

Fig 9-1 Generic Supply Chain Process – Non-'Elite'

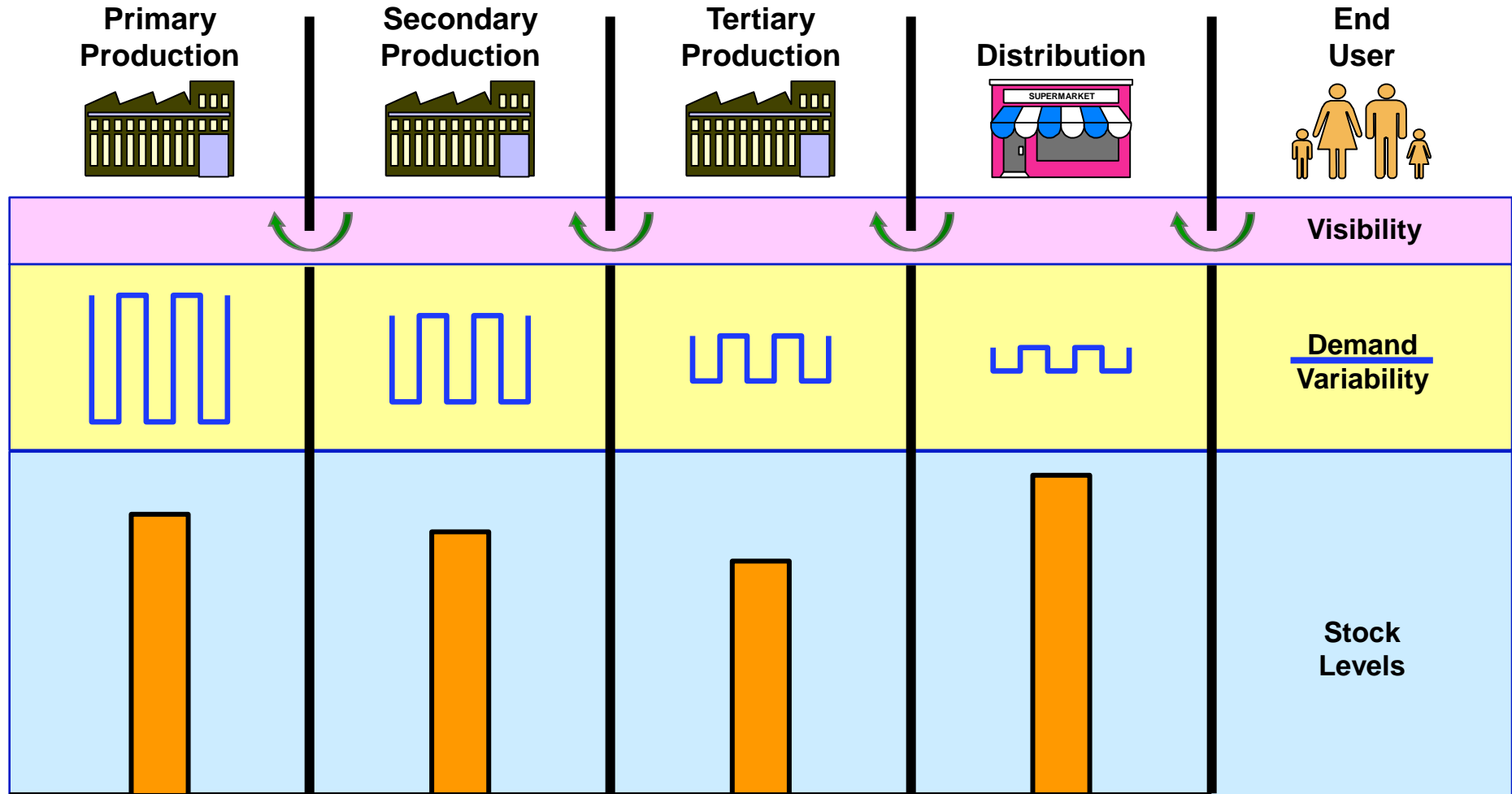


Fig 9-2 Generic Supply Chain Process – 'Elite'

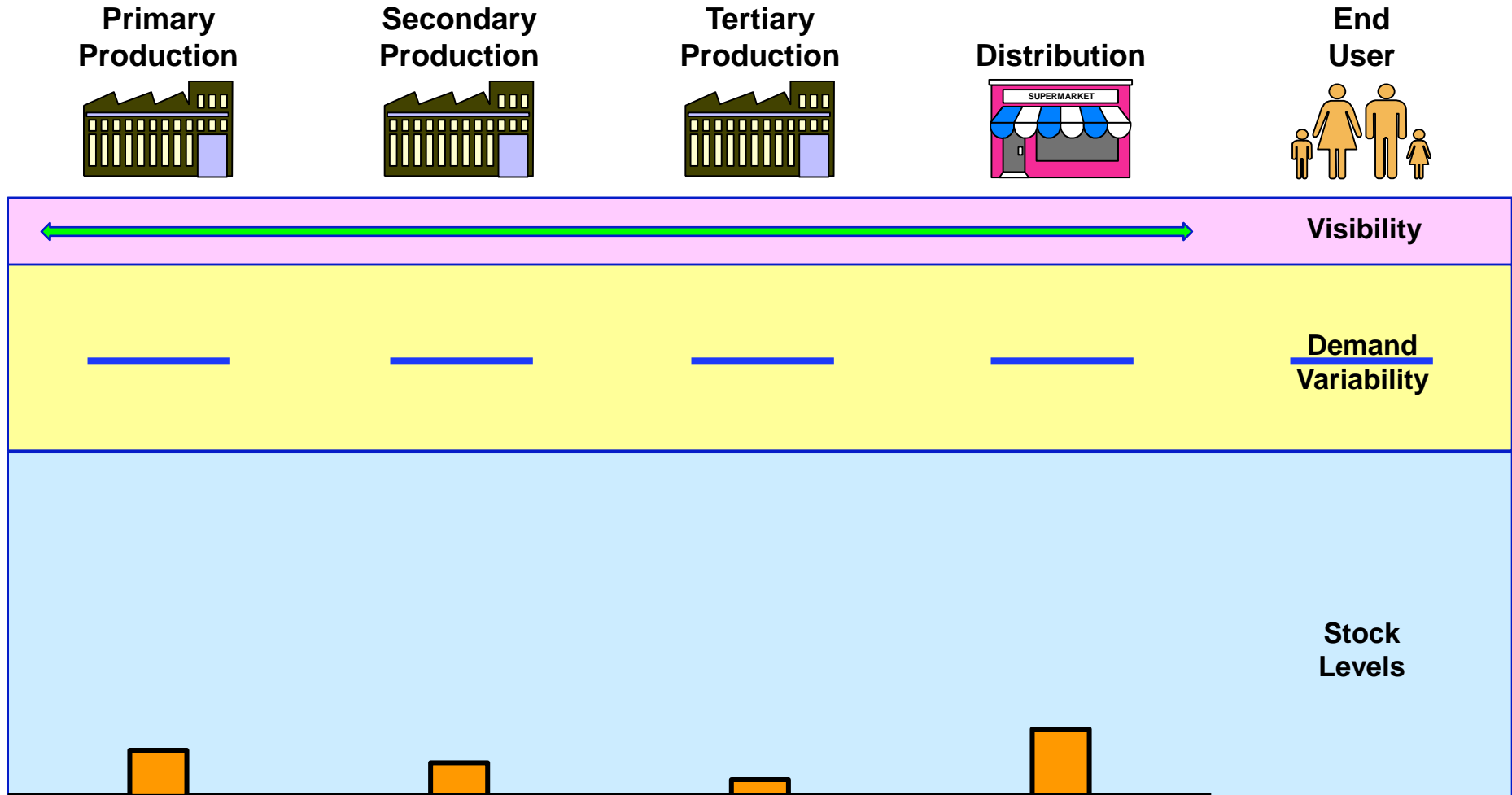


Fig 9-3 Buying and Demand Patterns

| | | <u>Volume</u> | |
|------------------|-----------|---------------|-----------|
| | | Regular | Irregular |
| <u>Frequency</u> | Regular | REGULAR | VARIABLE |
| | Irregular | SPORADIC | ERRATIC |

Fig 9-4 'Elite' Distribution – Practical Vision

| Activity | Original | 'Elite' Practical Vision |
|--------------------------------|-----------------|----------------------------------|
| Move to UK Transport Warehouse | 4 days | 2 days |
| Book In | 1 day | 2 hours |
| QA Release | 10 days | 4 hours |
| Pick / Pack | 2 days | 1 day |
| Move to Distribution Centre | 2 days | 1 day |
| Store in Distribution Centre | 60 days | 14 days |
| Move to Wholesaler Warehouse | 2 days | 0 days – bypass Wholesaler |
| Store in Wholesaler Warehouse | 10 days | 0 days – bypass Wholesaler |
| Move to Hospital | 1 day | 1 day |
| Store in Hospital | 40 days | 1 day – vendor managed inventory |
| Total | 132 days | 21 days |

Fig 9-5 Tertiary Production - Make Patterns

| | | <u>Volume</u> | |
|------------------|-----------|--------------------------------------|-----------------------------------|
| | | Regular | Irregular |
| <u>Frequency</u> | Regular | REGULAR MAKE TO REPLENISH | VARIABLE MAKE TO STOCK |
| | Irregular | SPORADIC MAKE TO FORECAST | ERRATIC MAKE TO ORDER |

