

The Topology of Greed:
A Systemic Analysis and Scoring Rubric for Extraction Shooters
With Field Notes from 300+ Hours

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Abstract

Extraction shooters like *Escape From Tarkov* represent a distinct class of game economies defined by set-valued valuation and irreversible loss states. This paper unifies a phenomenological analysis of the “Tarkov” experience with a rigorous scoring rubric for the genre. We further extend this analysis using dynamical systems theory to model the core gameplay loop, identifying a “Greed Separatrix”—a critical boundary in the phase space of Loot Value (V) versus Raid Integrity (I) where the expected value of continuation shifts from positive to negative. Part I presents the formal analysis and rubric; Part II provides field notes and case studies from over 1000 hours of gameplay, preserving the authentic voice of the analyst.

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Part I

Formal Analysis & Rubric

1 Introduction: What is Tarkov?

Escape From Tarkov is not merely a shooter; it is a simulation of sado-masochism, economy, and attachment to material assets. The DNA of the game lies in the continuous struggle between “what we need” (survival) and “what we need to win” (profit/progression). Unlike a lobby-based shooter like *Call of Duty*, Tarkov is akin to *Ready Or Not* in its preparation phase, but with high-stakes persistence.

Winning takes three forms:

1. **The Rat:** Risk-averse, stealth-oriented, looting scraps and avoiding conflict to ensure extraction.
2. **The Chad:** High-aggression, high-gear, using superior ballistics to farm other players for value.
3. **The Casual:** The struggle to survive amidst the ecosystem of the former two.

The core psychological engine is “Gear Fear”—the set-valued intrinsic valuation of equipment. A loadout isn’t just stats; it’s an investment of time and rubles. Losing a customized P90 isn’t just a death; it’s a realized financial loss.

1.1 The Trader Web as Systemic DNA

The game’s coherence is maintained not by gunplay, but by the **Trader System**. Traders (Prapor, Therapist, Skier, et al.) function as the AI economy and quest givers.

- **Closed-Loop Logistics:** Every “junk” item (bolts, hoses) has a purpose via barter or hideout upgrades. There is no “dead loot.”
- **Forced Navigation:** Quests like “Plant marker on tank” transform abstract map knowledge into embodied spatial literacy. You cannot speedrun a survey quest; you must hold position, learn sightlines and cover.
- **Fence & The Scav Economy:** Fence acts as the entropy sink and secondary market, allowing for “beat-the-clock” purchasing and durability gambling.

2 Topological Analysis of the Raid

To understand why players “Rat” or “Chad,” we model the raid as a dynamical system evolving in a phase space defined by two state variables:

- **Loot Value (V):** The cumulative value of items carried. Acts as the “mass” or “inertia” of the player state.
- **Raid Integrity (I):** A composite metric of Health, Hydration, Ammunition, Armor Durability, and Time Remaining. $I \in [0, 100]$.

2.1 The Greed Separatrix

The fundamental decision in any extraction shooter is “Extract or Continue.” We define the vector field (\dot{V}, \dot{I}) :

$$\frac{dV}{dt} = \alpha \cdot \left(1 - \frac{V}{V_{\max}}\right) \cdot \sigma(I) \quad (1)$$

Loot acquisition slows as the map is picked clean ($V \rightarrow V_{\max}$) or as Integrity drops ($\sigma(I)$), representing cautious movement due to injury.

$$\frac{dI}{dt} = -\beta - \gamma \cdot V - \delta(t) \quad (2)$$

Integrity decays naturally (β), but crucially, **decay accelerates with Value** ($\gamma \cdot V$). High value makes a player a “Loot Piñata,” attracting Scavs, Bosses, and other players, exponentially increasing risk.

