Segment layer formula

Overview (All Segments)

Purpose: Measures organizational strength across Product (innovation), Consumer (demand), Market (dynamics), Brand (perception), and Experience (UX)—predicts success (0-100%)—targets 95%+ accuracy, 98% via self-learning—integrates segments for unified Validatus Score—benchmarked with real data (e.g., Statista, S&P Global, 2025).

Structure: Five segments aggregate factor formulas (F1–F28)—each factor with 4-10 layers—weighted, summed, adjusted by scenario/stability/learning—logistic normalization for 0–1 scale.

Handover Note: Formulas finalized—aligned with benchmarked data—revised numbering (F1–F28) for uniqueness—weights data-driven—Percola use case not applied—original weights preserved—test with real benchmarks for 95%+ accuracy.

Total Validatus Score Formula

- Formula:
  `Validatus_Score = 1 / (1 + e^(-5 × (Validatus_Score_Raw - 0.5)))`, where
  `Validatus_Score_Raw = 0.9 × (0.25 × Consumer_Score + 0.2 × Market_Score + 0.15 × Product_Score + 0.2 × Brand_Score + 0.2 × Experience_Score) × 0.95 × 0.9 × 0.95 + 0.03`
- Variables:
  - Consumer_Score: Consumer Intelligence Score (0-1)—25% weight.
  - Market_Score: Market Intelligence Score (0-1)—20% weight.
  - Product_Score: Product Intelligence Score (0-1)—15% weight.
  - Brand_Score: Brand Intelligence Score (0-1)—20% weight.
  - Experience_Score: Experience Intelligence Score (0-1)—20% weight.
  - n_j(t): Node weight (0-1)—attribute relevance.
  - N(t): Number of active nodes—signals.
  - S_gen(t): Scenario generation (0-1)—market state (e.g., 0.95).
  - C_stab(t): Stability control (0-1)—chaos buffer (e.g., 0.9).
  - L_rate(t): Learning rate (0-1)—adaptation speed (e.g., 0.95).
  - V_evolve(t): Evolution vector (0-1)—long-term shift (e.g., 0.03).

- How to Handle: Sum weighted segment scores, multiply by scenario/stability/learning—add evolution—normalize for % organizational strength—e.g., Apple 0.88—benchmarked with S&P Global, Statista.

01. Product Intelligence

F1. Market Readiness & Timing

Formula:

`F1 = 0.9 × (0.5 × EntryTiming × exp(-0.3 × MarketSaturation × t) + 0.2 × MidCycleImpact) × 0.95 × 0.9 + 0.02`

Layers:
- EntryTiming
- MarketSaturation
- MidCycleImpact

F2. Competitive Disruption & Incumbent Resistance

Formula:

`F2 = BaseDisruption × 0.9 × (1 - 0.6 × IncumbentResistance) × exp(-0.4 × ResponseTime) × 0.95 × 0.9 + 0.02`

Layers:
- BaseDisruption
- IncumbentResistance
- ResponseTime

F3. Dynamic Disruption Score & Habit Formation

Formula:

`F3 = BaseDisruption × 0.9 × (ProductStrength × AwarenessWidth × ValuePerception × AdoptionGrowth × exp(-0.4 × |ErrorPerception|) × RetentionEffect × (1 - CompetitorPull) × ValueConsistency^0.3) × 0.95 × 0.9 + 0.02`

Layers:
- BaseDisruption
- ProductStrength
- AwarenessWidth
- ValuePerception
- AdoptionGrowth
- ErrorPerception
- RetentionEffect
- CompetitorPull
- ValueConsistency

F4. Business Model Resilience & Stability

Formula:

`F4 = 0.9 × (0.6 × ProfitResilience × 0.4 × ExpansionGrowth) × 0.95 × 0.9 + 0.02`

Layers:
- ProfitResilience
- ExpansionGrowth

F5. Hype Cycle Engineering & Market Timing

Formula:

`F5 = 0.9 × (0.4 × MidCycleBuzz × exp(-0.3 × MarketSaturation × t) × 0.3 × EntryTiming) × 0.95 × 0.9 + 0.02`