Fig 9-6 Tertiary Production – Volume / SKUs

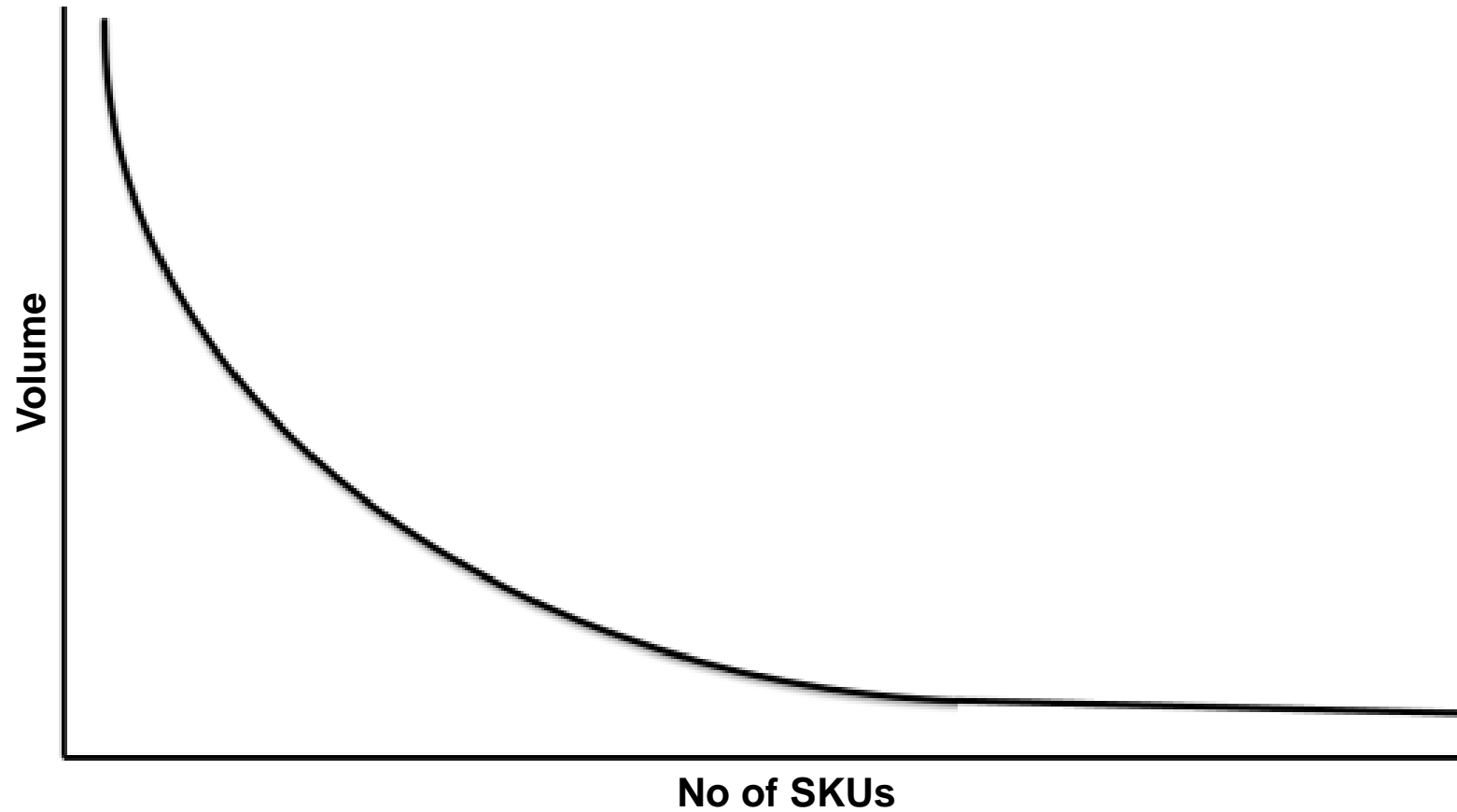


Fig 9-7 Tertiary Production – Categorisation

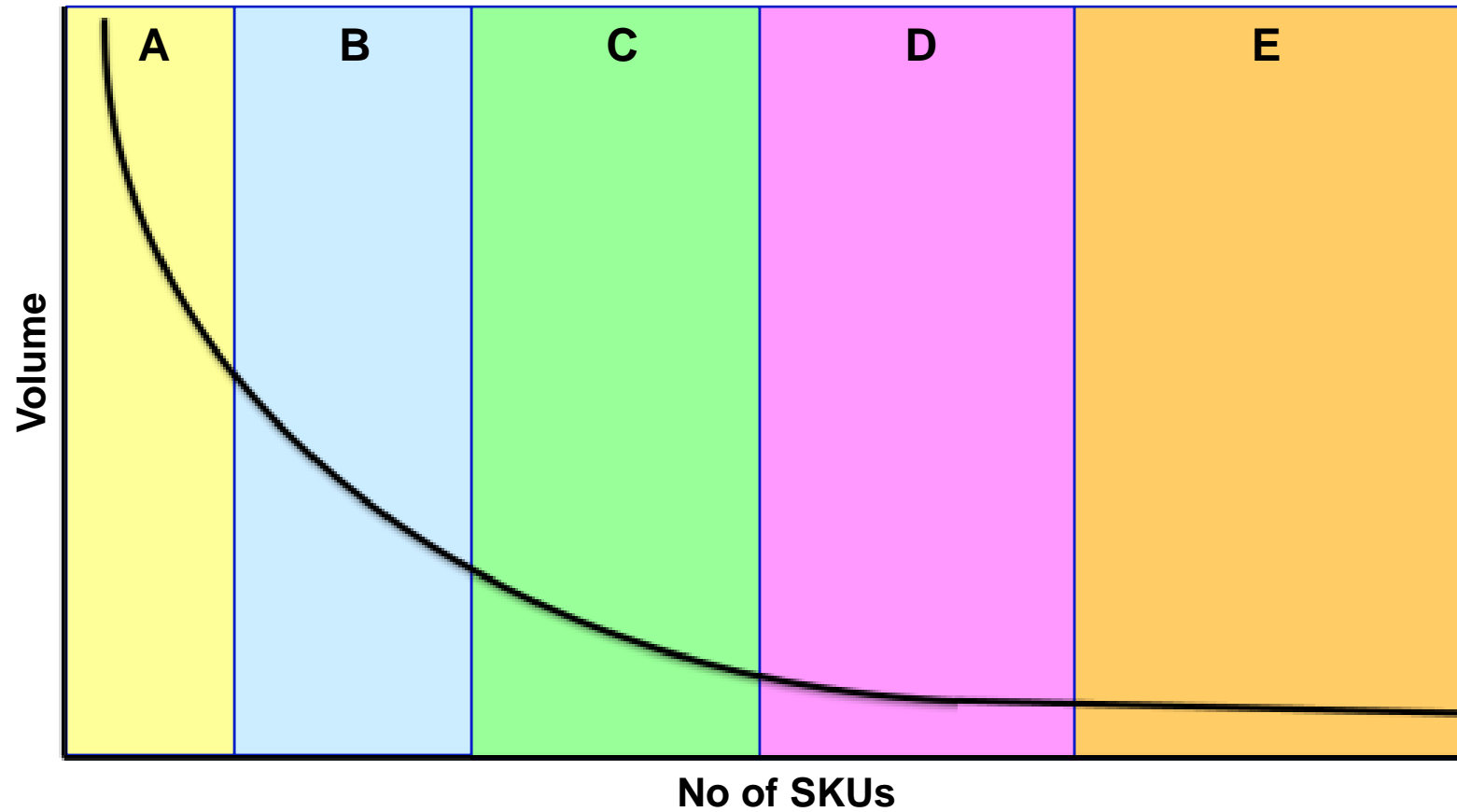


Fig 9-8 Tertiary Production – ‘Unit Wide’ Categorisation Split

| No of Cat's | Cat A 1 wk | Cat B 2 wks | Cat C 4 wks | Cat D 8 wks | Cat E 16 wks | Cat F 32 wks |
|-------------|---------------|----------------|----------------|----------------|-----------------|-----------------|
| 6 | 50 | 25 | 13 | 7 | 3.5 | 1.5 |
| 5 | 52 | 26 | 13 | 6 | 3 | |
| 5 | | 52 | 26 | 13 | 6 | 3 |
| 4 | 54 | 27 | 13 | 6 | | |
| 4 | | 54 | 27 | 13 | 6 | |
| 4 | | | 54 | 27 | 13 | 6 |
| 3 | 57 | 29 | 14 | | | |
| 3 | | 57 | 29 | 14 | | |
| 3 | | | 57 | 29 | 14 | |
| 3 | | | | 57 | 29 | 14 |
| 2 | 66 | 34 | | | | |
| 2 | | 66 | 34 | | | |
| 2 | | | 66 | 34 | | |
| 2 | | | | 66 | 34 | |
| 2 | | | | | 66 | 34 |

Fig 9-9 Tertiary Production – Business Model - Nails

| Category | Demand Kg/wk | No of Products | Output per Prod per wk | No of skips/wk | Total skips/wk | Min stock wk | ROP wk | Max stock wk |
|-------------|--------------|----------------|------------------------|----------------|----------------|--------------|--------|--------------|
| A | >10,000 | 2 | 24,000 | 60 | 120 | 1 | 2 | 3 |
| B | >4,000 | 8 | 6,000 | 15 | 120 | 1 | 2 | 3 |
| C | >2,000 | 11 | 3,600 | 9 | 99 | 1 | 2 | 3 |
| D | >1,000 | 25 | 1,600 | 4 | 100 | 1 | 2 | 3 |
| E | >500 | 41 | 800 | 2 | 82 | 1 | 2 | 3 |
| F | >200 | 81 | 400 | 1 | 81 | 1 | 2 | 3 |
| G | <200 | c1000 | | | | | | |
| Total (A-F) | | 168 | | | 602 | | | |

