

*ABL Digital Technologies*

# **DEAL SIZING & COST-TO-SERVE**

*A Practitioner's Guide to the Estimator*

*What the tool does · Every input explained · How the maths runs  
The cost build-up · The Excel workbook · A worked example · Limits*

*Companion to the Shift Planning and Erlang Formulas explainers.*

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## 1 · What This Tool Does

The Deal Sizing & Cost-to-Serve Estimator answers one question: given a volume forecast for a contact-centre engagement, a target service level, and a per-FTE monthly cost, what does the engagement cost over the horizon — and what is the cost per contact?

It is the commercial twin of the Shift Planning tool. Where Shift Planning sizes a single representative week down to 15-minute intervals, Deal Sizing scales out to many months, projects the FTE need each month, layers the per-FTE cost (with an annual escalator), and rolls up to total cost and cost-per-contact across the horizon.

It does four things, in order:

- Projects monthly contact volume using a base figure and a compound monthly growth rate — optionally for two contact types in parallel, each with its own AHT and growth.
- For each month, derives the peak-hour load (the busiest hour of the busiest day) and runs the pure Erlang C requirement against the SLA target — no occupancy padding.
- Converts the on-call requirement into rostered FTE by applying shrinkage (the breaks, training, leave and attrition allowance), and multiplies by the per-FTE monthly cost — escalated annually.
- Summarises the horizon — peak month FTE, total cost, blended cost-per-contact, Year-1 numbers — and exports a styled Excel workbook with the full monthly build, three charts, and an assumptions narrative.

Everything runs in your browser. The tool is the third tab on the Tools page, after Erlang Calculators and Shift Planning.

*For the underlying queueing maths (Erlang B and C), see the "Erlang Formulas — Plain-Language explainer". For the per-week staffing logic that informs the peak-hour computation, see the "Shift Planning Tool" explainer. Both are available as free downloads from the Tools page.*

## 2 - Before You Begin

### Horizon

The number of months over which the deal is sized. Common choices: 12 (annual), 24 (typical mid-size BPO deal), 36 (longer-term outsource engagement), 60 (strategic captive build). Pick the period that matches the engagement you are pricing.

### Monthly Growth

A compound rate applied each month. A 2% monthly growth means month 12 volume is about 26% above month 1; month 24 is about 59% above. Use positive for ramp-up, negative for wind-down, zero for steady-state.

### Peak-Hour Intensity

The percentage of the day's volume that lands in the single busiest hour. Required staffing is driven by this peak — staff for the peak and the rest of the day is comfortable. Typical values:

- Inbound voice: 10–15% (a clear lunchtime peak)
- Chat: 8–12% (slightly flatter than voice)
- Email and back-office: 6–10% (much flatter)

### Shrinkage

The percentage of paid agent time that is not on calls — breaks, training, meetings, sick leave, attrition allowance.  $\text{Roster FTE} = \text{on-call FTE} \div (1 - \text{shrinkage})$ . Typical range: 22–32% for steady operations, higher during ramp.

### Per-FTE Fully-Loaded Monthly Cost

The total cost to keep one FTE on the roster for one month. Includes base salary, benefits, allowances, facilities (seat cost, IT, workstation), management overhead, attrition replacement cost, and any other on-cost. Build this number outside the tool — the estimator does not split it apart.

### Annual Cost Escalator

The annual increase in per-FTE cost. Applied at every 12-month boundary. A 6% escalator means month-13 per-FTE cost is 6% above month-12; month-25 is 12.36% above starting cost; and so on. Use this to model wage inflation, planned salary revisions, or contractual rate-card increases.

### Working Days per Month

The number of operating days in a typical month — 30 for 24×7 operations, 26 for Mon–Sat, 22 for Mon–Fri. The tool uses this to convert monthly volume into a daily figure, from which the peak hour is derived.

# 3 - The Inputs — Every Field Explained

## 3.1 Volume Forecast Card

### Month 1 Base Volume

Contacts expected in the very first month. The growth rate compounds from this figure forward.

### Monthly Growth (%)

Compound rate. Use 0 for flat steady-state, positive for ramp-up, negative for runoff. The model applies the same rate each month — for more complex curves, use the secondary contact type as a second line.

