

Payback is a Dirty Word, but it doesn't have to be!

How to accurately and properly justify AGVs/AGCs



**IF YOU SUPPLY THE SUPPLY CHAIN,
YOU BELONG AT MODEX.**

The greatest supply chain show on earth.

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Overview

- In traditional warehouses, human error has a negative effect on safety, efficiency, quality, and productivity . . . All which have an impact on cost.
- These expenses are reduced with the introduction of an autonomous vehicle
- A driverless, intelligent forklift can quickly and safely traverse a warehouse in an efficient manner



What is an AGV

- An AGV is an independently operated vehicle that moves material along defined paths between defined delivery points or stations.



AGV vs. Forklift



Why an AGV?

- Minimal human interaction
- Work continuously
- Great for outdoor & cold storage
- Outfitted for safety, first
- Reduced noise & exhaust
- Reduced accidents
- Reduced aisles / high-density areas

Why a Forklift?

- Lower upfront & maintenance costs
- Operator assisted environment
- Operator's ability to deal with issues in picking orders
- Move faster
- Handle dynamic work-pathing



So, What's the problem?

Why are they not everywhere?

- Perception
- Justification
- Education
- Availability



Perception

AGVs are big, slow cash cows that are expensive and difficult to implement and maintain



- Past
 - Slow
 - Expensive
 - Software not as Mature as Needed
- Today
 - Faster
 - More Affordable
 - Improved Controls and Software
 - Safer
 - Improved Energy Solutions



Justification

Corporations follow an antiquated justification model



- Labor Savings
 - # of heads saved/eliminated
 - 10 heads @ \$50K per year → \$500K per year
- Pay “x”, get “y” in return
 - How long will it take to recover “y”?

. . . determining how to calculate ROI and measuring it against the risks of failure are not always so cut and dry.



Education

Financial evaluation alone should not be the only criteria when considering automation



Traditional – Below the Line

- Direct
 - Reduced Staffing Costs
 - Reduced Energy Costs
 - Reduced TCO
- Indirect
 - Improved Quality & Order Accuracy
 - Reduced Time to Order Completion
 - Improved Employee Satisfaction
 - Labor Flexibility

Foundational – Above the Line

- Direct
 - Increased Flexibility
 - Increased Operating Hours
 - Increased Capacity
- Indirect
 - Customer Buy-In
 - Improved System Level Information (WCS / WES)



Availability

AGVs are far more available today than in the past



- Over 50 AGV suppliers in North America
- Acceptable form of reliable material handling transport
- Supported worldwide
- Faster implementation