Total capacity = 405 tonnes per week = 1,012 skips per week

Thus capacity required to achieve above programme

for categories A – F is = $\frac{602}{1012} = 59.5\%$

Fig 9-10 Tertiary Production – Business Model – Scotch Whisky

| Category | Demand Rate Cases/yr | No of Products | Output per Prod per wk Cases / wk | No of Pallets per wk | Total Pallets per wk | Line Speed | CG Min wks | CG ROP wks | DG stock held as | Del cycle ord rec to despatch wks |
|----------|----------------------|----------------|-----------------------------------|----------------------|----------------------|------------|------------|------------|--------------------|-----------------------------------|
| A | >100,000 | 4 | 2,560 | 64 | 256 | High | 1 | 2 | Full spec | 0.5 |
| B | >50,000 | 9 | 1,200 | 30 | 270 | High | 1 | 2 | Full spec | 1 |
| C | >10,000 | 34 | 280 | 7 | 238 | Med | 1 | 2 | Full spec | 1.5 |
| D | >5,000 | 62 | 160 | 4 | 248 | Med | 1 | 2 | Lab/Cart/ Cases | 2 |
| E | >1,000 | 134 | 80 | 2 | 268 | Med | 1 | 2 | Lab/Case | 3 |
| F | <1,000 | c2000 | | | | Low | | | Labels | 4 |
| Total | | | | | 1,280 | | | | | |

Capacities – line rate cases/min x 60 m/hr x 7 h/d x 5 d/wk x 48 wks/yr x 0.5 effy = cases/min x 50,400

High Speed: 15 x 50,400 = 756k x 2 = 1,512k/yr = 32k/wk = 800 pallets/wk

Med Speed: 5 x 50,400 = 252k x 8 = 2,016k/yr = 42k/wk = 1,050 pallets/wk

Low Speed: 2 x 50,400 = 101k x 4 = 404k/yr = 8k/wk = 200 pallets/wk

Capacity reqd (A thru E) = 1280 / 2050 = 62.4%

Fig 9-11 Tertiary Production – Rhythm Wheels (Typical)

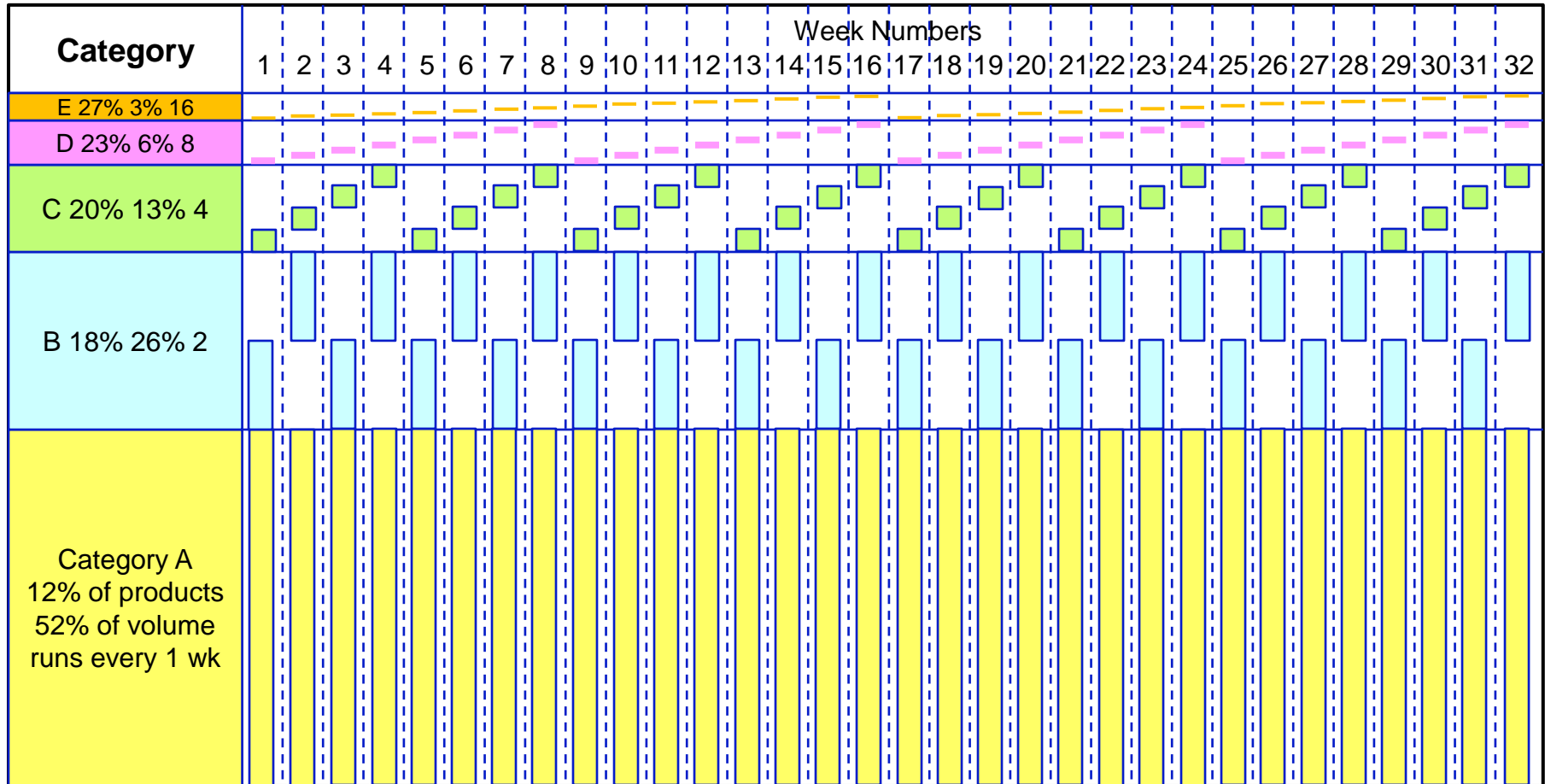


Fig 9-12 Secondary Production – Bulk Current (Typical)

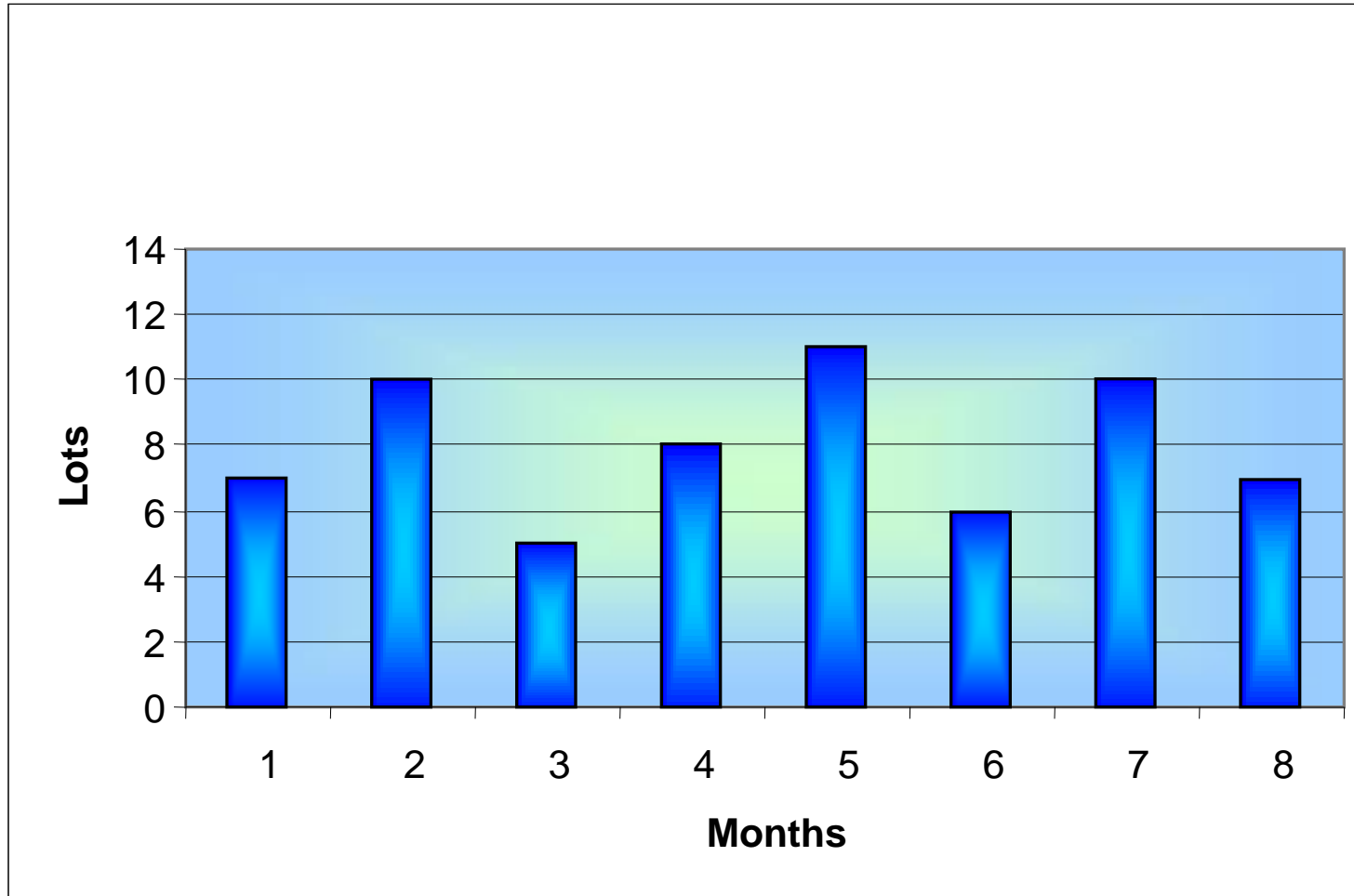


Fig 9-13 Secondary Production – Bulk 'Elite' (Typical)