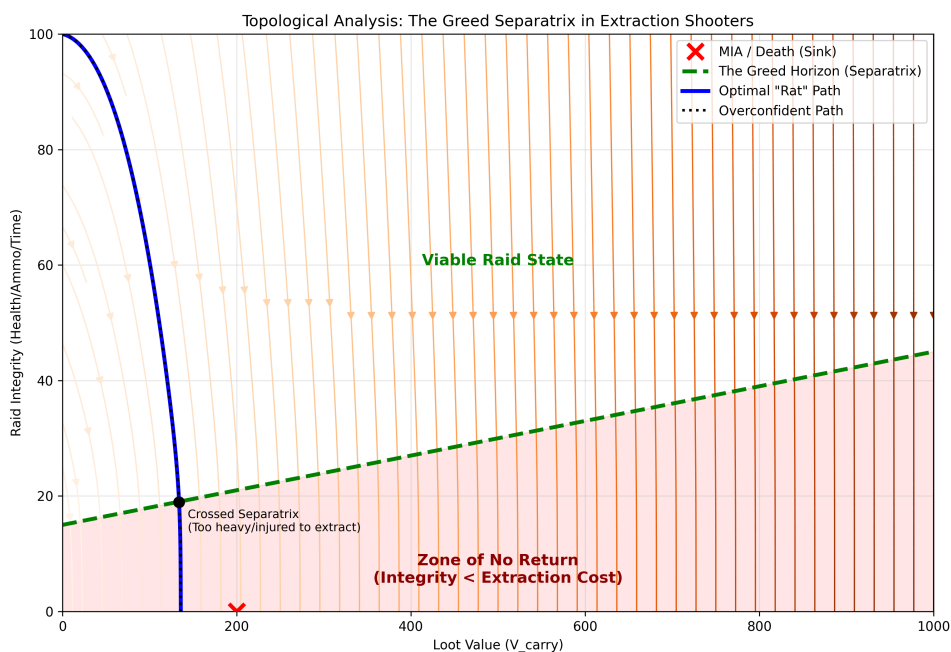


Figure 1: **The Greed Horizon.** The phase portrait illustrates the topological trap. The **Blue trajectory** represents an optimal “Rat” run: gathering value while I is high, then extracting. The **Green dashed line** is the **Greed Separatrix**. Crossing below this line puts the player in the “Zone of No Return”—where the Integrity cost to extract (due to weight, injury, or distance) exceeds current reserves. The **Black dotted line** shows a “Greed Death”: staying for “one more loot run” pushes the state across the separatrix, leading to inevitable MIA or death at the Sink (Red Cross).

2.2 Risk/Reward Valuation

Extraction priority shifts when carried value V_{carry} spikes beyond a multiple κ of the baseline utility:

$$V_{\text{carry}} \geq \kappa(U_{\text{base}} + U_{\text{stash}}) \quad (3)$$

Field observation suggests $\kappa \approx 3$. This “tripled-value” sentinel reflects the moment a player’s portfolio transitions from marginal to catastrophic risk exposure. The decision to stay is rational only if:

$$E[G_{\text{continue}}] = p_{\text{survive}}(V_{\text{carry}} + \Delta V) - (1 - p_{\text{survive}})L > V_{\text{carry}} \quad (4)$$

where L is the total die-and-lose burden (Loadout + Loot + Key Costs - Secure Container).

3 Systemic Scoring Rubric

Based on this analysis, we propose a scoring rubric for the genre. A “Tarkov-like” must be evaluated on systems, not just mechanics.

Global Scoring Model: $S_{\text{final}} = 100 \times \sum w_i \frac{P_i}{5}$.

Criterion	Weight	Performance (0-5)
Closed-Loop Loot	0.11	Nearly all loot has sinks (crafting, hideout, quests). Dead loot implies a broken economy.
Ballistics & Economy	0.09	Ammo/Armor trade-offs must be legible and consequential. Meta shouldn’t converge instantly.
Extraction Topology	0.09	Multi-route exits (Key, Puzzle, Timed, Free) enforce map knowledge and prevent camping.
Risk Signaling	0.09	UI/Audio must clearly signal “High Value” (weight, sound) to trigger extraction discipline.
AI Ecology	0.09	AI tiers (Scav, Raider, Boss) act as dynamic pressors. Player-scavs add emergent unpredictability.
Combat Optionality	0.08	Avoidance, flanking, and negotiation must be viable win paths. Linear PvP funneling is a failure.
PvE Learnability	0.08	PvE modes must mirror PvP risks (sans griefing) to allow map/loot mastery.
Death Attribution	0.08	Loss must be traceable to player error, not netcode or RNG. Kill-cams or logs are essential.
Soundscape	0.06	Headsets matter. Audio occlusion must be tactical, not just atmospheric.
Map Readability	0.07	Landmarks and heuristics (coastlines, power lines) enable navigation without a minimap.
Dynamic Events	0.07	Limited events (Boss roaming, Zombies) shift meta without breaking the core loop.

Table 1: The Anderson Extraction Shooter Rubric.