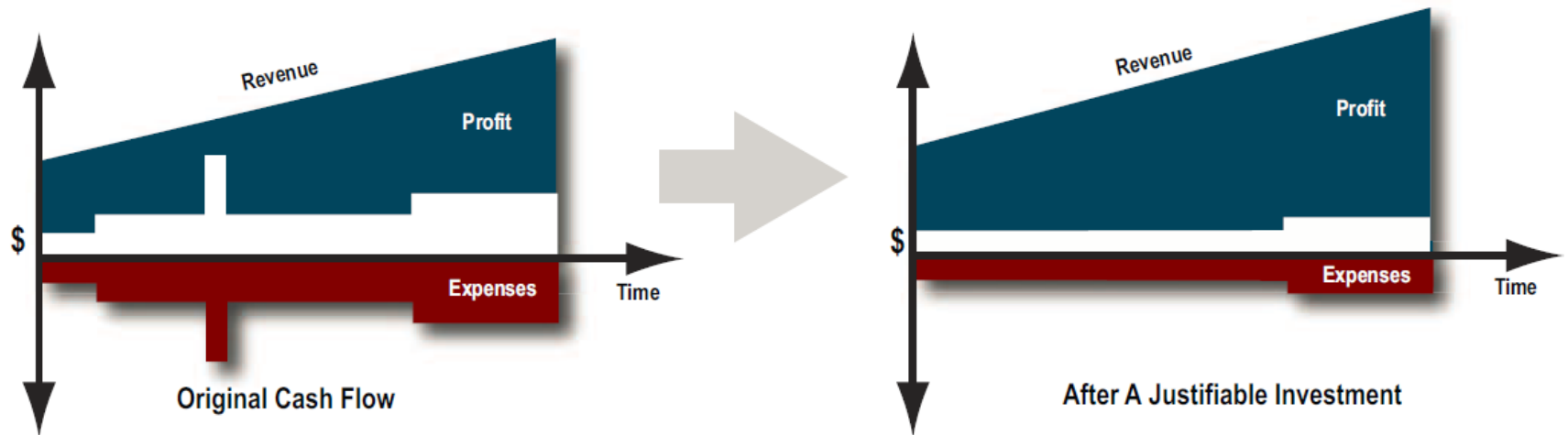


ACCOUNTING 101



Cash Flow

- There are those projects that are justified based on non-financial forces such as image, regulations or sheer desire. For all others, there must be a financial payback.



- In terms of basic accounting, the name of the game is to maximize profit. This requires that you increase revenue and/or reduce ongoing periodic or sporadic expenses. Thus there are two ways we measure the ROI of an investment; does it reduce costs or increase revenue over a given period of cash flow?

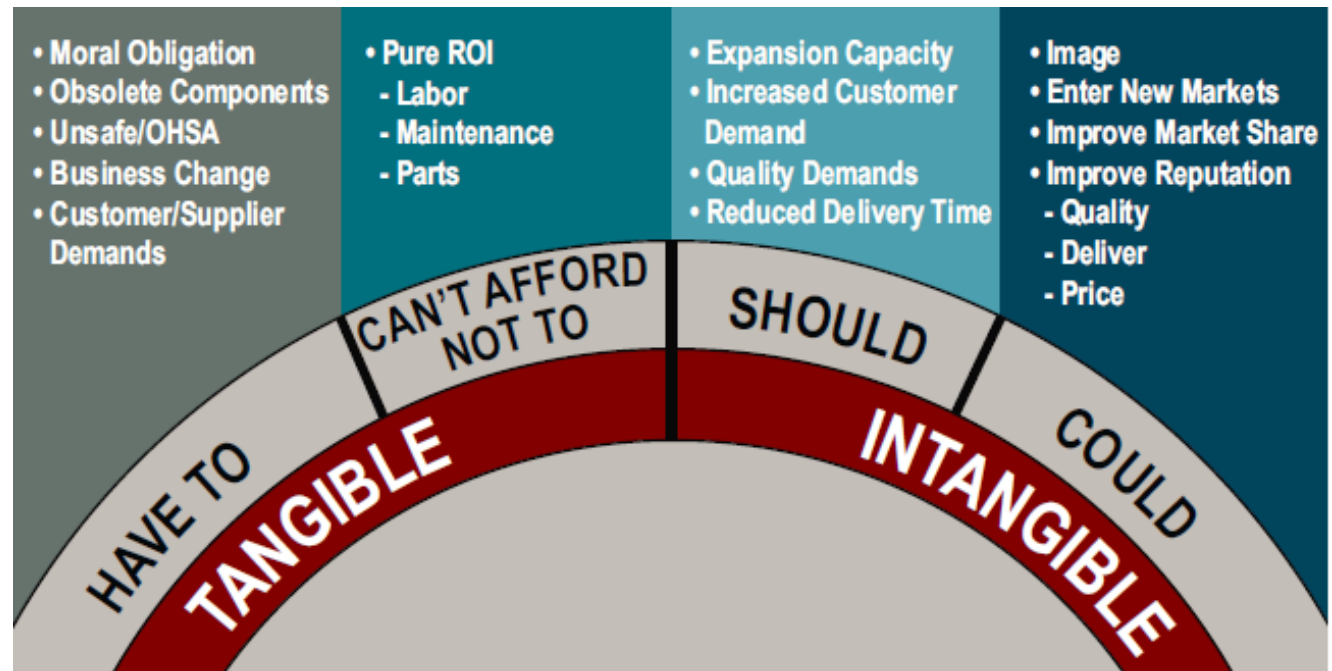


ROI ROADMAP



Define the Task at Hand

- Your job is not to justify the project, your job is to make the best use of the company's resources.
- Maintaining an objective perspective is paramount in a solid evaluation.