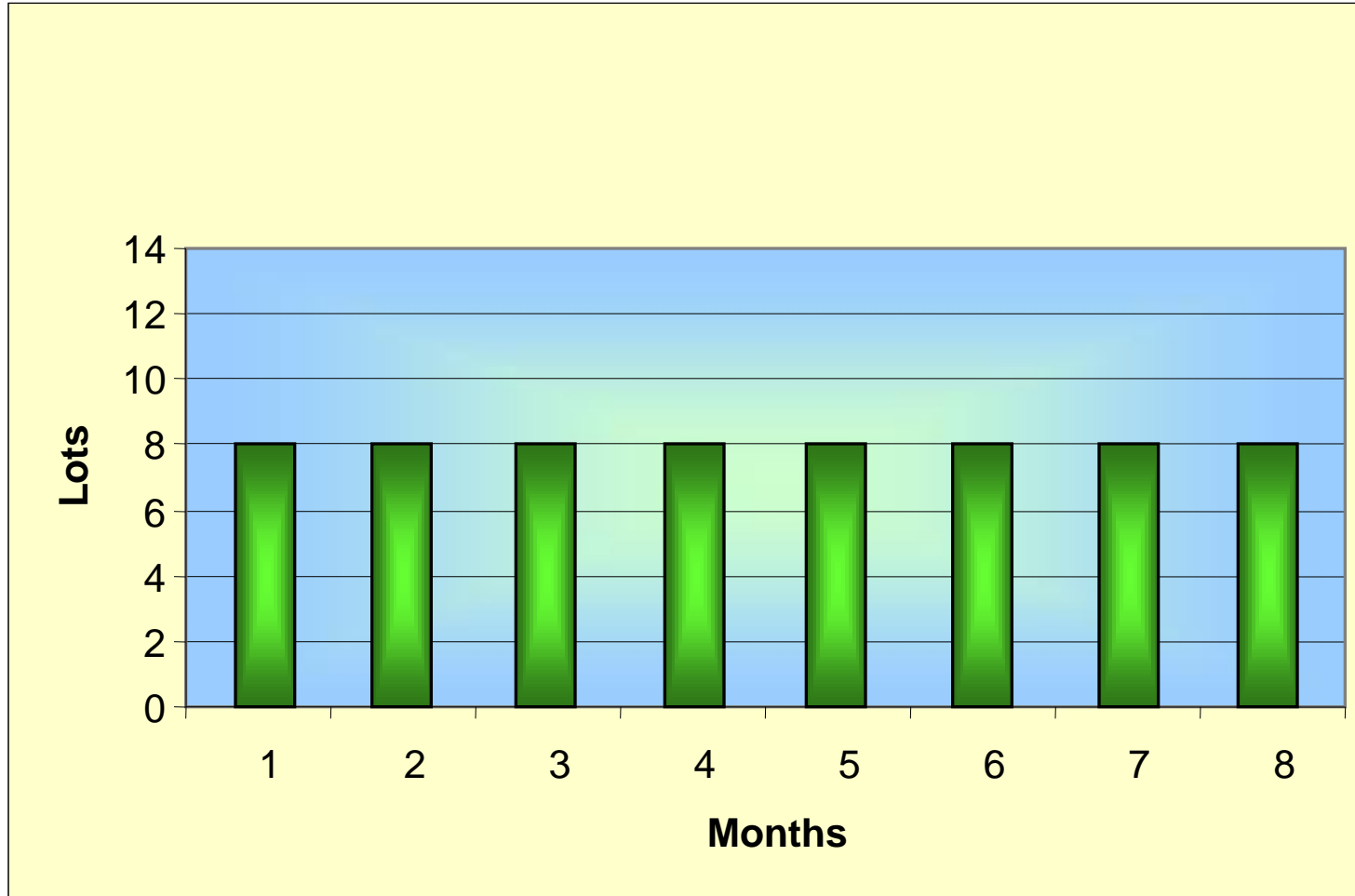


Fig 9-14 Stock Levels for Demand / Supply Patterns

| | | <u>Volume</u> | |
|------------------|-----------|--------------------------|-----------------------|
| | | Regular | Irregular |
| <u>Frequency</u> | Regular | REGULAR STOCK NIL | VARIABLE STOCK LOW |
| | Irregular | SPORADIC STOCK MEDIUM | ERRATIC STOCK HIGH |