4 Boss Ecology and Emergent Pressure

Bosses in Tarkov are not just high-HP enemies; they are systemic disruptors.

- **Killa (Interchange)**: Forces pre-emptive avoidance. His presence turns optimal loot routes (OLI/IDEA) into death traps.
- **Shturman (Woods)**: Creates a “suppression economy” where time-under-fire is the scarce resource.
- **The Goons (Roaming)**: Create persistent uncertainty. Their cross-map pursuit and NVG advantage at night invert the standard safety rules.

5 Conclusion (Part I)

Tarkov succeeds because it is a **closed system of risk and reward**. It forces players to internalize the “Greed Separatrix”—the invisible line where the weight of loot and the decay of integrity makes extraction impossible. Competitors that copy the shooting but ignore the **Closed-Loop Loot**, **Trader Web**, and **Topological Risk** fail to replicate the “soul” of the genre.

Part II

Field Notes from 300+ Hours

6 A Rambling Commentary: What is Tarkov?

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What makes Tarkov, *Escape From Tarkov*? The DNA of the game is that we are a merc who's either USEC or BEAR—we never escape from Tarkov, we're always running back to Tarkov for supplies to fix and upgrade the hideout. The game is a continuous struggle between getting what we need vs. what we need to win. But what's "winning"?

Tarkov is a game about sado-masochism, economy, and your love for your supplies and gears. It's never been a simple FPS—it's more akin to *Ready Or Not* in preparation for a mission than picking a loadout to win in the COD Warzone lobby. As we go out and do that, our RPG-specific stats level up (which by the end of a wipe) players who have been playing since the beginning of a wipe will have an advantage.

Winning in Tarkov means being either: A RAT, or a CHAD, or playing CASUALLY.

CHADs play the game without too much of a care. They get loot, use that loot to get kills—they don't need to camp or rat it out to reach an exfil. What makes Tarkov is the gear fear, exploration. It's siding with, betraying, or being a scav to get monies (rubles, USD, or euros) to buy gear, weapons, supplies, and junk (the junk being used to buy and trade). It's selling stuff to specific traders to unlock new gear. Your average player won't know that the Reserves map has some ammo that can only be found in that map (as well as Labs). That's good. The biggest decision when playing Tarkov is to have a dual monitor setup to have a map for quick referencing.

6.1 Where You Load In Determines Everything

- Quests you can complete in time.
- Where you are vs. where AI scavs mostly roam.
- What locations to hit up for the best possible loot, and how quick you might be able to get to it.

Playing Tarkov is either being focused to the point of paying attention to footsteps and using the right headphones in-game, or somehow doing well while talking. As soon as we're in a RAID in Tarkov and we find that singular amazing item—it's time to book it to an extraction or take stims to increase Strength. GPUs sell for a lot in the in-game market, but bitcoin raises in price once players can buy them.

6.2 The Single-Player Revolution

But as the game is nearing "completion" until BSG decides to work on their next game in the Unity engine, it's only going to get better in some ways, and more polarizing. Single-player was the greatest addition in retention of players and BSG is going to allow mod-support. What does single player add?

- The ability to learn maps.

- The ability to recognize and learn where loot is.
- Increased SCAVs and AI-PMCs due to no PvP.
- Being able to recognize different bosses.
- No need for immediate griefing from other players—but it’s still rough.

7 Encounters in the Field

7.1 The Goons

There’s a group of three bosses called the Goons, who roam around (and at night they have night vision)—I’ve encountered them a bit aside from the RAID event. At its core, in Tarkov, everyone is a vulture but winning is determined on successfully leaving and earning: “Kills, Monies, Equipment.”

I also later learned the best way to encounter the Goons is in close to medium distance with at least a shipping container and a solid wall to hide behind, and at least one other person.

Interestingly: I’ve never encountered Partisan when playing with another person. But when that same friend played solo, he’d encounter Partisan. So, I suspect Partisan goes after solos.