Layers:
- MidCycleBuzz
- MarketSaturation
- EntryTiming

F6. Quality & Reliability

Formula:

`F6 = 0.9 × (0.4 × MaterialQuality + 0.3 × FunctionalQuality + 0.2 × BrandTrust) × (1 - 0.05 × ComplaintRate) × exp(-0.05 × SocialVerdict) × 0.95 × 0.9 + 0.02`

Layers:
- MaterialQuality
- FunctionalQuality
- BrandTrust
- ComplaintRate
- SocialVerdict

F7. Competitive Differentiation & Product Positioning

Formula:

`F7 = 0.9 × (0.6 × TechFeatures × exp(-0.4 × CompetitorStrength)) × 0.95 × 0.9 + 0.02`

Layers:

- TechFeatures
- CompetitorStrength

F8. Brand Perception & Loyalty

Formula:

`F8 = 0.9 × (0.5 × (AdReach + OrganicBuzz)) × 0.95 × 0.9 + 0.02`

Layers:
- AdReach
- OrganicBuzz

F9. Experience Design & Engagement

Formula:

`F9 = 0.9 × (0.25 × (VisualAppeal + AudioQuality + HapticFeedback + OlfactoryAppeal)) × 0.95 × 0.9 + 0.02`

Layers:
- VisualAppeal
- AudioQuality
- HapticFeedback
- OlfactoryAppeal

F10. Product Innovation & Lifecycle

Formula:

`F10 = 0.9 × (0.6 × MarketFit / (1 + EntryBarrier) × exp(-0.4 × TechGap)) × 0.95 × 0.9 + 0.02`

Layers:
MarketFit
EntryBarrier
TechGap

Product Segment Formula: Product Intelligence Score

Formula:

`P_score(t) = 0.9 × (0.15 × F1 + 0.10 × F2 + 0.15 × F3 + 0.10 × F4 + 0.15 × F5 + 0.10 × F6 + 0.10 × F7 + 0.10 × F8 + 0.10 × F9 + 0.05 × F10) × 0.95 × 0.9 × 0.95 + 0.02`

Consumer Intelligence

F11. Consumer Demand & Need

Formula:

`F11 = 0.9 × (0.15 × DemandNeedCore + 0.15 × TrustReliability + 0.15 × PurchaseIntent + 0.1 × SocialInfluence + 0.1 × AccessEase + 0.1 × ValueRecognition + 0.1 × EmotionalDrive + 0.05 × TrendAdoption + 0.05 × AwarenessReach + 0.05 × PriceSensitivity) × 0.95 × 0.9 + 0.02`

Layers:
- DemandNeedCore
- TrustReliability
- PurchaseIntent
- SocialInfluence
- AccessEase
- ValueRecognition
- EmotionalDrive
- TrendAdoption
- AwarenessReach
- PriceSensitivity

F12. Consumer Behavior & Habits

Formula:

`F12 = 0.9 × (0.15 × UsageFrequency + 0.15 × TrustConsistency + 0.15 × EngagementLevel + 0.1 × InteractionRate + 0.1 × HabitFormation + 0.1 × ValuePerception + 0.1 × EmotionalBond + 0.05 × SocialInteraction + 0.05 × AccessConvenience + 0.05 × RewardIncentive) × 0.95 × 0.9 + 0.02`

Layers:
- UsageFrequency
- TrustConsistency
- EngagementLevel

- InteractionRate
- HabitFormation
- ValuePerception
- EmotionalBond
- SocialInteraction
- AccessConvenience
- RewardIncentive

F13. Consumer Loyalty & Retention

Formula:

`F13 = 0.9 × (0.15 × RepeatPurchase + 0.15 × EmotionalConnection + 0.15 × TrustFoundation + 0.1 × SwitchingCost + 0.1 × ValueAssessment + 0.1 × EngagementDepth + 0.1 × AdvocacyStrength + 0.05 × RewardProgram + 0.05 × SocialLoyalty + 0.05 × AccessLoyalty) × 0.95 × 0.9 + 0.02`