Fig 9-15 Generic 'Elite' Supply Chain – VMI Process

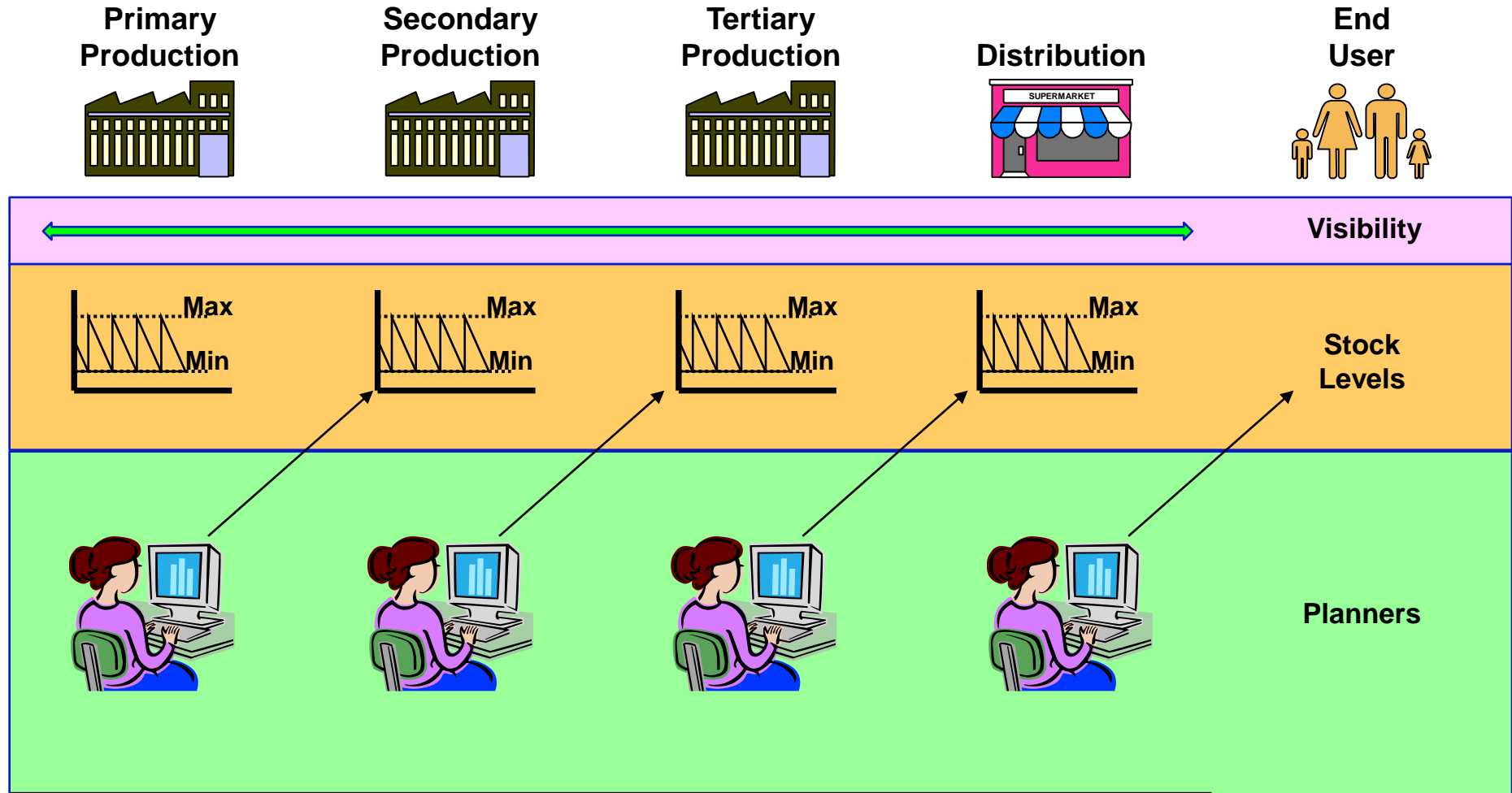


Fig 9-16 Generic 'Elite' Supply Chain – Collaborative Planning

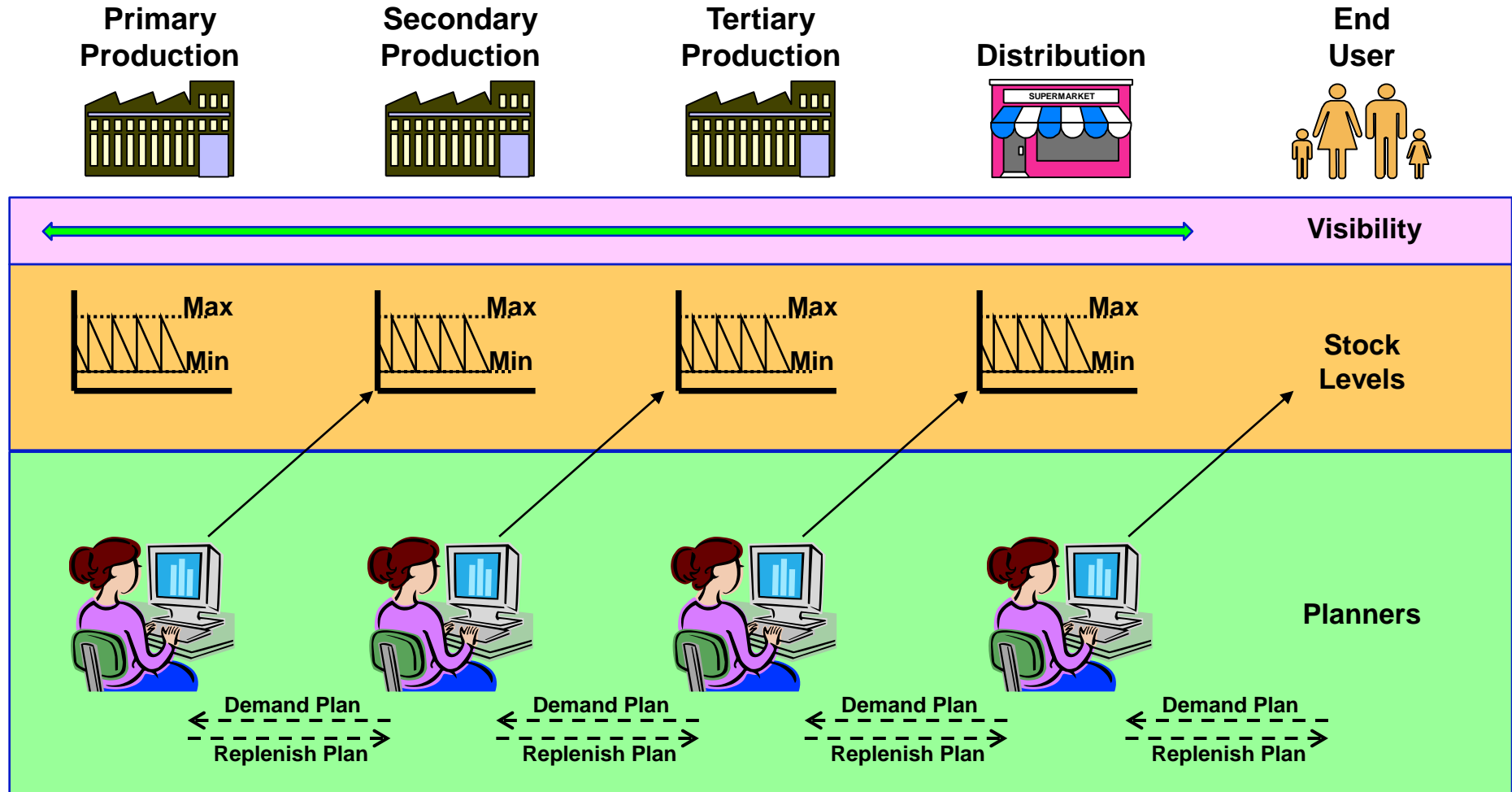


Fig 9-17 Generic 'Elite' Supply Chain – 'Elite' Link

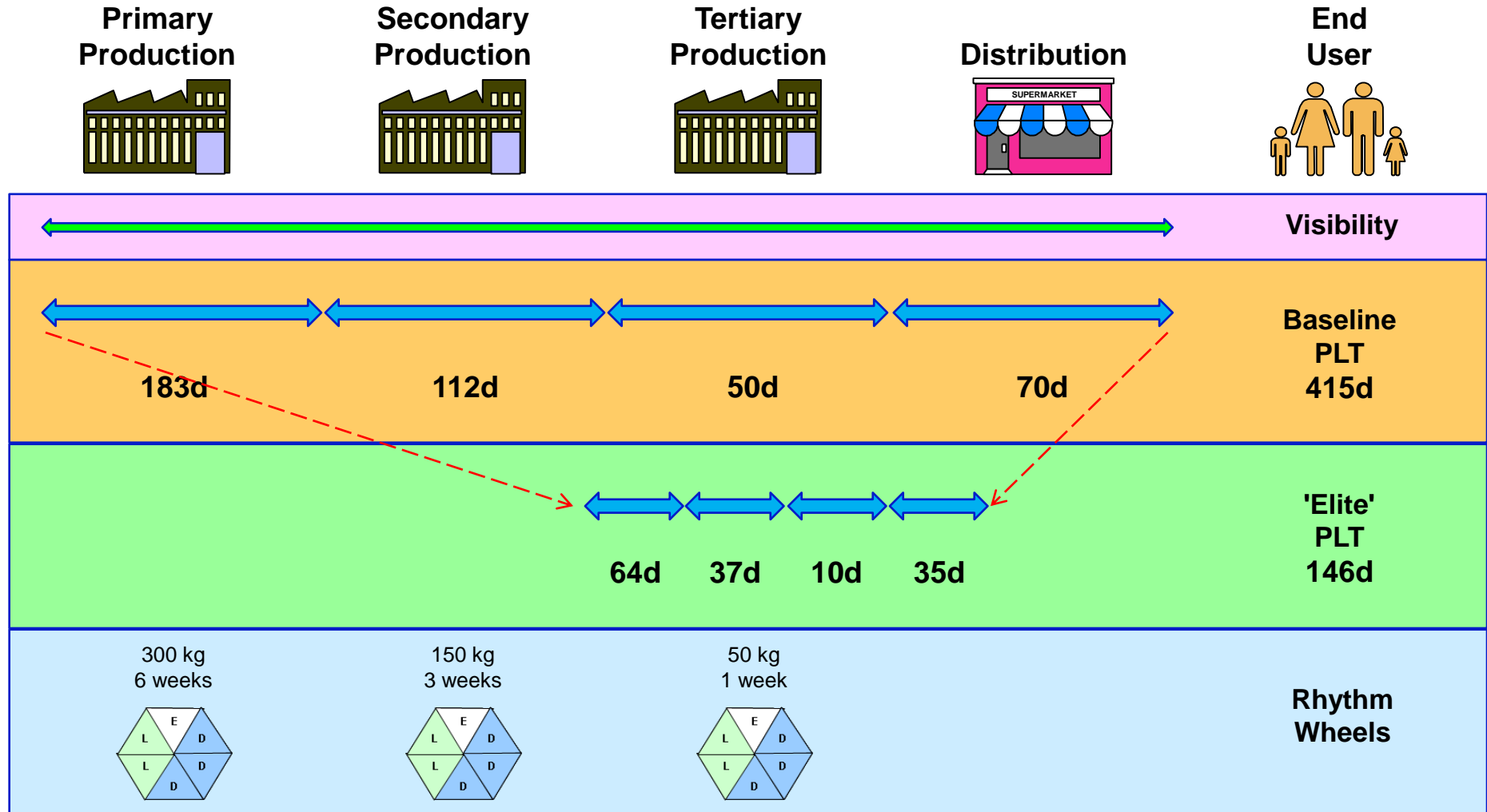