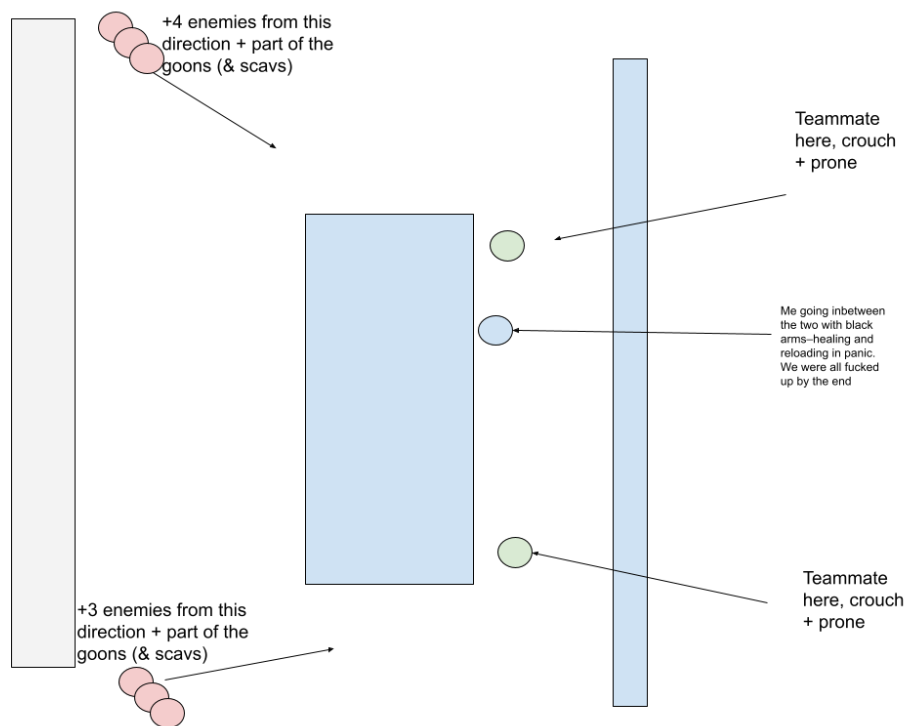


Figure 2: **Goons Encounter (f1)**. An encounter with the Goons—felt like a last stand. We won. Very fucked up though.

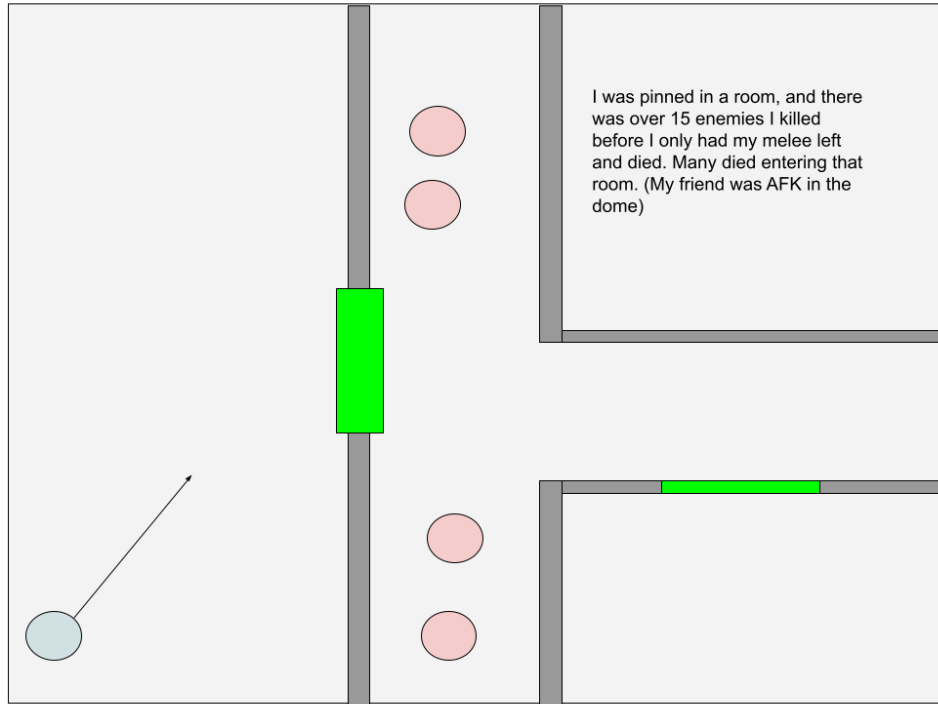


Figure 3: **Actual Last Stand (f2)**. By the time I died, I only had the Red Rebel left. No Goons, just Scav swarm attrition.

