1️⃣ Starbucks Merit Function (Service Process)

Objective

Minimize customer waiting **and** improve customer experience.

Measures (heterogeneous)

- **WT** = average waiting time (minutes) → objective
- **CSAT** = customer satisfaction score (1–5) → subjective

Normalized Merit Function

$$
F_{Starbucks} = 0.6 \cdot \text{Norm}(WT) + 0.4 \cdot (1 - \text{Norm}(CSAT))
$$

Why these weights?

- Starbucks is a **premium experience brand**, not fast food
- Waiting time matters, but **experience matters more than pure speed**
- CSAT captures confusion, friendliness, ambiance, clarity of flow

Exam explanation (write this 👇)

“This merit function combines heterogeneous measures by normalizing waiting time and customer satisfaction. Higher weight is given to waiting time to maintain throughput, while CSAT captures subjective experience. The function ensures that speed improvements do not come at the cost of customer dissatisfaction.”

2️⃣ University Enrollment / UMS Merit Function (Administrative Process)

Objective

Reduce wasted time **and** reduce student frustration.

Measures

- **QT** = queue / processing time (hours or days)
- **ER** = error rate (wrong enrollments, overrides)
- **CSAT** = student satisfaction

Merit Function

$$
F_{Enrollment} = 0.5 \cdot \text{Norm}(QT) + 0.3 \cdot \text{Norm}(ER) + 0.2 \cdot (1 - \text{Norm}(CSAT))
$$

Why these weights?

- Long delays **directly impact learning** → highest weight
- Errors cause rework → second priority
- CSAT matters, but academic correctness matters more

BPR connection

- Data-driven enrollment (only eligible courses shown)
- Errors eliminated → rework reduced
- Time and frustration both go down

Exam line

“Enrollment BPR optimizes a weighted merit function balancing time, correctness, and student satisfaction. Time is prioritized because delays directly reduce learning outcomes.”

3️⃣ NADRA / Public Service Merit Function

Objective

Deliver consistent, fair service with minimum delay.

Measures

- **WT** = waiting time

- **V** = variance in service time (process consistency)
- **CSAT** = public satisfaction

Merit Function

$$
F_{NADRA} = 0.4 \cdot \text{Norm}(WT) + 0.4 \cdot \text{Norm}(V) + 0.2 \cdot (1 - \text{Norm}(CSAT))
$$

Why variance matters here

- Citizens care about **predictability**
- Same service should take roughly same time for everyone
- High variance = unfair system perception

Exam explanation

“In public sector BPR, consistency is as important as speed. Variance is weighted equally with waiting time to ensure fairness, while CSAT captures public perception.”

4️⃣ Manufacturing / Six Sigma Merit Function (Extra marks)

Objective

Minimize defects and variability.

Measures

- **DPMO** = defects per million opportunities
- **σ** = process standard deviation
- **CT** = cycle time

Merit Function

$$
F_{SixSigma} = 0.5 \cdot \text{Norm}(DPMO) + 0.3 \cdot \text{Norm}(\sigma) + 0.2 \cdot \text{Norm}(CT)
$$

Exam-friendly line

“This merit function prioritizes defect reduction, followed by variability control and cycle time, aligning with Six Sigma’s goal of near-zero defects.”

⚠️ ONE GOLDEN EXAM RULE (WRITE THIS IF STUCK)

> “Because process measures are heterogeneous, they must be normalized and combined using weights reflecting business priorities. A valid merit function ensures improvement in one dimension does not hide degradation in another.”