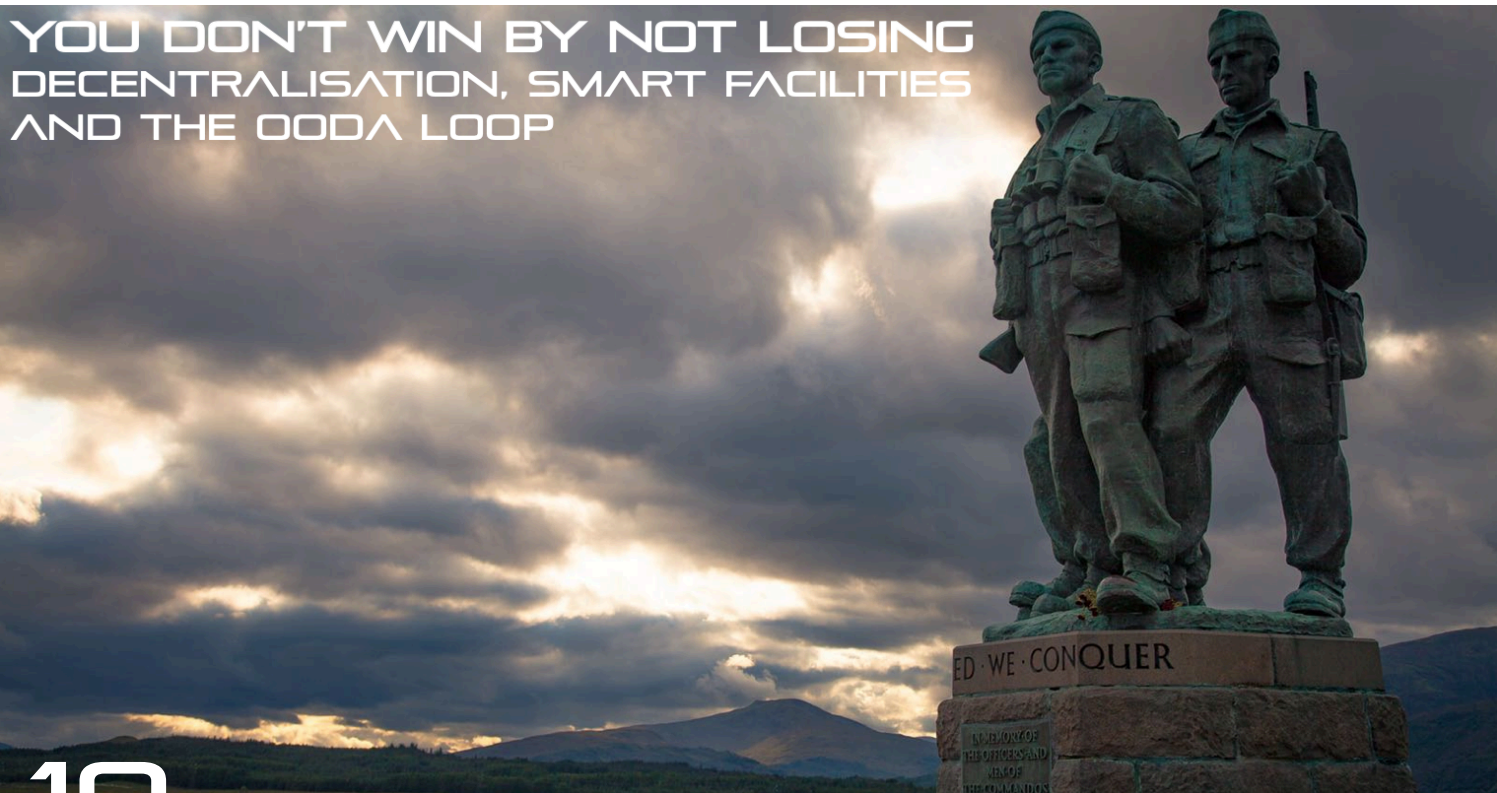# YOU DON'T WIN BY NOT LOSING
DECENTRALISATION, SMART FACILITIES AND THE OODA LOOP

10 years after the first exposure of his OODA loop John Boyd put that, and his other work, into a collection called "a discourse on Winning and Losing". Like that, this article hopes to show how this focus on winning could better shape our training infrastructure. Unlike it, this will (hopefully) not take fourteen hours to read.