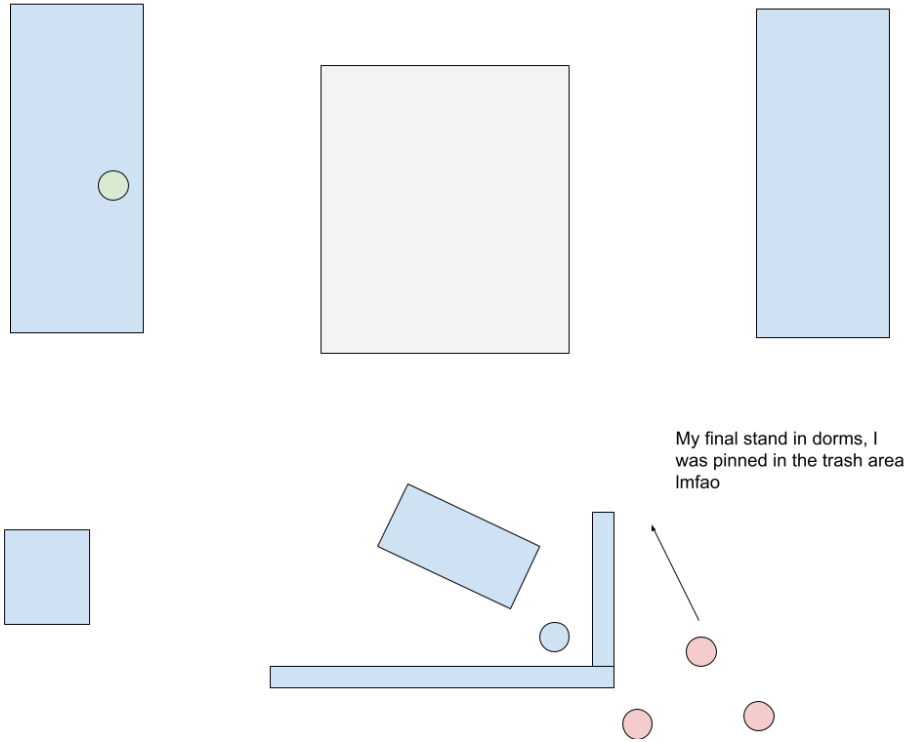


Figure 4: **Pinned by PMCs (f3)**. A topological trap—pinned on both ends. Movement options vanished, leading to the Sink (Death).

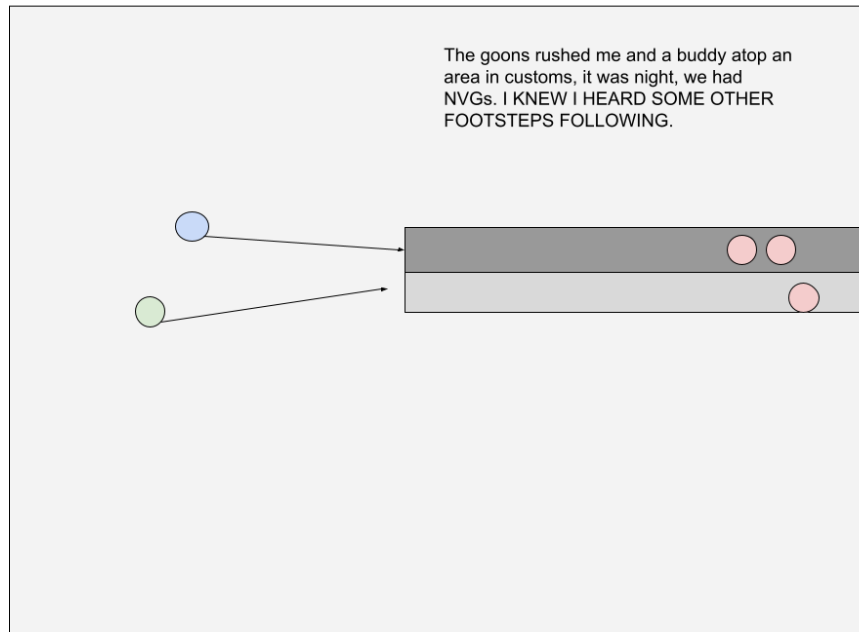


Figure 5: **Night Goons (f4)**. Encounter with the Goons at night. Survival required overcoming their NVG advantage.

