LEVEL 1 - TRADER	DECISION		PORTFOLIO				EXECUTION	
	Trader (discretion + rule-based)	>	Portfolio Management System (PMS)	-	Order Management System (OMS)	-	Generates Orders, Pre-Trade Compliance, Margin/Funds, Transaction Overview	
$[Trader / Algorithm / Al] \to [OMS] \to [Risk Controls]$	Algorithm (rule-based)	-			11			
	ĄI.	1	AutoLation, exposure.		Execution Management System (EMS)	-	Executes Orders, Reports Updates Back to OMS	
	Autonomous & Adaptive							
1								
LEVEL 2 - BROKER	CONNECTION				OPTIMIZE		VENUES	
	Direct Market Access (DMA)	-	Bypass Broker Routing Logic. Buy-side gets lower costs and extremely fast order execution.		→			
$[Broker\ Connection] \to [SOR] \to [Exchange]$	Financial Information Exchange (FIX) Gateway	-	Standardized protocol for institutional order flow. Push data means fast, minimal delay, bi-directional constant flow.	-	Smart Order Routing (SOR)			
	API Endpoint (RESTful / WebSocket) (Pull)	-	Coding access using broker-provided interfaces (REST, WebSocket, or proprietary). Automated order placement, data retrieval, and account management directly from trading systems. Pull requested data. One-direction at a time.	Price - Liquidity - Latency - Fees / Rebates	-	Exchange / Electronic Communication Network — execution venues where orders are matched. (Dark Pools exist as alternative execution venues but are purposefully excluded from this flow.)		
	GUI / Trading Terminal (Bloomberg or IBKR TWS)	-	Manual entry via broker-provided interface (Bloomberg, IBKR TWS).					
	Sponsored Access / Co-location	-	Ultra-low-latency setup. Connects inside or near the exchange's data center. Co-location provides physical proximity for faster execution; Sponsored Access lets non-members trade through a sponsoring broker.		→			
1								
LEVEL 3 - MARKET	ORDER DATA				MATCHING		REPORTS	
			Best bid/ask defines current market price.	-	Matching Engine	-	Trade execution report back to EMS	
[Order Book] → [Matching Engine] → [Trade Execution]	Order Book / Market Depth 	-	Updates in real time.	-	Match Market Orders w/ limit orders Price-time priority Partial fills possible		Broker receives and confirms fill \downarrow	
			Orders are either executed or canceled.	-			Trader account update upstreamed to PMS.	
1								
LEVEL A POST	SETTLEMENT		CLEARING		CUSTODIAN		PORTFOLIO	
LEVEL 4 DOCT								
LEVEL 4 - POST	Match trade details between buyer and seller				Handles assets.		Position and P&L updated post settlement	
LEVEL 4 - POST [Clearing & Settlement] → [Custodian] → [Portfolio Update]	Match trade details between buyer and seller Net obligations (cash vs securities)	-	Clearinghouse guarantees trade (novation)	-	Handles assets. Handles cash delivery.	-	Position and P&L updated post settlement Back-office reconciliation	