

Operations management

IB DP Business Management HL Unit 5 sections 5.1-5.9 full package

1. Unit 5 at a glance

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IB Business Management HL Unit 5.1-5.9: the transformation process, operations methods, lean production and quality (HL), location, break-even, production planning (HL), crisis management (HL), R&D (HL) and MIS (HL) - on the shared repair business, reconciling with Unit 3: price 25, VC 15, FC 12500 a month.

Must-know: labour productivity 25 repairs per employee; job, batch, flow, mass customisation; JIT, kaizen, control-assurance-TQM; contribution 10, BEQ 1250, margin of safety $750 = 37.5$ percent, target 2750 for 15000; capacity 80 percent; reorder level 1000; crisis vs contingency; patents, copyright, trademarks; data vs information.

2. Transformation and methods

Transformation and methods

Operations turns inputs into outputs through a process, aiming at efficiency (output per input) and effectiveness (meeting the objective). Labour productivity: 2000 repairs over 80 staff is 25 per employee - raised by training, tools, layout or fewer staff for the same output.

Job production makes one custom item (skill and fit, high cost); batch switches between groups of identical items (flexible, changeover cost); flow runs one standard product continuously (lowest cost, inflexible). Mass customisation is the synthesis: flow efficiency with choice at the configuration stage - the subscription model.

3. Lean, quality (HL), location

Lean, quality (HL), location

HL lean production cuts waste: just-in-time holds almost no stock (no holding cost, faults surface instantly, one late delivery stops everything); kaizen improves continuously in small steps; time-based management compresses durations. Quality control inspects faults at the end; quality assurance prevents them stage by stage; TQM commits everyone, with the customer defining quality.

Location weighs quantitative factors (site, labour, grants, transport - rankable by weighted score) against qualitative ones (image, skills, infrastructure, regulation). Services follow customers: the fourth workshop by the station, the parts depot by the ring road.

4. Break-even analysis

Break-even analysis

Contribution is price minus variable cost: $25 - 15 = 10$ per repair toward fixed costs of 12500 a month, so break-even is 1250 repairs. The margin of safety is $2000 - 1250 = 750$ repairs, 37.5 percent of sales; a 15000 monthly profit needs $(12500 + 15000)/10 = 2750$.

The chart crosses TR and TC at 1250. Limits: constant price and costs, everything produced is sold, step-fixed costs ignored - a model, fragile far from current output.

5. Planning, crisis, R&D, MIS (HL)

Planning, crisis, R&D, MIS (HL)

Capacity utilisation 2000 of 2500 is 80 percent - the healthy band is 85-90; under spreads fixed costs thinly, over leaves no slack and breaks quality. Inventory: buffer 200 parts, lead time 2 weeks, reorder level $500 \times 2 = 1000$; supply chain management coordinates the rest.

Crisis management responds during the event - respond, contain, recover, learn; contingency planning is written and rehearsed before. R&D spends now for revenue later, protected as patents, copyright and trademarks. MIS turns data into timely, accurate, relevant information; big data widens the range but brings cost, privacy and interpretation limits.

Check yourself

Check yourself

Transformation, efficiency vs effectiveness; productivity 25 and how to raise it.

Job, batch, flow with costs and flexibility; mass customisation as the synthesis.

HL: JIT with its single-supplier risk; kaizen; control vs assurance vs TQM; location by quantitative and qualitative factors.

Contribution 10, BEQ 1250, safety 750 = 37.5 percent, target 2750; capacity 80 percent with both failure sides; reorder 1000; crisis vs contingency; the three IP protections; data vs information.