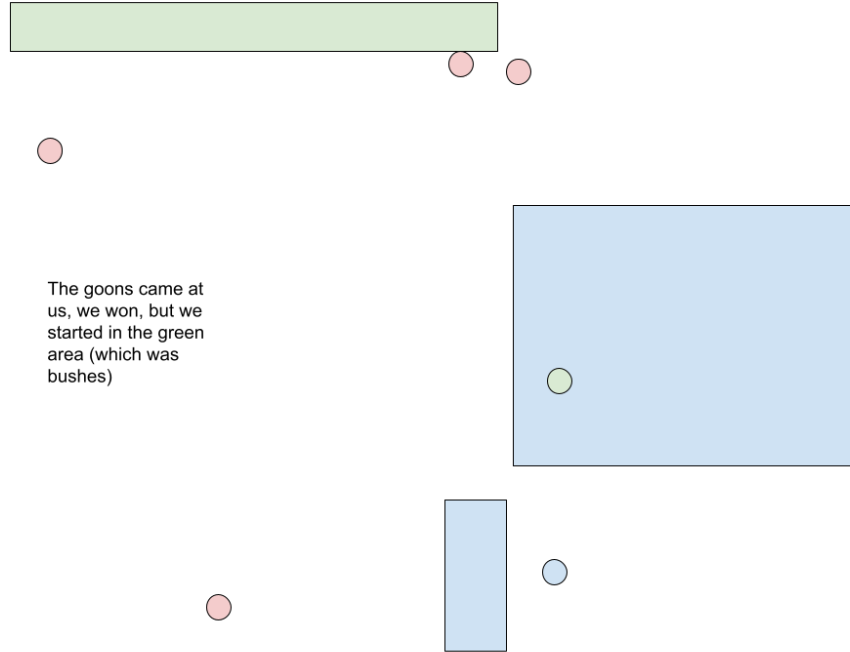


Figure 6: **Lighthouse Residence (f5)**. A complex engagement near the larger residence, next to the small restaurant and a delivery truck. Demonstrates the importance of map heuristics.

8 The Closed-Loop Economy

Tarkov is a closed system of risk and reward. If I am running low on CMS kits, I can either sell it off for immediate value or craft a new one with a used CMS that has only one charge left. Unless Found In Raid is unlocked, anything that needs a FIR status meets requirements if the item is crafted in the hideout.

8.1 The GPU Example

A GPU is a coveted item inside of Tarkov. The player needs to find them (three) for an important quest, and the rest for building the GPU farm which allows players to “farm” cryptocurrency over time. *Note: It took until 300 hours before I found my first GPU.* However, this item requires electricity to be enabled in the Hideout, and until the player unlocks the solar farm, it will require finding or bartering for fuel.

8.2 Inventory as Set-Valued Assets

In the case of Tarkov there are a finite amount of slots to hold items in containers on the character as well as the individual pieces:

- Sling A AND Sling B AND PDW (pistol)
- Head (Sometimes Helmet XOR Headset)

- Torso (Carrier XOR Vest)
- Backpack AND Pockets AND Utility Slots
- Secure Container

Each of these items has a value per set where 0 can be somewhat offset by insurance—but not really, because you must pay to have items insured. The only true assurance are utility slots and secure containers.

The difference in how much money the loadout is is dependent more on the Torso and Sling slots. Grabbing NVGs or Thermal and a SPEAR despite being 2–3 items is a must-extract due to immediate realized value in purely cost.

9 Map Literacy and Navigation

9.1 Woods

Such as spawning at UN Roadblock or above the plane crash area means you have to go to the Truck in Outskirts for extract. Which means navigating towards the bottom center-to-left part of the map by going past the logging camp where Shturman might spawn. Hugging the lake is optimal play in PvE when you're badly wounded because it's generally out-of-sight lanes of any AI.

9.2 Shoreline

Shoreline is the worst because there's one large "road" route to and fro that's littered with enemies that can get sight of you. But there's also a type of infrastructure, dam, like a divider in the middle. So, either way you have to go around that or through the road.

9.3 Lighthouse

Lighthouse? You're just kind of fucked due to snipers and rogues if you step into the wrong area—oh, and landmines. It's a much less forgiving map. Really, you just avoid the Rogue's camp in the north part of the map and hit the two clustered compounds: USEC and BEAR ones. I prefer playing Lighthouse to Shoreline explicitly because Shoreline is the one where it's a hassle to hoof it to extract under time pressure.

9.4 Customs

Customs is fun in the sense that you're generally either near: dorms, old gas, new gas, or near the riverbank to extract. Rarely, if ever, are you by the silos. All of the interesting locations are clustered together by new gas, dorms, and fortress. If any boss is in the map, scav spawn so much more and kind of feel like they won't stop coming towards you once you actively engage in combat.