Blending theories, lessons learnt in the unforgiving context of military operations and the theory of sports analytics 4GD was formed in 2016 with the key mission of improving individual operators ability to win through state of the art urban training facilities. Despite successful deliveries for elite forces across both the UK and the USA we have been working in relative, and deliberate, secrecy while our offering has been honed. Now with the launch of our website, we are ready to come out of the shadows. This article is the first step in this and has three aims;

1. Explore how OODA & McRaven's model can help shape training to facilitate operational success.
2. Discuss threats to these theories and the mindset required to overcome these challenges.
3. Develop the core principles of training infrastructure design against these theories and explain how 4GD's multi-level SmartFacility™ has been created to facilitate a relentless focus on winning.

This article is not meant to be an academic discourse on the theories but an explanation of how they have helped shape our offering to meet future training requirements and enhance the chance of tactical success.

THE THEORIES OF WINNING

OODA: *"You must get into the minds of humans. That's where the battles are won"* John Boyd

Many consider the OODA loop (seen at the top of Image 001) to be a seminal work on the decision-making process. On the surface, the loop provides a simple framework as to how decisions are made (flowing from observation, through orientation and decision making to action) and is often demonstrated by a simple four-step loop.

However, as the image shows the proper application of the theory is far more complex. The key phase being orientation, where the causes (both historic and immediate) of an individuals or groups behaviours are considered.

While 4GD's facilities do look to adapt operators subconscious competence, and thus how they make decisions, this aspect of the loop will be considered further in the next article. If, however, after reading this you want to understand the loop in more detail please read this piece and/or watch this video by a fellow former Royal Marine Rod Yapp. When I was taught the concept during training, I was never able to see the brilliance of its proper application as, at the tactical level, it was hard to contextualise. The slider concept, seen at the bottom of Image 001, is our development of the theory into more of a tactical level aide-memoire. The aim is to ensure you get to Act
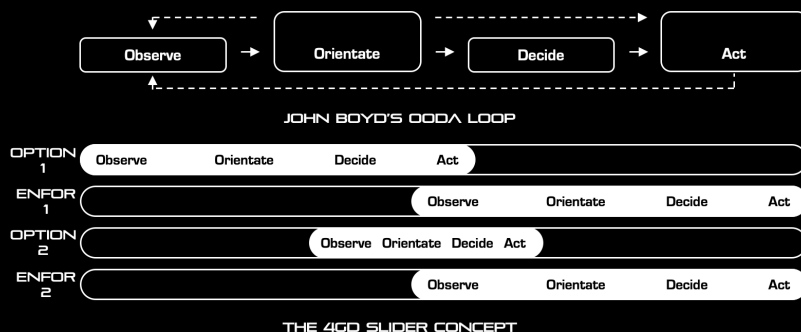

JOHN BOYD'S OODA LOOP

THE 4GD SLIDER CONCEPT

Image 001: THE OODA Loops
Comparing Boyd's with 4GD's slider

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before the opposition does and, clearly, the further back you get your slider the higher your chance of success and the deeper the adversary finds themselves within your loop. There are two key methods of doing this;

Option 1: Observing your adversaries and being able to act before they can observe you. Getting to A before "they" get to O has the biggest lead, and thus the highest chance of success.

Option 2: Having a shorter loop than them. This means that even if you do not see them first you will still get to Act before they do. Thus, your operational tempo, or speed, must be quicker than theirs.

To enable this tempo, we believe training should be designed around getting your slider as far back, and your loop as small, as possible. Using OODA the following are some of the ways that better training infrastructure can achieve this;

Image 002: Gaining Focus
Using Admiral McRaven's Model
to guide design

Observe (Active – *"How to see them first"*): More extensive use of Night Vision, more extensive practise with joint assets and more regular tactical training to improve target acquisition.

Observe (Reactive – *"How to stop them seeing you"*): More extensive practise with screening devices, facilities which can monitor how covert a team is and more regular tactical training to improve feints and diversions in a clearance.

Orientate and Decide (Active – *"How we pivot first"*): More regular tactical training to improve team tactics and cohesion. Enabling the team to think as one. Better, and continuous, use of technology to accelerate decision making.

Orientate and Decide (Passive – *"How we prevent them pivoting"*): Facilities identifying trends to encourage unpredictability and 360 facilities where truly dynamic motion can be practised.

Act (Active – *"How do I act more decisively"*): Regular training, under realistic combat conditions to reduce the training to operational reality gap. Performance in combat should be the same as in training.

Act (Passive – *"How to prevent them from acting decisively"*): Regular shooting to ensure accurate and targeted engagements.