Layers:
- RepeatPurchase
- EmotionalConnection
- TrustFoundation
- SwitchingCost
- ValueAssessment
- EngagementDepth
- AdvocacyStrength
- RewardProgram
- SocialLoyalty
- AccessLoyalty

F14. Consumer Perception & Sentiment

Formula:

`F14 = 0.9 × (0.15 × SentimentScore + 0.15 × TrustRating + 0.15 × QualityPerception + 0.1 × PrestigeLevel + 0.1 × ValueJudgment + 0.1 × SocialImpact + 0.1 × InnovationView + 0.05 × AwarenessReach + 0.05 × TrendAlignment + 0.05 × AccessPerception) × 0.95 × 0.9 + 0.02`

Layers:
- SentimentScore
- TrustRating

- QualityPerception
- PrestigeLevel
- ValueJudgment
- SocialImpact
- InnovationView
- AwarenessReach
- TrendAlignment
- AccessPerception

F15. Consumer Adoption & Engagement

Formula:

`F15 = 0.9 × (0.15 × AdoptionSpeed + 0.15 × EngagementIntensity + 0.15 × TrustInAdoption + 0.1 × SocialAdoption + 0.1 × ValueRecognition + 0.1 × EmotionalDrive + 0.1 × UsageFrequency + 0.05 × AccessAvailability + 0.05 × TrendAdoption + 0.05 × RewardMotivation) × 0.95 × 0.9 + 0.02`

Layers:
- AdoptionSpeed
- EngagementIntensity
- TrustInAdoption
- SocialAdoption
- ValueRecognition
- EmotionalDrive
- UsageFrequency
- AccessAvailability
- TrendAdoption
- RewardMotivation

Segment Formula: Consumer Intelligence Score

Formula:

`C_score(t) = 0.9 × (0.3 × F11 + 0.3 × F12 + 0.2 × F13 + 0.15 × F14 + 0.15 × F15) × 0.95 × 0.9 × 0.95 + 0.02`

Market Intelligence

F16. Market Trends & Dynamics

Formula:

`F16 = 0.9 × (0.3 × CurrentTrend + 0.25 × FutureOutlook + 0.2 × TechnologyShift + 0.15 × CulturalTrend + 0.1 × RegulatoryImpact) × 0.95 × 0.9 + 0.02`

Layers:
- CurrentTrend
- FutureOutlook
- TechnologyShift
- CulturalTrend
- RegulatoryImpact

F17. Market Competition & Barriers

Formula:

`F17 = 0.9 × (0.3 × CompetitorStrength + 0.25 × EntryBarrier + 0.2 × DifferentiationEdge + 0.15 × SwitchingCost + 0.1 × RegulatoryConstraint) × 0.95 × 0.9 + 0.02`

Layers:
- CompetitorStrength
- EntryBarrier
- DifferentiationEdge
- SwitchingCost
- RegulatoryConstraint

F18. Market Demand & Adoption

Formula:

`F18 = 0.9 × (0.3 × DemandVolume + 0.25 × GrowthRate + 0.2 × AdoptionRate + 0.15 × PriceElasticity + 0.1 × AccessReach) × 0.95 × 0.9 + 0.02`

Layers:
- DemandVolume
- GrowthRate
- AdoptionRate
- PriceElasticity
- AccessReach

F19. Market Growth & Expansion

Formula:

`F19 = 0.9 × (0.3 × GrowthPotential + 0.25 × RegionalExpansion + 0.2 × ScalabilityFactor + 0.15 × InvestmentLevel + 0.1 × InfrastructureSupport) × 0.95 × 0.9 + 0.02`

Layers:
- GrowthPotential
- RegionalExpansion
- ScalabilityFactor
- InvestmentLevel
- InfrastructureSupport

F20. Market Stability & Risk

Formula:

`F20 = 0.9 × (0.3 × EconomicStability + 0.25 × PoliticalClimate + 0.2 × SupplyChainRisk + 0.15 × RiskExposure + 0.1 × RegulatoryStability) × 0.95 × 0.9 + 0.02`

- Layers:
- EconomicStability
- PoliticalClimate
- SupplyChainRisk
- RiskExposure
- RegulatoryStability

Segment Formula: Market Intelligence Score

Formula:

`M_score(t) = 0.9 × (0.25 × F16 + 0.25 × F17 + 0.2 × F18 + 0.15 × F19 + 0.15 × F20) × 0.95 × 0.9 × 0.95 + 0.02`

Brand Intelligence

F21. Brand Positioning & Differentiation

Formula:

`F21 = 0.9 × (0.25 × HeritageLegacy + 0.2 × InnovationEdge + 0.25 × PublicPerception + 0.2 × ExclusivityFactor + 0.1 × CompetitorEdge) × 0.95 × 0.9 + 0.03`

Layers:
- HeritageLegacy
- InnovationEdge
- PublicPerception
- ExclusivityFactor
- CompetitorEdge

F22. Brand Equity & Reputation

Formula:

`F22 = 0.9 × (0.3 × ReviewScore + 0.25 × SocialSentiment + 0.2 × LegacyTrust + 0.15 × AIDrivenTrust + 0.1 × CrisisHandling) × 0.95 × 0.9 + 0.03`

Layers:
- ReviewScore
- SocialSentiment
- LegacyTrust
- AIDrivenTrust
- CrisisHandling

F23. Brand Virality & Cultural Impact

Formula:

`F23 = 0.9 × (0.3 × ShareabilityRate + 0.25 × InfluencerPush + 0.25 × PlatformFit + 0.2 × CulturalEmbed) × 0.95 × 0.9 + 0.03`

Layers:
- ShareabilityRate
- InfluencerPush
- PlatformFit
- CulturalEmbed

F24. Brand Monetization & Business Models

Formula:

`F24 = 0.9 × (0.3 × DirectSales + 0.25 × LicensingDeals + 0.25 × PricingPower + 0.2 × RevenueDiversification) × 0.95 × 0.9 + 0.03`

Layers:
- DirectSales
- LicensingDeals
- PricingPower
- RevenueDiversification

F25. Brand Adaptability & Longevity

Formula:

`F25 = 0.9 × (0.25 × EvolutionAdapt + 0.25 × GenerationalAppeal + 0.2 × ResilienceFactor + 0.15 × ESGAdaptation + 0.15 × CulturalRelevance) × 0.95 × 0.9 + 0.03`

Layers:
- EvolutionAdapt
- GenerationalAppeal
- ResilienceFactor
- ESGAdaptation
- CulturalRelevance

Segment Formula: Brand Intelligence Score

Formula:

`B_score(t) = 0.9 × (0.25 × F21 + 0.25 × F22 + 0.2 × F23 + 0.15 × F24 + 0.15 × F25) × 0.95 × 0.9 × 0.95 + 0.03`

Experience Intelligence

F26. User Engagement

Formula:

`F26 = 0.9 × (0.25 × AttentionFocus + 0.25 × InteractionRate + 0.25 × CommunityActivity + 0.15 × EmotionalPull + 0.10 × UserFlow) × 0.85 × 0.85 × 0.9 + 0.05`

Layers:
- AttentionFocus
- InteractionRate
- CommunityActivity
- EmotionalPull
- UserFlow

F27. Satisfaction & Feedback

Formula:

`F27 = 0.9 × (0.3 × ValuePerception + 0.25 × SentimentFeedback + 0.2 × SupportQuality + 0.25 × ExpectationMatch) × 0.85 × 0.85 × 0.9 + 0.05`

Layers:
- ValuePerception
- SentimentFeedback
- SupportQuality
- ExpectationMatch

F28. Interaction Design

Formula:

`F28 = 0.9 × (0.25 × UsabilityEase + 0.25 × IntuitiveDesign + 0.3 × SensoryAppeal + 0.1 × Personalization + 0.1 × AccessInclusivity) × 0.85 × 0.85 × 0.9 + 0.05`

- Layers:
- UsabilityEase
- IntuitiveDesign
- SensoryAppeal
- Personalization
- AccessInclusivity

Segment Formula: Experience Intelligence Score

Formula:

`E_score(t) = 0.9 × (0.25 × F26 + 0.25 × F27 + 0.2 × F28) × 0.85 × 0.85 × 0.9 + 0.05`