### Horizon (months)

Dropdown of 12, 24, 36, or 60 months. Drives the length of the monthly build and the period over which Total Cost is summed.

### Secondary contact type (checkbox)

Enables a second forecast line — useful when an engagement covers two distinct contact types with different volume profiles and handle times (for example, voice + chat, or inbound + outbound). When enabled, the Secondary M1 Volume, Secondary Growth, and Secondary AHT fields become active. Required staffing is computed for each independently and summed — this is a conservative treatment that ignores skill leverage. For engagements with material skill blending, price both lines separately and adjust manually.

## 3.2 Service Parameters Card

### Primary AHT (sec)

Average handle time for the primary contact type — talk time plus after-call work. Drives the Erlang load.

### Secondary AHT (sec)

Average handle time for the secondary contact type. Active only when the secondary checkbox is on.

### SLA Target (%) and Service Time (sec)

The pair that defines "meeting service": X% of contacts answered within Y seconds. Erlang C is run against this target on the peak hour to compute the on-call requirement.

### Shrinkage (%)

Used to inflate the on-call requirement into a rostered FTE count.  $Roster = on-call \div (1 - shrinkage)$ .

### Occupancy Cap (%)

Shown for sustainability awareness — does NOT inflate Required. The estimator computes the implied peak-hour occupancy and reports it; if it is above your cap, the operation is running hot and you may want to revisit AHT, SLA target, or peak-hour intensity assumptions.

### Min Staff per Interval

A floor for the on-call requirement on any month where volume is positive. Useful for ensuring a sensible minimum even when the Erlang C maths would otherwise return a very small number.

### Working Days per Month

Used to convert monthly volume to daily. 30 for 24×7, 26 for 6-day operations, 22 for Mon–Fri.

## 3.3 Cost Parameters Card

### Per-FTE Monthly Cost (currency)

The total monthly cost to keep one rostered FTE on the books. Build this number from your own components — base, benefits, facilities, overhead, attrition cost — and enter the all-in figure.

### Annual Cost Escalator (%)

The compound annual rate applied to per-FTE cost. Applied at every 12-month boundary (month 13, 25, 37, ...). Use this for wage inflation or contractual rate increases.

### Peak-Hour Intensity (%)

The share of daily volume in the busiest hour. Typical values shown in Section 2. Drives the peak-interval load that the Erlang C requirement is computed against.

### Cost Currency Symbol

Display only — the symbol shown next to all cost figures on the page and in the Excel. Defaults to ■ but accepts \$, €, £, etc.

## 4 · The Maths At A Glance

### 4.1 Monthly Volume

$$\text{vol\_primary}[m] = M1 \text{ vol} \times (1 + \text{growth})^{(m - 1)}$$

$$\text{vol\_secondary}[m] = M1 \text{ sec vol} \times (1 + \text{sec growth})^{(m - 1)} \text{ (if enabled)}$$

$$\text{total\_vol}[m] = \text{vol\_primary}[m] + \text{vol\_secondary}[m]$$

### 4.2 Peak-Hour Load

$$\text{daily\_vol}[m] = \text{total\_vol}[m] \div \text{working days}$$

$$\text{peak\_hour\_vol}[m] = \text{daily\_vol}[m] \times \text{Peak-Hour Intensity}$$

### 4.3 Required On-Call Agents (per contact type)

For each contact type with positive volume, the tool runs the Erlang C agent-requirement loop at the peak hour:

$$\text{Required}[\text{type}] = \text{smallest } N \text{ such that Erlang C SLA}(N, T, \text{peak\_hour}, \text{AHT}) \geq \text{SLA target}$$

$$\text{Required}[m] = \text{Required}[\text{primary}] + \text{Required}[\text{secondary}]$$

A min-staff floor is applied when volume is positive. No occupancy padding — that is intentional, matching the Shift Planning logic.