Fig 9-18 'Elite' Link - Inventories

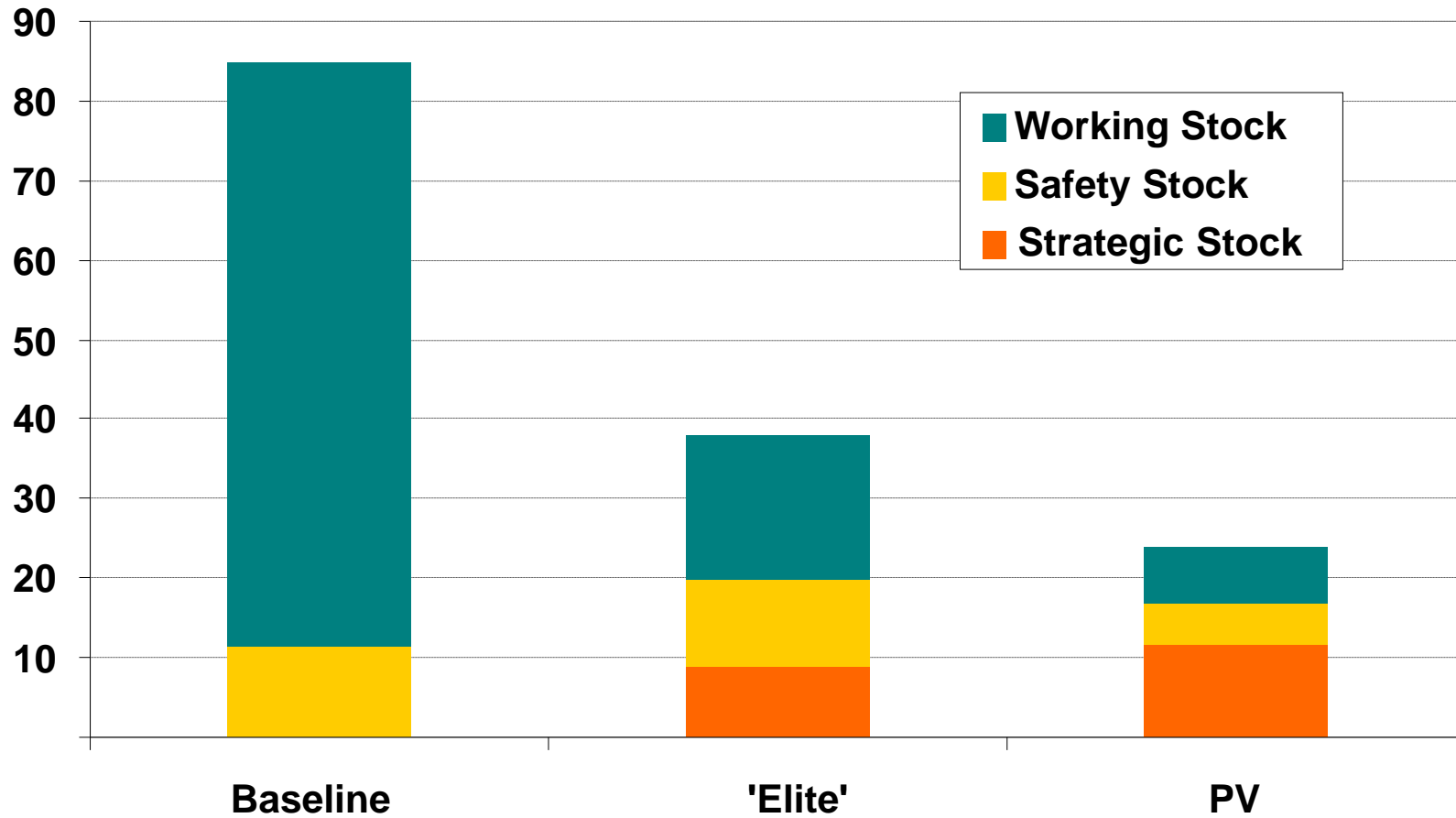


Fig 9-19 'Elite' Link – Impact on Tertiary Stocks

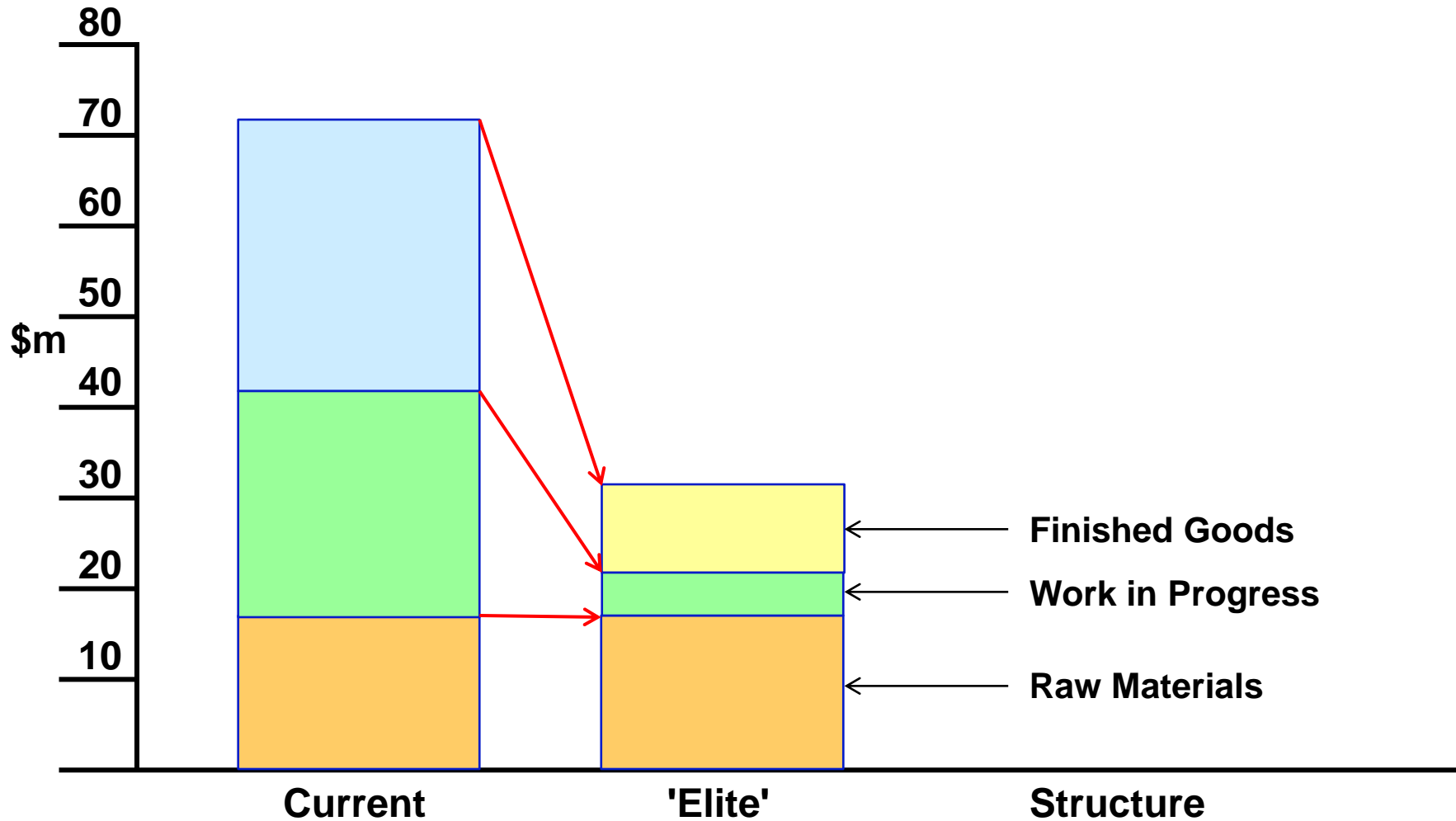


Fig 9-20 Example of Calculated FG Stock Level

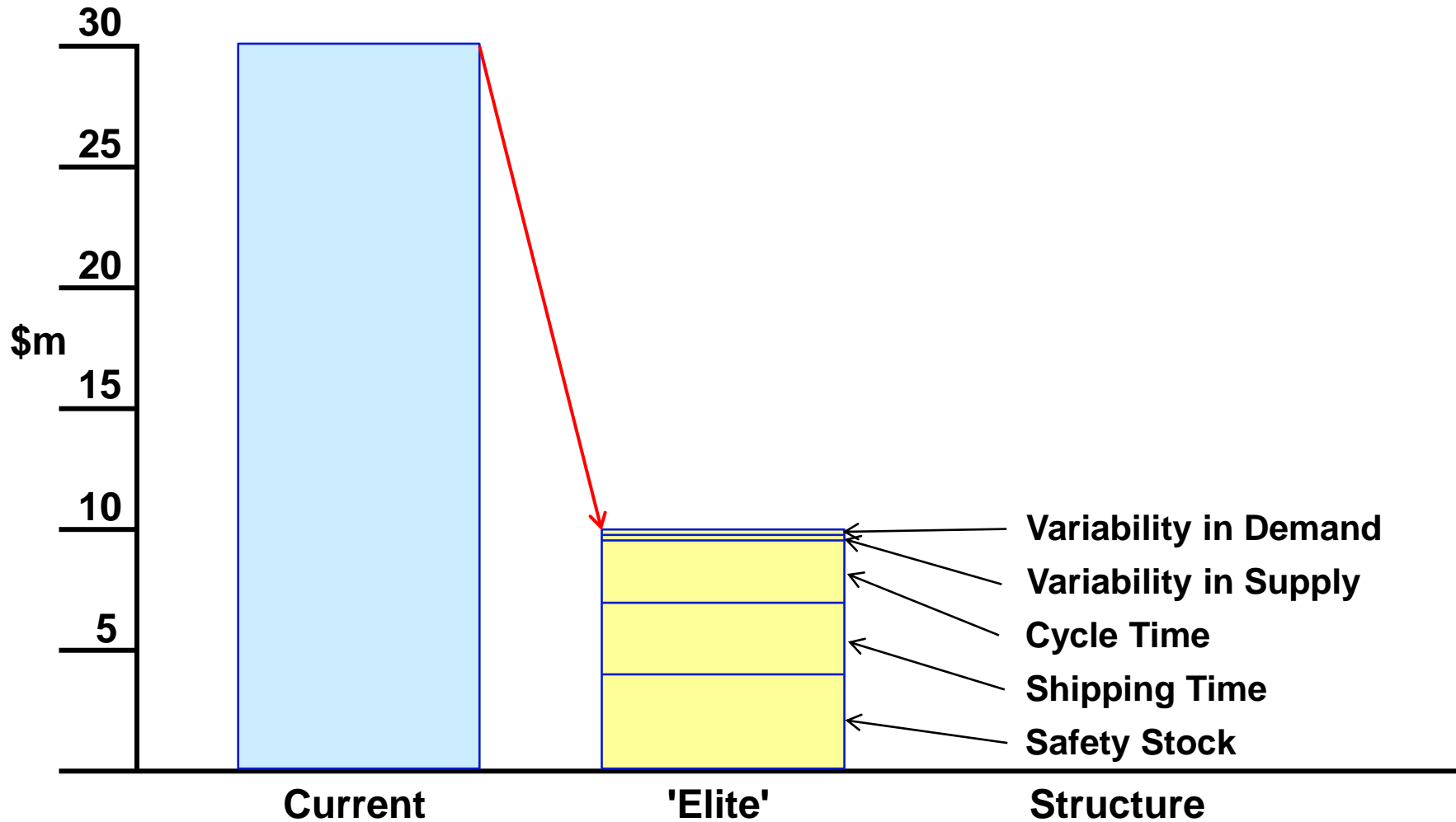


