

Maintenance Outsourcing A New Trend ?



Conasia 2000

1. Outsourcing – A global business trend for the past decade

Businesses these days don't want to do everything themselves. They prefer to focus on their core value chain, and farm out the non-core activities to outsiders.

Examples:

- Warehousing and logistics supply chain management. Third party logistics provider.
- Office equipment such as photocopier machines – you pay a few cents per page for maintenance and upkeep; maintenance company takes care of all consumables and replacement parts
- ASP (Application service provider) – you don't need to buy application software and install them in your computers anymore. Just log on to the internet and call up the software you need, and you pay each time you use.

2. Why outsourcing ?

- Business is getting more and more complex

Gone is the day when you just put 2 cranes on the quay, and the ships will come calling. Today, a terminal needs to find that competitive advantage. Competition among ports is hotting up. Shipping lines are spoiled for choice. Not only do terminals need good equipment, they need to IT-enable, internet enable their business, and to integrate into the entire e-community of port and shipping business. All these mean capital investment, management time and resources.

- Complexity requires greater division of labour and more specialisation

Nike is a US\$ 6 billion company. Yet it does not have any manufacturing facility of its own. It is specialised in a few core competencies: design, marketing and branding.

Further, it has been said that Nike shoes are made by hundreds of different manufacturers in different parts of the world, each producing a different part of the shoe. Specialisation brings about lower cost and higher quality.



3. Why should container terminals outsource maintenance ?

- Rapid pace of technological changes

It was not so long ago that I was able to tinker with my car – checking timing, changing contact points, etc. But just look into your car bonnet today, there is not a thing you can do on your car with your spanner and screwdriver today. The car has gone completely electronic controlled. Electronic fuel injection, Satellite navigation system to tell you to turn left or right, ABS braking system. As a result, I gave up servicing my car long ago, and just leave it entirely to the sole agent

Crane drive technology has made tremendous advancement in recent years. Digital controls have now completely replaced analogue systems. AC drive technology will soon completely replace DC drive.

Cranes are no longer stand-alone machines, but need to be intelligent and fully integrated into the ports information systems. Data

communication, condition monitoring and crane management system all require new skill sets.



- **Difficulty in employing or retaining skilled staff**

Universal problem – young people do not like to do “dirty” jobs. Crane maintenance work is greasy and involves working at great heights, under suspended loads. High risks.

Lack of career advancement in maintenance.



- **Lack of economies of scale**

This is particularly true for the small to medium size terminals. A terminal with 3 or 4 container cranes (often of different makes) will find it un-economical to stock spare parts, to employ power electronics/IT specialists, etc. Often, the terminal spends hundreds of thousands or millions of dollars to stock up the parts, and yet when the crane breaks down, the part needed is not in the stock. Resulting in non-moving dead stock and huge costs.

- **Cranes of different makes and specification**

Owing to purchasing decisions being heavily influenced by initial costs of equipment, a terminal normally buys from the lowest bidder. Over the years, the terminal ends up with different equipment from various sources. Having a fleet of non-standard equipment makes it difficult to stock spare parts, and to maintain such equipment.

- **Equipment downtime is extremely costly**

It cost the terminal between USD 2000 to USD 3000 of lost income per hour of crane breakdown

It costs the shipping line another USD 2,500 per hour of delay in their ship schedule. This is just chartering costs, there are other indirect costs such as missed windows at the next port of call



Besides, there are other losses as well suffered by the shipper, consignees.

4. How can a maintenance specialist do a better job ?

A maintenance specialist is hereby defined as a company whose core business is in container crane maintenance, and who has achieved certain scale of operation such that it is able to benefit its customers through its competence, expertise, and economies of scale.

- Economies of scale

The Maintenance Specialist enjoy economies of scale on purchasing, stocking and employment of personnel

The Maintenance Specialist buys in bulk, items like wire ropes, lubricants, filters and other hardware. He is able to set up a common pool of spare parts for cranes located in different terminals. For example, in PT Portek Indonesia's fleet of cranes, there are 2 IHI quay cranes in each of the following locations, Tg Priok, Semarang, and Surabaya, and one Sumitomo crane each in Panjang and Pontianak. This way, PT Portek is

able to serve the spare part needs of various cranes from a common stock, thereby reducing inventory levels.