## 4.4 Roster FTE

$$\text{Roster FTE}[m] = \lceil \text{Required}[m] \div (1 - \text{shrinkage}) \rceil$$

## 4.5 Cost Build

$$\text{year\_index}[m] = \lfloor (m - 1) \div 12 \rfloor$$

$$\text{cost\_per\_FTE}[m] = \text{base} \times (1 + \text{escalator})^{\text{year\_index}[m]}$$

$$\text{monthly\_cost}[m] = \text{Roster FTE}[m] \times \text{cost\_per\_FTE}[m]$$

$$\text{cumulative}[m] = \text{cumulative}[m - 1] + \text{monthly\_cost}[m]$$

$$\text{cpc}[m] = \text{monthly\_cost}[m] \div \text{total\_vol}[m]$$

## 4.6 Horizon Roll-up

$$\text{Peak FTE} = \max \text{ over } m \text{ of Roster FTE}[m]$$

$$\text{Ending FTE} = \text{Roster FTE}[\text{horizon}]$$

$$\text{Total Cost} = \text{cumulative}[\text{horizon}]$$

$$\text{Blended CPC} = \text{Total Cost} \div \sum \text{total\_vol}[m]$$

$$\text{Average Monthly} = \text{Total Cost} \div \text{horizon}$$

$$\text{Year-1 Cost} = \sum \text{monthly\_cost}[m] \text{ for } m = 1 \dots 12$$

$$\text{Year-1 CPC} = \text{Year-1 Cost} \div \text{Year-1 Volume}$$

# 5 . The Outputs — On the Page

## 5.1 Horizon Summary Card

Eight headline numbers at a glance:

- Peak Month FTE — the largest roster the engagement needs in any month.
- Ending Month FTE — the roster you exit the horizon at.
- Total Volume across the horizon.
- Total Cost across the horizon.
- Blended Cost / Contact — the engagement-level CPC.
- Average Monthly Cost.
- Year-1 Cost.
- Year-1 CPC.

## 5.2 Monthly Build Preview

The first twelve months in a compact table: Month, Volume, Required FTE, FTE Cost, Monthly Cost, Cumulative, CPC. The full horizon is in the Excel download.

# 6 · The Excel Workbook — Four Sheets

Clicking Download Excel produces ABL\_Deal\_Sizing.xlsx in the same professional style as the Shift Planner workbook.

## 6.1 Summary

- Title and timestamp
- INPUTS section — every input echoed, in the same order they appear on the page
- HORIZON SUMMARY — peak FTE, ending FTE, total volume, total cost, blended CPC, average monthly, Year-1 numbers

## 6.2 Monthly Build

Every month in the horizon, eleven columns: Month, Primary Vol, Secondary Vol, Total Vol, Req (Primary), Req (Secondary), Roster FTE, Per-FTE Cost, Monthly Cost, Cumulative, CPC. Alternating row backgrounds, styled header.

## 6.3 Charts

Three embedded chart images:

- 1 · Roster FTE across the horizon — line chart showing the headcount trajectory month by month.
- 2 · Monthly cost across the horizon — bar chart, useful for spotting escalator steps and growth phases.
- 3 · Cost-per-contact trend — line chart showing how unit economics evolve as volume grows against a stepped cost base.

## 6.4 Assumptions

A narrative sheet documenting the methodology: volume model, peak-interval sizing, Erlang C requirement (pure, no padding), roster conversion via shrinkage, cost build-up, what the tool does not cover, and the limits of the Erlang assumption. Useful to share with finance teams reviewing the numbers.

# 7 · A Worked Example

Suppose you are sizing a 24-month BPO engagement for a retail-banking inbound voice queue.

- Month 1 Volume: 240,000 · Monthly Growth: 2% · Horizon: 24 months
- AHT: 290 sec · SLA Target: 85% within 20 sec

- Shrinkage: 25% · Occupancy Cap: 80% · Min Staff: 2
- Working Days: 30 · Peak-Hour Intensity: 12%
- Per-FTE Monthly Cost: ■55,000 · Annual Escalator: 6%

## 7.1 What the Tool Computes for Month 1

$$\text{daily volume} = 240,000 \div 30 = 8,000 \text{ contacts}$$

$$\text{peak hour} = 8,000 \times 12\% = 960 \text{ contacts/hour}$$

$$\text{Erlang load A} = 960 \times 290 / 3,600 = 77.3 \text{ Erlangs}$$

Erlang C agents needed for 85% SLA in 20 seconds at A = 77.3 is around 87. With min-staff floor not binding, Required = 87.