Fig 9-21 Bulk Current – ACD 20mg

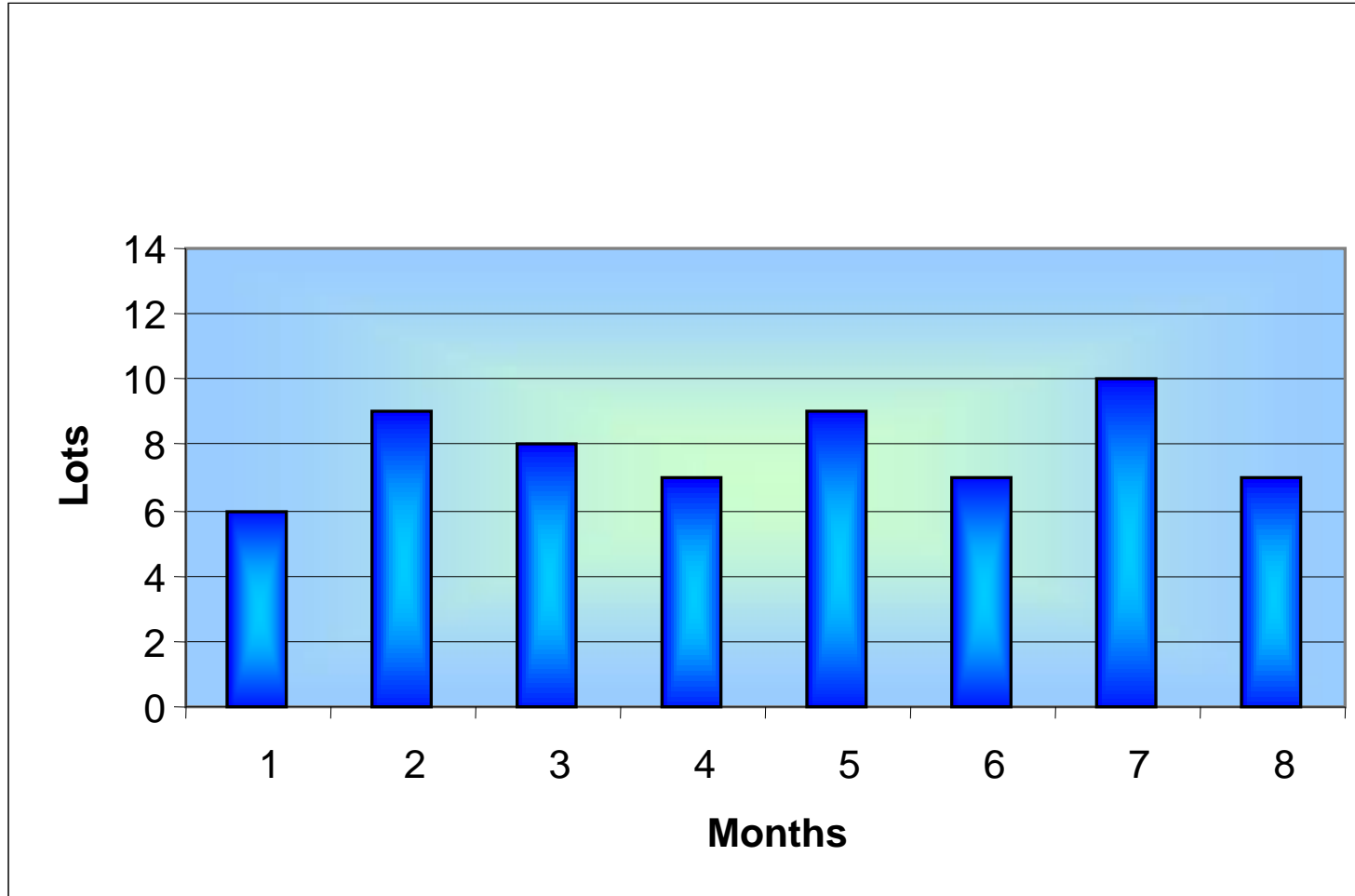


Fig 9-22 Bulk 'Elite' – ACD 20mg

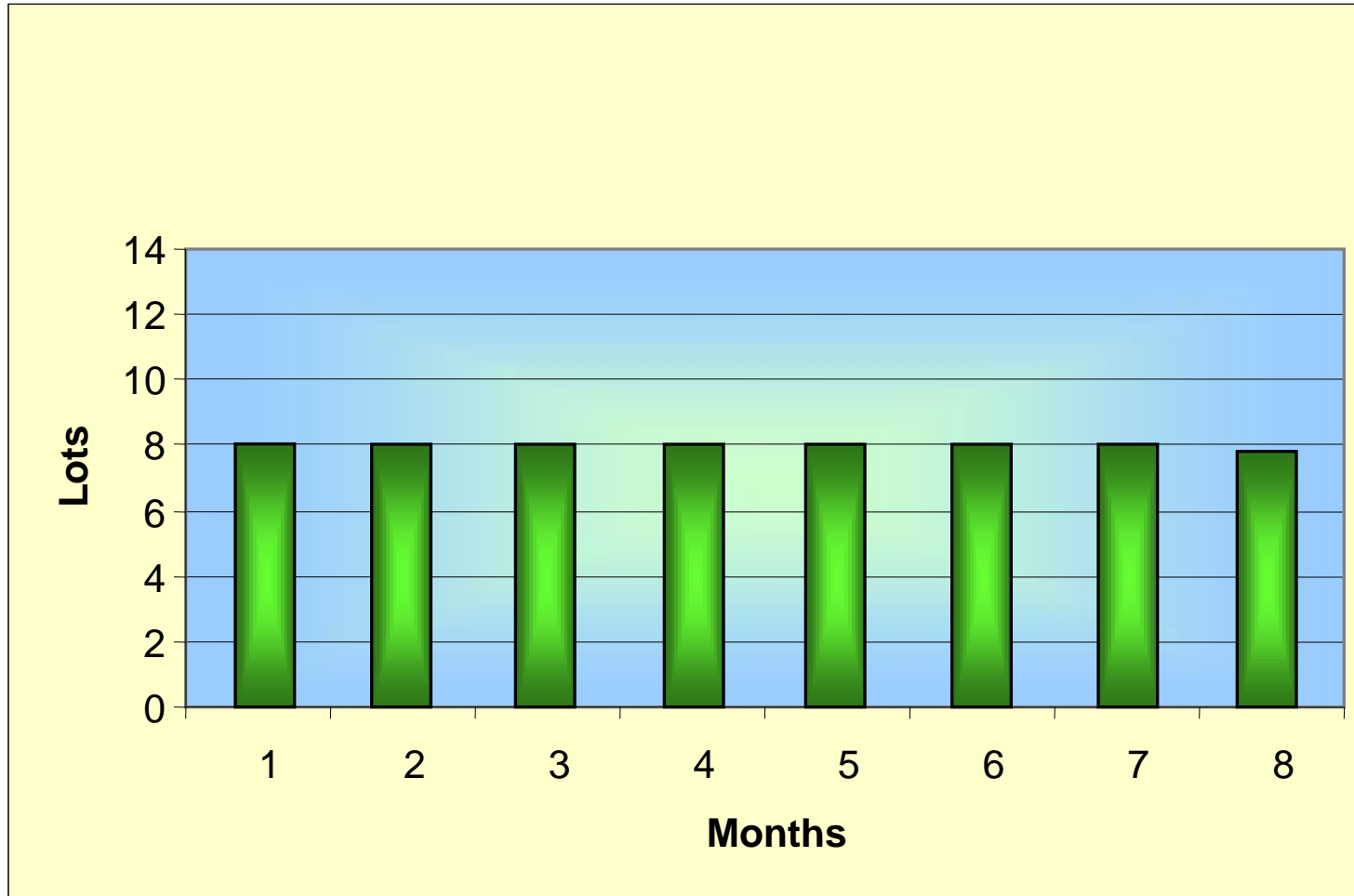


Fig 9-27 Generic Planning & Scheduling in MRP2

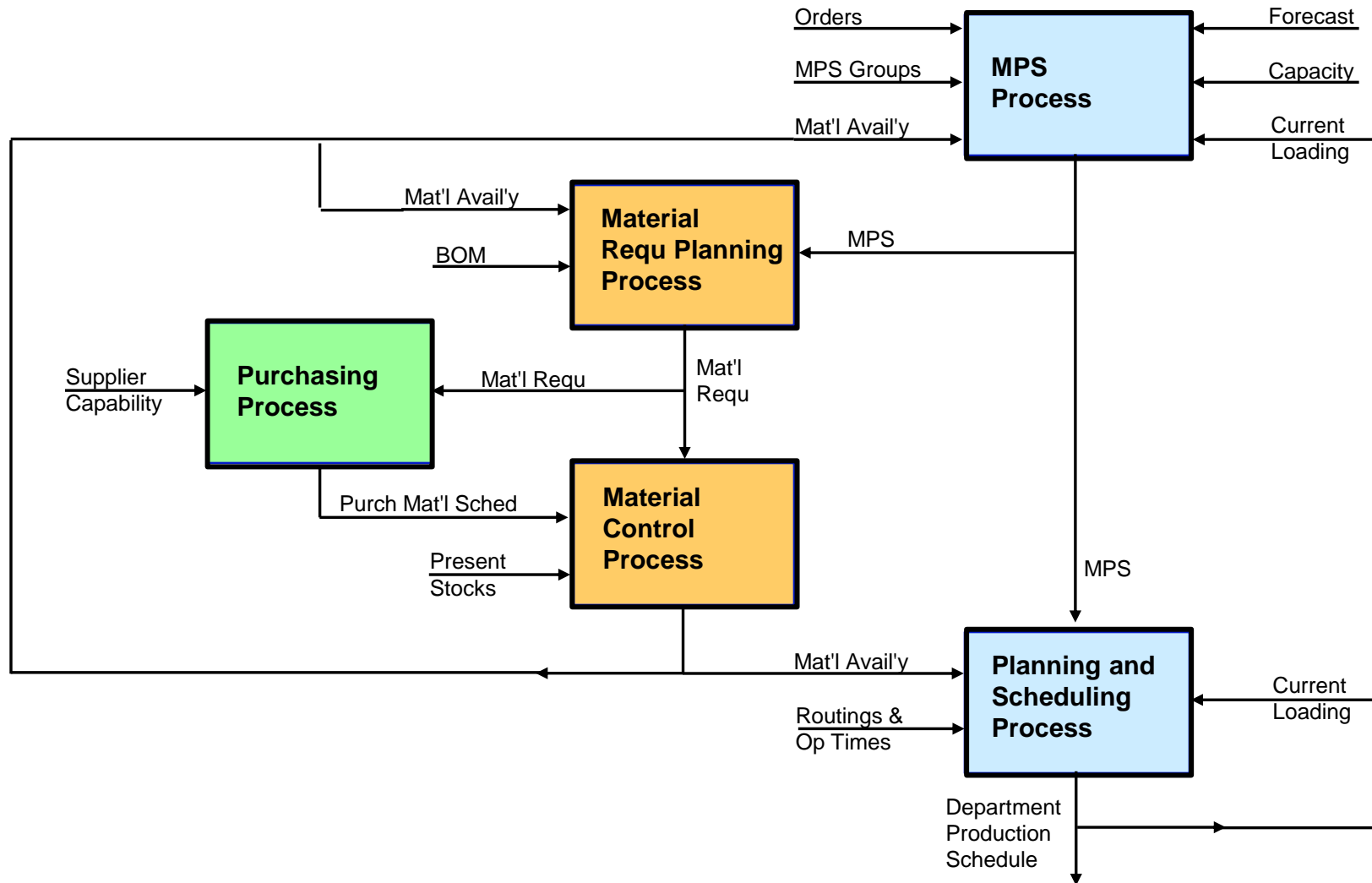


Fig 9-28 Generic Planning & Scheduling in 'Elite'