The McRaven Model: *"Fast is fine, but accuracy is final. In a gunfight, you need to take your time in a hurry"* Wyatt Earp

The loop provides a fantastic basis for training infrastructure design. However, before we started to focus on our offering, we wanted to test the theory against the real world. Admiral McRaven's (former commander USSOCOM) book Spec Ops offers a brilliant framework in which to do this. There would, by means of an example, be no better vindication of the loop, and the slider, than the seventy-eight German Glider borne Troops that were able to capture the fort of Eben Emael from over six hundred and fifty Belgians through a ruthless focus on tempo, borne from training.

While studying his book we came across his model (Image 002) which lays out his six principles for achieving relative superiority and that became the capstone of our design process. All of his principles can be impacted by well-considered facilities. While Speed, Surprise and Repetition had already been considered Security was realised to be an additional fundamental aspect of how training should be conducted. To pull your slider even further back facilities must enable a quiet and protected environment to test, develop and train.

Simplicity and Purpose were initially considered more operational principles, but it was these that made us realise that were training to become a way of life then, again as an example, simplicity of operations could be altered through enhanced performance.

THE WINNING MINDSET

Shifting the Onions: *"If we play like the Yankees in here, we're going to lose to them out there"* Billy Beane

To achieve this focus on winning several challenges were identified. One such example is the necessity of a change of mindset from survivability to lethality. Recent overtures are promising, however, need to be realised. This is because, as previously mentioned, you want to shape your opposition by leading their OODA loop, not the other way around and primarily focussing on survivability means you are reacting not leading, as Image 003 shows. Using a poor driving analogy we believe protection is similar to a reactive airbag, whereas more regular, and realistic, training is similar to the proactive step of taking driving lessons.
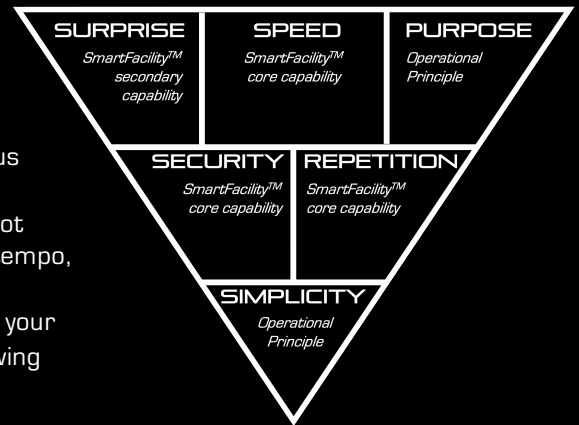
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Balancing Collective Training: *"Give me six hours to chop down a tree and I will spend the first four sharpening the axe"* Abraham Lincoln

While collective training is critical for any organisation it must be balanced both in terms of mindset and infra-structure with low-level training opportunities and facilities. Collective training infrastructure is both expensive and, more critically, by its nature dislocated from units and not always available. Similarly, collective training does not often allow the repetition and frequency of action, at the lower levels, needed to build the cohesion required for enhanced operational tempo. Additionally the contemporary operating environment is also hugely complex when viewed through the operational and strategic lens making targeted training challenging, whereas whatever the operational context it is highly likely that it will involve team size groups operating in an urban environment. All this, as will be explored in the final section, has led us to believe that enhanced collective operational tempo can be successfully achieved through state-of-the-art tactical level training and analysis.

DON'T BE SEEN
DON'T BE HIT
DON'T BE PENETRATED
DON'T BE KILLED
SURVIVABILITY

SEE THEM FIRST
TARGET THEM FIRST
ENGAGE THEM FIRST
HIT THEM FIRST
LETHALITY

Image 003: Shifting the Onion
Moving the conversation from the left to the right

WINNING THROUGH IMMERSIVE TRAINING

Training Infrastructure Principles: *"Training as a surrogate for warfare"* Maj Gen Timothy Hyams

This study into the theory of winning left us with some clear direction, and trends, into, what we believe, the principles of urban training infrastructure design should be. These have been split into the four core training areas we have shaped our SmartFacility™ concept around but first, we created 3 overarching principles, which are;

On-Prem: The first necessity is to have training infrastructure decentralised to individual units. This facilitates some huge benefits such as the ability to conduct training in a secure environment and an ability for units to design their facilities to suit their specific mission set. However, the main shift is that decentralised facilities allow more frequent decentralised training which, due to its reduced size, can be run by the oft-discussed strategic team leader engendering a true sense of mission command.

Dynamic: The contemporary operating environment is hugely confusing, and facilities need to reflect this. Adaptable spaces which enable 360 Degree force on force engagements are a must. This could enable a huge tactical advantage as would enable dynamic clearances to be practised (as far back as 1967 the US Army were awarding a five times force multiplier ratio for rear strikes on exercise).