$$\text{Roster FTE} = \blacksquare 87 \div (1 - 25\%) \blacksquare = \blacksquare 116.0 \blacksquare = 116$$

$$\text{Monthly cost} = 116 \times \blacksquare 55,000 = \blacksquare 63,80,000$$

$$\text{CPC} = \blacksquare 63,80,000 \div 240,000 = \blacksquare 26.58 \text{ per contact}$$

## 7.2 What the Tool Computes for Month 24

$$\text{vol}_{24} = 240,000 \times 1.02^{23} \approx 378,000 \text{ contacts}$$

$$\text{daily volume} = 378,000 \div 30 \approx 12,600 \text{ contacts}$$

$$\text{peak hour} = 12,600 \times 12\% \approx 1,512 \text{ contacts/hour}$$

$$\text{Erlang load A} = 1,512 \times 290 / 3,600 \approx 121.8 \text{ Erlangs}$$

At A ≈ 122, Erlang C needs around 134 agents. Roster FTE = ■134/0.75■ = 179. By month 24 the escalator has applied once (at month 13), so per-FTE cost is ■55,000 × 1.06 = ■58,300.

$$\text{monthly\_cost}_{24} = 179 \times \blacksquare 58,300 = \blacksquare 1,04,35,700$$

$$\text{cpc}_{24} = \blacksquare 1,04,35,700 \div 378,000 \approx \blacksquare 27.61$$

## 7.3 Headline Outputs

Across 24 months you would expect approximately:

- Peak Month FTE: 179 (month 24)
- Total Volume: ~7.4 million contacts
- Total Cost: ~■19.5 crore
- Blended CPC: ~■26.40 per contact (CPC drifts slightly upward due to escalator outpacing volume growth)
- Year-1 Cost: ~■8.4 crore

## 7.4 What You Do With This

Use these numbers as the input to a commercial pricing model — add gross margin, contingencies, transition cost, and any project overlays before quoting. The tool gives you the cost floor; pricing is a

layer above.

## 8 - What This Tool Will Not Tell You

The estimator is deliberately scoped. Things it does not do:

- Multi-location delivery — no support for two sites with different cost bases.
- Skill leverage matrices — secondary contact type is treated as fully separate, no blended-skill savings.
- Detailed cost component escalation — one annual escalator applies to the whole per-FTE figure, not separately to base, benefits, or facilities.
- Transition cost, knowledge-transfer cost, and one-time setup.
- Deal pricing — margins, contingencies, contract terms, payment timing.
- Currency conversion or multi-currency reporting.
- Detailed intraday or per-interval planning — that is the Shift Planning tool.

Use this for a first-pass commercial estimate that lets you respond to "what would this cost?" within minutes. For a final RFP response, feed the numbers into your firm's pricing workbook with all the commercial layers added.

## 9 - Tips and Common Questions

### **Why does CPC rise across the horizon even when volume is growing?**

The annual cost escalator is compounded once per year; volume grows monthly but at a milder rate. If escalator  $> 12 \times$  monthly growth (in compound terms), CPC drifts upward over time. Compare the implied annual growth ( $1.02^{12} - 1 \approx 26.8\%$  for 2% monthly) against the escalator (6%) to predict the direction.

### **Why is my Peak FTE so high relative to average?**

Peak-Hour Intensity drives this directly. At 15%, your peak hour is 50% larger than at 10% intensity for the same daily volume. If you have data on actual intraday distribution, use it; if not, 10–15% is a defensible range for inbound voice.

### **Why does the secondary contact type require both to be sized separately?**

To avoid over-claiming skill leverage savings that real operations often fail to capture. If two queues are genuinely staffed by separate teams (different skill, different bonus structure, different attrition), independent sizing is correct. If they share agents under multi-skill routing, you can reduce the resulting FTE by a leverage factor outside the tool — typically 5–15% on the smaller of the two queues.

## **How precise is this for an actual RFP response?**

It is a first-cut estimate, not a precise costing. Treat it as the baseline against which you sense-check more detailed work. The Erlang C model is right on its own terms — the imprecision comes from the inputs (especially the Peak-Hour Intensity assumption and the per-FTE cost build). Stress-test both before committing.

## **Where can I learn the maths in depth?**

The companion document "Erlang Formulas — A Plain-Language Explainer" walks through Erlang B and Erlang C from first principles, with worked examples. The "Shift Planning Tool" explainer covers the per-week staffing logic. Both are available as free downloads from the Tools page.