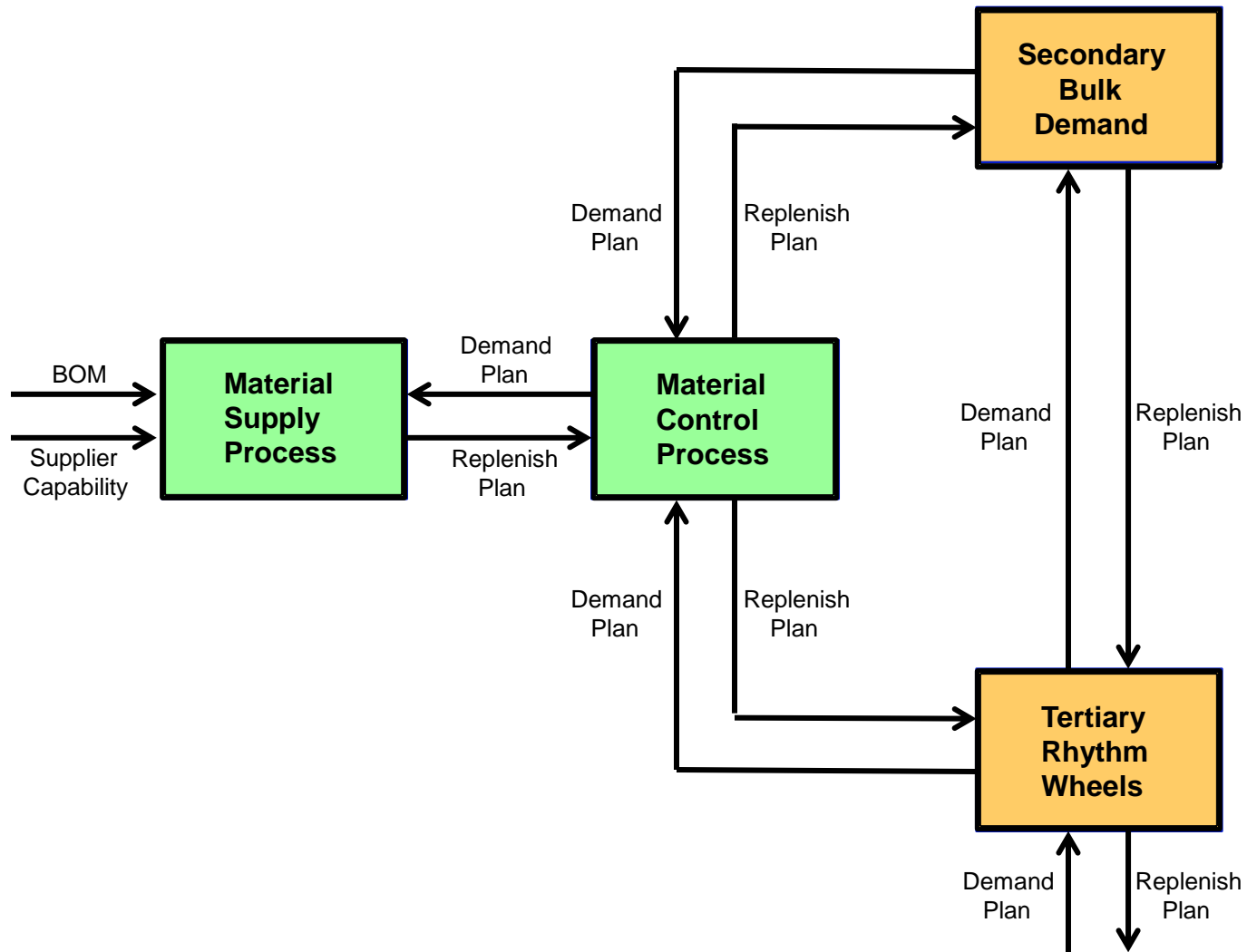


Fig 9-29 Milestone 6 – Planning & Scheduling – Briefing Document

SCOPE: To better match supply with demand in 'Elite' ACD supply chain

KEY CHANGE ISSUES:

- Have more consistent bulk batch production
- Introduce rhythm wheels for packaging
- Reduce levels of raw materials, work in progress and finished goods
- Introduce collaborative planning with customers
- Consider introducing APS system

CRITERIA FOR SUCCESS:

- CSL >99% by volume and line item for two months

Fig 9-30 Milestone 6. Planning & Scheduling – Activity Plan

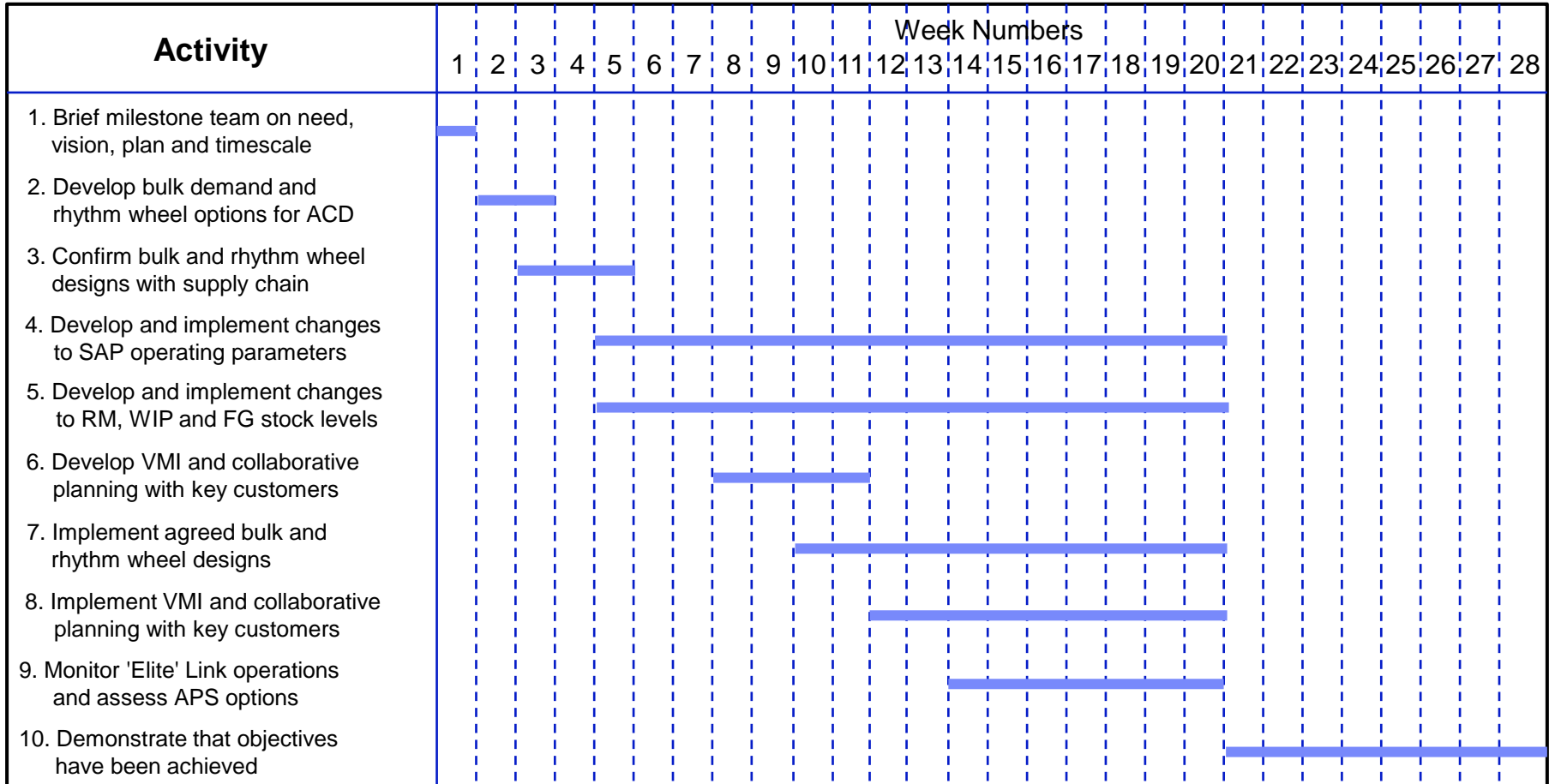


Fig 9-31 Inventory Benefits

| | Current inv in \$k | | Potential savings | | Savings ACD in \$k | | Savings all products in \$k | |
|--------------|--------------------|--------------|-------------------|-------|--------------------|-------------|-----------------------------|--------------|
| | ACD | All products | % min | % max | min | max | min | max |
| RM | 860 | 4150 | 25 | 40 | 215 | 344 | 1038 | 1660 |
| Pack | 520 | 2230 | 25 | 40 | 130 | 208 | 558 | 892 |
| WIP | 720 | 2950 | 50 | 75 | 360 | 540 | 1480 | 2213 |
| FG plant | 2060 | 10750 | 35 | 50 | 721 | 1030 | 3763 | 5375 |
| FG cust | 240 | 1030 | 35 | 50 | 84 | 120 | 361 | 515 |
| Total | | | | | 1510 | 2242 | 7200 | 10655 |