

Beyond ROI: How benchmarking and KPI tracking can better reveal the true value of technology investments

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Labour costs, in both developed and developing countries, seem continually on the rise. Traditionally, when evaluating the impact of process automation technology investments, like those involving OCR, RFID, and GPS automation solutions, considerable emphasis is placed on the ROI derived solely from labour force reductions. Many terminal operators, keen on reducing rising operating costs and reliance on unionised labour, may feel the pressure to prematurely begin these projects without clearly defining the real business value that's achievable.

One alternative is to look beyond basic ROI and labour reductions and focus first on how the technology solution benefits the core business of a terminal. In short, to instead measure how the solution will impact and improve the Key Performance Indicators (KPIs) on which the terminal is judged. Many of today's terminal operators, some of which are forced to utilise automation technology to increase productivity and throughput capacity, are leveraging expanded analysis models to maximise their investments. Specifically, they are subscribing to the belief of 'what you can't measure, you can't manage' and are first benchmarking key metrics and KPIs of their current operations. By doing so and by defining clear project goals, they then facilitate a process in which success, failure and ROI can be evaluated objectively.

In the two profiles below, separate terminal operators and two process automation projects are highlighted. Two important productivity measures, Land Utilisation and Gate Throughput, were benchmarked and tracked to better prove the real impact of the technology investment.

KPI focus: increase Gate Throughput for Ports America

APS Technology Group worked with Ports America operations management to define three key goals prior to beginning a gate automation project at their terminal in Baltimore, MD. To be successful, the project needed to provide:

1. Increased throughput capacity at the exit lanes by 100 per cent
2. Reduction of gate traffic queues associated with slow transaction processing
3. Data integration into the existing Navis Express and gate control systems.

To meet these goals, APS provided its Gate OCR Portal system at each of the four exit lanes of the facility. The solution was installed in the existing lane plaza and provided a real-



Figure 1. Gate OCR portals at the Ports America Seagirt Marine Terminal.

time identification of container and chassis (trailers) via Optical Character Recognition (OCR).

Benefits

- 500 per cent increase in Gate Throughput capacity
- Elimination of gate queues and backup of traffic into the container yard
- Increased safety and security by relocating inspection clerks from the lanes to a remote area where any system exceptions could be managed via system software.

KPI Focus: increase Lifts/hour and Land Utilisation for TraPac Terminals

As an early adopter of technology and process automation solutions, TraPac has bought or developed a host of applications over their history as the terminal operator for MOL in the U.S. After developing their own GPS-enabled Position Determination System (PDS) to maintain inventory within their grounded container yard, TraPac realised the visibility limitations of such a system at two critical points of work: under the STS crane and adjacent to each RTG. They also found that the manual identification of containers at each of the points of work was introducing errors into their TOS. APS and TraPac's operations management worked to first analyse their Los Angeles terminal's operations to establish some performance benchmarks. They then defined four key goals for the operation prior to beginning a process automation project at their terminal in Los Angeles, CA.

TABLE 1: KPI IMPROVEMENT FOR PORTS AMERICA FOLLOWING GATE AUTOMATION PROJECT

Hours/day	Avg. transaction time (mins)	Effective periods/day	Avg. transactions (all lanes)	Avg. per hour	Avg. per hour/ per lane	Productivity increase
8	3.00	160	1,120	140	20	
8	0.50	960	3,840	480	120	500%

TABLE 2: KPI IMPROVEMENT FOR TRAPAC LA FOLLOWING PROCESS AUTOMATION PROJECT

Hours/shift	Shifts/day	Effective moves/shift	Total Moves/day/RTG	Moves/year	Productivity increase
8	3	55	165	57,750	
8	3	85	300	105,000	82%

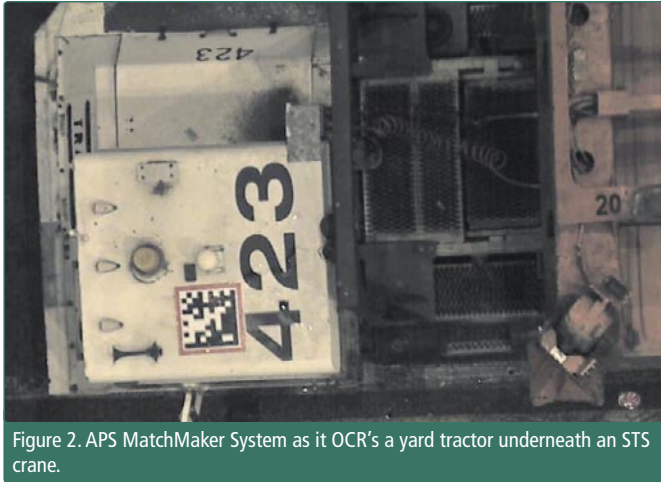


Figure 2. APS MatchMaker System as it OCR's a yard tractor underneath an STS crane.

To be successful, the project needed to:

1. Increase RTG production by 50 per cent
2. Eliminate data entry processes to ID containers and tractors at two key points of work: under each STS crane and within the CY at each RTG
3. Reduce of RTG traffic queues
4. Provide an image archive associated with each container handoff for exception handling

On this project, APS provided their STS Crane OCR System (for real-time container ID during load/discharge) and its MatchMaker system, designed to identify internal yard tractors via OCR at a specific point of work (i.e. STS Crane and RTG). The container and tractor ID's were then 'matched' during the handoff at each point of work and reported to the TraPac TOS via an existing wireless network. Automating the capture and input

of these data allowed TraPac to leverage the equipment control functions within their TOS; thus, automatically releasing and confirming work orders without manual intervention.

Benefits

- 82 per cent increase in RTG productivity and Land Utilisation
- Elimination of yard traffic queues at each RTG
- Relocation of RTG clerk to an inside exception control desk
- Reduction of RTG's utilised (7 to 6)
- Centralised exception handling capability to correct errors in real-time.

ABOUT THE AUTHOR AND COMPANY

Allen Thomas is the Vice President of Operations for APS Technology Group, a global leader in automation solutions for container terminals and supply chain logistics providers. Mr. Thomas is responsible for strategic planning, business development and project oversight. He has over 12 years of experience in automation and is an industry leader on the application of Automated Gate Systems, OCR, RFID, and GPS technology systems for shipping lines, terminal operators and railroads worldwide including Maersk-Sealand, CSX World Terminals, APM Terminals, Marine Terminals Corporation, CSX Lines and Norfolk Southern Railroad. Prior to joining APS, Mr. Thomas served as a business analyst and IT project manager for Sea-Land Service (now Maersk Line) where he was responsible for project management and global implementation of terminal systems initiatives throughout the U.S., Europe, Asia, the Caribbean and Australia. Mr. Thomas is a recognised conference speaker and active participant in many trade associations.

ENQUIRIES

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