Define Planning Horizon

- It is critical to consider the lifespan of the asset you are considering, your company's "range" of thinking, the economic forecast and the volatility of your environment before defining a period of evaluation. When in doubt, a 10-year look forward is a good default.



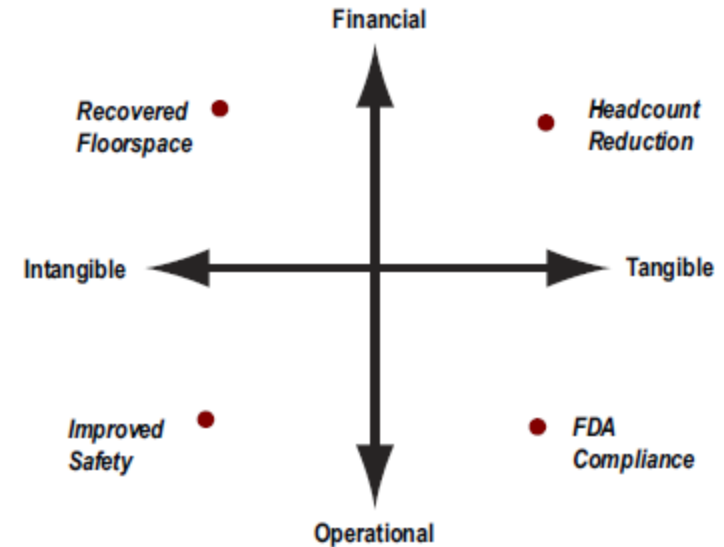
Commit to Objectives

- Clearly state the driving reasons for considering this investment and never lose sight of them.
- Along the road, you may discover added rewards, but keep your eye on the origin of the potential justification.
- Understand that there is a continuum of objectives that may cause your ROI to be more or less tangible.



Estimate Complete Cash Flow

- Project in great detail, the cash in and out of your company that will occur over the proposed period.
- Conduct this exercise from both an operational and financial perspective, being sure to involve a team of future benefactors from various relevant corners of your company.
- This will yield comprehensive data as well as assure “buy in” for your evaluation.



EXAMPLES / CASE STUDIES



ROI Example

Operating Costs – Conventional

- Five (5) vehicles
 - Conventional sit down vehicle ~ \$50k
 - Initial cost (vehicles) → $\$50k \times 5 \text{ vehicles} = \mathbf{\$250k}$
- Typical fully-burdened fork truck operator per shift is ~\$35k-\$45k
 - Two-shift operation
 - Varies geographically, labor pool
 - Burdened cost (labor) → $\$45k \times 5 \text{ people} = \$225k \times 2 \text{ shifts} = \mathbf{\$450k}$
- Annual costs for damage/loss \$10k
- Annual costs for rehiring/retraining \$10k
- Annual operating cost → **~\$470k**



ROI Example

Operating Costs – AGVs

- Eight (8) 3000 lbs. capacity AGVs, laser navigation ~\$1.2M
- Elimination of 10 FTEs → + \$450k annually
- Elimination of facility/product damage → +10k annually
- Elimination of rehiring and retraining costs → +10k annually
- Same annual maintenance costs
- $$\frac{(\text{AGV Cap Cost}) - (\text{Conv. Cap Cost})}{(\text{Annual Cost savings})}$$
- 1.6 years



Key Takeaways

- Reduces costs by decreasing labor, product damage and lower installation costs
 - Resolves turnover and training of employees
- Eliminates conveyors
- Improves response times
- Increases work safety
- Eliminates single points of failure
- Provides a reusable asset
- Improves logistics
- Provides better tracking and inventory management
- Improves image and housekeeping
- Forces discipline in the work area



Q&A



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