Human Impact Index — Project Tuttwiler

Score core factors (0–5), apply weights; add modifiers; map to R/Y/G thresholds.

Core Factor	Description	Scoring (0–5)	Weight
Human Safety Impact	Potential for immediate injury, mis▪treatment, contamination, or loss of life.	0=None | 1=Minimal | 2=Indirect | 3=Possible direct | 4=...	×3.0
Clinical/Quality Accuracy	Risk of incorrect readings/results affecting care/food safety (e.g., calibration drift).	0=None | 1=Low | 2=Moderate | 3=High | 4=Very high | ...	×2.0
Dependency & Substitutability	How replaceable is the affected system/process (sole▪source? no backup path)?	1=Easily replaced | 2=Workarounds exist | ... | Sole▪sour...	×2.0
Exploitability / Activity	Ease and likelihood of exploit; evidence of active exploitation.	0=Theoretical | 1=Hard | 2=PoC | 3=Easy | 4=Weaponiz...	×2.0
Patch / Remediation Status	Availability/timeliness of patch or compensating controls.	0=Patched | 1=Patch scheduled | 2=Patch available | 3=...	×1.5
Operational Exposure	Network/physical exposure; segmentation; internet-facing?	0=Isolated | 1=Segmented | 2=Internal only | 3=Limited...	×1.5

Context Modifiers (add/subtract)

• Scale/Reach: How many people/units are affected (clinic size, production volume). (-5 to +5)
• Time Sensitivity: Urgency window ("golden hour", cold-chain, near deadlines). (-5 to +5)
• Source Confidence: Trust in provenance (vendor/CISA vs unverified tip). (-10 (low) to +0 (high))

Go / Hold / Escalate Thresholds

• RED (Escalate): Total ≥ 70 OR (Human Safety ≥ 3 AND (Exploitability ≥ 3 OR Patch status ≥ 4))
• YELLOW (Monitor/Plan): Total 40–69 and no RED trigger conditions.
• GREEN (Informational): Total < 40.

Worked Examples

• Lab Controller vuln, no patch: RED — Direct care threat, mitigation only; isolate + log + Tier▪2.
  Scores (0–5): {'Human Safety': 5, 'Accuracy': 4, 'Dependency': 4, 'Exploitability': 3, 'Patch': 4, 'Exposure': 3} | Modifiers: {'Scale/Reach': 2, 'Time': 3, 'Confidence': 0}
• Vendor patch available within 72h: YELLOW — Schedule patch window; notify stakeholders.
  Scores (0–5): {'Human Safety': 2, 'Accuracy': 2, 'Dependency': 3, 'Exploitability': 2, 'Patch': 2, 'Exposure': 2} | Modifiers: {'Scale/Reach': 1, 'Time': 1, 'Confidence': 0}
• Kiosk UI library outdated (non▪clinical): GREEN — Track and patch in normal cycle.
  Scores (0–5): {'Human Safety': 0, 'Accuracy': 0, 'Dependency': 1, 'Exploitability': 2, 'Patch': 1, 'Exposure': 1} | Modifiers: {'Scale/Reach': 0, 'Time': 0, 'Confidence': 0}

Formula: Total = Σ(score_i × weight_i) + Σ(modifiers). Example max (before modifiers) = 5×(3+2+2+1.5+1.5) = 60.