

BLUEPRINT

THE COBOT ROI

A 10-STEP FRAMEWORK
TO **EVALUATE, JUSTIFY,**
AND MAXIMIZE THE
RETURN ON COLLABORATIVE
PALLETIZING SYSTEMS



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WHY A TRUE ROI BLUEPRINT MATTERS

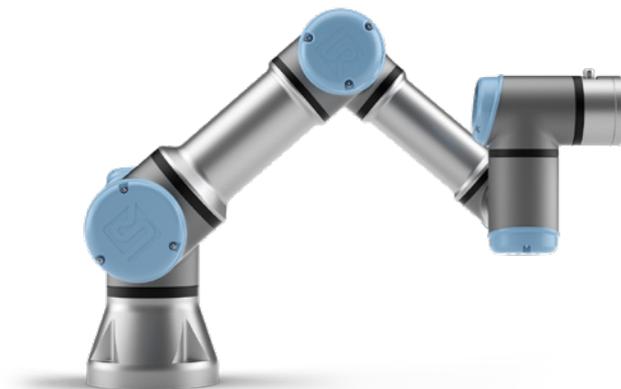
Automation isn't a futuristic ambition — it's a competitive necessity. Across industries, manufacturers face the same pressures: labor shortages, rising wages, and relentless demand for higher output without compromising quality.

Collaborative robots (cobots) have become a practical, scalable solution to this challenge. Yet every investment must be justified — and that justification starts with a clear, credible Return on Investment (ROI).

The Cobot ROI Blueprint gives you a structured, realistic way to calculate and communicate the return on your cobot palletizing system. It's not based on idealized assumptions — it's grounded in real-world variables, true operational costs, and proven results.

BLUEPRINT OVERVIEW

This 10-step method helps you evaluate your cobot investment with accuracy and confidence. Each stage builds logically on the last, combining financial modeling with operational insight to reveal the real business value of automation.



STEP 1. DEFINE THE PURPOSE OF YOUR ROI

Before diving into numbers, define why you're calculating ROI. Are you trying to justify a capital expense, compare automation options, or identify your payback timeline?

A clear purpose transforms ROI from a spreadsheet number into a decision-making tool. It ensures your analysis supports your goals — not just your accounting.

STEP 2. IDENTIFY THE HIDDEN GAPS IN TYPICAL ROI MODELS

Most ROI calculators oversimplify reality. They assume flawless performance and ignore the messy truth of day-to-day production:

- Fatigue, absenteeism, and turnover
- Setup time and training disruptions
- Maintenance, downtime, and real efficiency losses

A credible ROI model accounts for these human and operational variables. Automation is powerful, but only if your ROI projection mirrors how your factory actually runs.



STEP 3. CALCULATE THE TOTAL COST OF OWNERSHIP (TCO)

Your cobot's purchase price is only the beginning. To capture your true investment, include all fixed and variable costs from order to operation.

Fixed Costs

- Equipment, integration, and commissioning
- Software, safety systems, and accessories
- End-of-arm tooling and conveyors

Variable Costs

- Production downtime during installation
- Specialized services (e.g., layout changes, risk assessments)
- Operator training and setup labor
- Facility or electrical modifications

Pro Tip: Add every cost into one figure — your total system cost baseline (C₃). This becomes your anchor for ROI.

STEP 4. QUANTIFY CURRENT LABOR COSTS

To measure savings, you need to know what your manual operations truly cost. Include:

- Wages, bonuses, and benefits
- Overtime and absenteeism
- Recruiting, onboarding, and turnover costs
- Lost productivity from fatigue or downtime

Then multiply by the number of operators and shifts. For most manufacturers, labor savings represent 60–70% of total cobot ROI.

STEP 5. ADJUST FOR REAL-WORLD EFFICIENCY

No process runs at 100%.