10 On Teamkills and Communication

The ONLY times I have teamkilled by accident was because of miscommunication. Such as when we were looting the same building. He didn't say he stepped outside when I heard another enemy approaching, so I thought him turning around and entering the garage again was an enemy.

In the second case, it was indirectly. It was on the third-story office—there was another PMC that didn't look like him. So, I was like okay, there's something there, I'm going to kill them. And

they literally were like “no, no, no, that’s me, don’t shoot,” and I was like... uh... okay. My friend never specified he was at the END of the hallway at all. The PMC-AI killed him.

Those also stand out because I’ve played over 100 raids with them and have never otherwise teamkilled. So in my mind, that was an edge case—logged as: if sure it’s an AI PMC despite teammate insisting I’m ADS’d on them when I have a clear shot, just go for the kill.

11 The Phasmophobia Tangent

Quick tangent on another low-cost game—Phasmophobia. During a run when I was in the truck, a group of friends went into a house and got hunted by the ghost and immediately died. They wanted me to take a picture of their bodies for insurance purposes.

I literally watched them go inside of the house and the door immediately shut on its own and a hunt happened. As the lights flickered and then they went silent. One by one. I laughed, said no, walked my character towards the button to press and transition back to the lobby.

As in, that would have been an immediate death considering the chances I could have loitered inside of the house or got a picture of all bodies and left with other gear intact was a non-zero but less than probably... 25% chance. The odds were not in my favor.

The tangent is important because with Tarkov, you can at any point in the RAID decide “fuck this” and leave—even if a “run-through” is something that happens. Especially even if you are already in a group.

12 What Definitively Makes a Tarkov Competitor

So what definitively makes Tarkov so that we can make a rubric? A Tarkov competitor, or Tarkov, is a game that:

1. There are multiple ways of extracting—either: locked with a key, locked with a puzzle mechanic (such as hermetic door and running to it), free to use, or time-gated unlock.
2. The bullet and gun economy are extremely varied and allow for different types of learning the gameplay.
3. Combat is a main part of the core gameplay loop; but combat can be avoided unless it’s for a challenge or quest.
4. AI is a mechanic for emergent gameplay due to unpredictable pressors; AI is important and players being able to take the place of AI (such as player scavs) add meaningful gameplay.
5. All loot has its usage—it’s a closed loop game, even the “junk” (e.g., replenishing a used CMS kit with Med Tools & Painkillers when the Medical crafting is leveled up enough).
6. While it took a long time to add PvE, PvE as an option on its own means that learning the game is possible. The biggest differentiator between PvP and PvE Tarkov is, for the most part, mitigated risk from unknown player interference and unpredictability.

13 On Loss and Gear Fear

Truthfully? Tarkov is a game that got me over the fear of losing shit in a game, because shit happens. Thus I try to only insure what I actually liked once I started also getting better at the

game. P90? I love it but I can eventually get it again. Ironically, it's made me have a healthier relationship with loss.

However, I personally find the instance of making everything PvPvE focused when it should be more PvEvP something that personally dissuades me from purchasing or even trying a game. I'm not seeking to play a purely PvP experience that almost always just ends in a gunfight where it's a point blank, win or loss situation. That's binary and boring.

Sometimes purely PvP engagements can make losses feel cheap even if it is another factor of that risk/reward. Tarkov achieves fun outside of pure gunplay, but even the gunplay is fun when sustained; if the gunplay feels varied and even last-stand engagements can happen (albeit that's more an AI versus than a player-against-player versus).

14 Final Thoughts: On Streamers

The actual WORST part of Tarkov? Listening to streamers about what to change, add, or remove. Streamers are not the target audience nor focus—they are people who amplify interest in the game or eventually get people to try it. If people don't try it, streamers still elevate the game and keep interest there. Streamers are still not the core audience, and are not the basis of the everyday person who will play a game.

15 Conclusion

It's a game that gets popular and has sustained metrics because of PvP, but the AI portion isn't a bandaid or an afterthought. Just having a popularized *Resident Evil* Tetris-style inventory with loot and PvP encounters does not make for an equal or parallel experience. Think of the summation of value in rewards, quests, and also personal achievement that players go through when they play *Escape From Tarkov*.

If the game is just an extraction where there's PvP and "make money"—it's missing more than half of what makes it a Tarkov competitor.