Tempo: The tempo of training needs to match the tempo of operations. Centralised training facilities cannot be used continuously whereas On-Prem facilities can. This availability would enable a warrior training cycle to be forged, where achieving an hour of combat training a day would be hugely realistic. This could be the relative superiority over adversaries that McRaven discussed. Maj Gen Hyams, in his talk at RUSI, also discussed a training environment where it was safe to fail, we contend that frequency facilitates this. If a Platoon/Troop had one hundred run-throughs of a facility failing ten would be acceptable, if they only had ten, due to availability, clearly the same could not be said.

Smart Facility™ Specific Design Theory: *"We shape our buildings, afterwards our buildings shape us"* Winston Churchill

Within those principles, we identified four key themes that could substantially enhance training effectiveness. These form the basis of the four levels of our SmartFacilities. This modular approach is central to the ability to both grow facilities in line with requirement and budgets but also ensure they can be updated in an ever-shifting world, both in terms of adversaries and available technology.

Image 004: Level 3 SmartFacility™
Making training a surrogate for warfare

4GD

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Level 1 – Complexity: Facilities need to mirror the world being operated in, the image at the bottom of this article shows an example of how all our facilities are completely reconfigurable ensuring users have to take each evolution like new. Fighting the facility must become a thing of the past if users are going to become comfortable overcoming uncertainty.

Level 2 – Immersive & Responsive: Facilities must be as close to Reality as possible and ensure all the senses are immersed. Only when this is achieved will the gap between training and operational reality be closed. However, the technology needs to do more than this. It needs to be so intuitive it reduces the burden on the instructor, it needs to react to users, it needs to monitor trends and it needs to enable 24 hour black light to facilitate a drive to "beating the O" (moving ahead of their identification ability).

Image 005: Focus on the Possible
How virtual simulation can create
immediate training enhancements

Level 3 – Realistic Adversaries: While real "enemy" are often the best thing to train against, as they can be instructed to follow a similar OODA loop to your opposition, sometimes targetry is a necessity to evaluate accuracy. A 2016 study showed that shooting in a "live" context was 80% less accurate than shooting on a range. Training must replicate reality to close these gaps so 4GD's targets behave like a real person. From being able to verbally engage with operators to reacting to noise or motion. Trainees will learn how to make judgments and shoot when operating in a high-stress combat environment, such as in Image 004.

Level 4 – Blended Simulation: One of the key benefits of collective training is the availability of higher-level assets. To enable a thorough decentralisation of training these assets need to be replicated virtually to encourage junior commanders to become comfortable with the technological dimension of observation, orientation and decision making within a combined arms environment. Image 005 shows how we have focussed ourselves on the development of several capabilities, being launched in 2020, by finding where there is an overlap between critical training requirements and technological capability. We believe this approach will both achieve immediate operational impact as well as facilitating regular upgrades and enhancements.

Ecfectus Teaser: *"The world is full of obvious things which nobody by chance ever observes"* Sherlock Holmes

In 2020 4GD will be launching two ground-breaking new products for dismounted urban close combat training and simulation. The first, the Ecfectus overlay, will leverage big data, within our SmartFacilities, to significantly enhance operational tempo and excellence. This article is the first of three over the next eighteen months. The next one will discuss how Ecfectus will tighten OODA loops, refine TTPs and continuously analyse performance and, as a result, make winning even more likely.

About the Author;
Robert Taylor is a former Royal Marine who founded 4GD in 2016. For more info on 4GD and the detail behind our SmartFacilities, please visit our Website, Instagram or Twitter.

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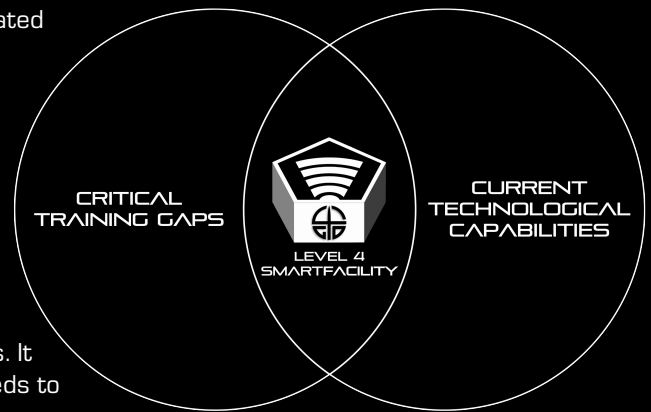4. Spec Ops: William McRaven 0891416005