- Human efficiency: 80–85% (due to breaks, fatigue, and variability)
- Cobot efficiency: 90–95% (stable and predictable)

That 5–10% gap directly impacts throughput and unit cost. If your team runs at 85% and your cobot sustains 90%, you’re already gaining efficiency before adding hours or shifts.

STEP 6. ADD PRODUCTIVITY AND QUALITY GAINS

Cobots don’t just replace manual work — they expand capacity. Estimate the benefits beyond labor replacement:

- Extended shift coverage (24/7 uptime)
- Faster cycle times (5–40% throughput increase)
- Fewer product damages (up to 30% reduction)
- Lower injury claims and lost-time incidents

These multipliers compound your ROI and often accelerate payback by several months.

STEP 7. INCLUDE OPERATING AND MAINTENANCE COSTS

Every automated system has ongoing expenses.

Build them into your model to maintain realism:

- Electricity usage: typically \$1,500–\$2,000/year
- Maintenance and service: 3–10% of system value
- Spare parts or small repairs
- Unplanned downtime (average \$2,500/year)

Typical annual operating cost: 3–8% of your cobot’s value. Including this early prevents overestimating your ROI.

STEP 8. APPLY THE ROI FORMULA

Now it’s time to bring it all together.

CATEGORY	VARIABLE	VALUE
Investment	System Cost (USD)	\$172,000
Labor Costs	Manual Labor Cost (USD)	\$105,000
Efficiency	Human Efficiency	80%
	Cobot Efficiency	95%
Performance Gains	Productivity Gain	35%
	Damage Reduction	25%
Additional Savings	Injury Savings (USD/year)	\$6,100
Operating Costs	Operating Costs (USD/year)	\$8,000

COBOT PAYBACK PERIOD CALCULATION

ANNUAL SAVINGS	CALCULATION	AMOUNT
Manual Labor Cost		\$105,000
÷ Human Efficiency	÷ 80%	\$131,250
× Performance Factor	× 1.60 (1 + 35% + 25%)	\$210,00
+ Injury Savings	+ \$6,100	\$216,000
– Operating Costs	– \$8,000	\$208,100

INVESTMENT COST	CALCULATION	AMOUNT
System Cost		\$172,000
÷ Cobot Efficiency	÷ 95%	\$181,053
PAYBACK PERIOD	$\$181,053 \div \$208,100$	0.87 years
		10.4 months

Result: The cobot system pays for itself in less than 11 months.

STEP 9. RECOGNIZE VALUE BEYOND THE NUMBERS

ROI isn't just financial — it's strategic. Automation delivers intangible benefits that reinforce your long-term success:

- Safer, more ergonomic workplaces
- Lower turnover and easier recruiting
- Consistent product quality and throughput
- Better morale and job satisfaction
- Stronger brand reputation for innovation

These “soft gains” often shorten the real payback window even further.

STEP 10. CALCULATE THE COST OF INACTION

Delaying automation has a cost of its own. Each month without improvement means:

- Higher labor expenses
- Lost production capacity
- Reduced competitiveness
- Slower responsiveness to customer demand

Doing nothing costs more than doing something — especially when your competitors are already automating.

NEXT STEP: BUILD YOUR CUSTOM ROI MODEL

Gather your key inputs — costs, shifts, throughput, efficiency — and enter them into an ROI calculator or consult an automation specialist. Within minutes, you'll see:

- Your expected payback period
- Your annualized savings
- And your total long-term return

Start calculating your ROI today — and turn automation into measurable, sustainable growth.

TURN INSIGHT INTO ACTION

The Cobot ROI Blueprint is more than a calculator — it's your roadmap for smarter automation decisions.

By combining accurate data with realistic assumptions, you'll present your stakeholders with clear, confident ROI projections that reflect your plant's reality.

Automation isn't about replacing people — it's about redefining how work gets done, measured, and scaled.

The best time to calculate your ROI? Before your competitors do.



**CALCULATE YOUR ROI
IN MINUTES**