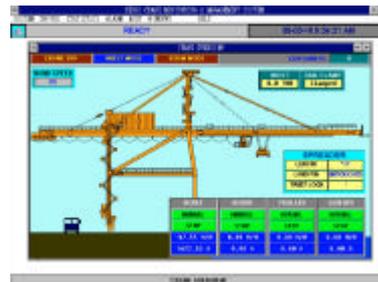


- Better able to employ the latest maintenance technology

Such as remote condition monitoring and diagnostics. With internet, mobile phone and WAP telephony, it now not difficult to carry out condition monitoring and diagnostic work away from the crane in a remote control centre.

Use of vibration monitoring instruments to detect problems early rather than wait till problem occurs.

Focus on predictive and preventive maintenance. Therefore, less breakdowns, and higher reliability.



- Large pool of experience and expertise to draw on.

The Maintenance Specialist has both the breadth and depth of knowledge from working with a large number of cranes. It is able to employ and retain specialists in each of the core competence, such as power electronics, IT, fault diagnostics, etc.



- You can arm-twist your contractors, but you can't do that with your Director of Engineering

5. Types of maintenance contracts

- Comprehensive maintenance contract (CMC)

Contractor provides parts, service on 24-hour basis, guarantees certain availability, and bears the risks with equipment performance and availability.

- Labour only maintenance contract

The contractor provides only the maintenance personnel, no parts are provided. In this case, the contractor does not bear any risks with the equipment. Any replacement parts needed are provided by the Principal. Hence the contractor in this case does not provide any minimum availability time.

- Limited Maintenance or Service contracts

This refers to periodic maintenance audit, on call diagnostic service, etc. In this case, no full time staff is deployed on site. Contractor's personnel are deployed on a periodic basis according to fixed schedule or in response to breakdown callout.

6. Case study – Comprehensive maintenance contract of 4 units Kone quay cranes

Contractual parties:

PT Portek Indonesia as Maintenance Contractor
Terminal Petikemas Surabaya (TPS) as the Principal

Schedule of equipment :

Four units Kone quay side container crane, 35 m ton under spreader. Year of manufacture 1989.



Main Points of contract:

Scope of supply by Contractor:

- Parts – Consumable parts such as oils, grease, wire ropes, filters, lamps Replacement parts for normal wear and tear, breakdowns, or preventive maintenance, such as limit switches, bearings, fuses, etc. The Contractor shall repair or replace any defective parts.
- Service – Preventive maintenance, planned maintenance and breakdown service. 24 hour basis. Response time – The contractor must respond to breakdown call within 30 minutes.
- Reports – Daily logs and reports, weekly and monthly reports. Sample of daily, monthly reports and statistics.
- The Contractor shall stock and maintain such replacement parts as are considered necessary to achieve the desired availability levels

Exclusions:

- Breakdown due to misuse, negligence, accidents, or any causes not attributable to normal operation.
- Improvement, enhancements or upgrading made to the cranes

Guarantees and Penalty –

- Contractor guarantees certain minimum in availability up to 90 % contractually.
- Other performance criteria to follow: reliability and Mean time between failure (MTBF).
- Penalty for not meeting this attracts liquidated damages, subject to a certain cap in this case, 5% of the contract price per crane.

Survey prior to taking over

The Contractor and the Principal jointly conduct a survey to determine the condition of the cranes so that any major defects are noted and a sum is allowed for the defects to be rectified.

Price :

- Usual price range: From USD 10,000 to USD 15,000 a month per crane, depending on the level of service required, condition of the crane, prior usage and age of the cranes. This works out annually to be about 3 to 4 % of the capital cost of the crane

Notes: In general there are 2 types of pricing schemes:

Fixed price – lump sum per crane per month irrespective of usage

Unit rate pricing – based on per move with the Principal guaranteeing a **minimum** number of moves per month

Duration of contract – 3 years

7. Other Comprehensive Maintenance contracts of PT Portek Indonesia

- 6 units Fruehauf Paceco RTGs in Terminal Petikemas Surabaya

- 2 IHI + 2 Hitachi quay cranes + 8 Sumitomo RTGs in Semarang Port



- 2 IHI Quay cranes and 6 RTGs in Tg Priok Serbaguna Terminal



- 1 Sumitomo crane each in Panjang and Pontianak



8. Some major Maintenance Contracts (labour only) of Portek Group

- Maintenance of 24 units Mitsubishi quay cranes in PSA Pasir Panjang Terminal during warranty period on behalf of manufacturer Mitsubishi. Period 1997 to today.



- Maintenance of 53 units Samsung RTGs in PSA during warranty period from



- Maintenance of 18 units of Samsung Rail Mounted Gantry cranes during warranty period from



- Maintenance of 2 MHI cranes and 5 Samsung RTGs in Kelang Port Management from 199



- Maintenance of 40 units Hanjung RTGs in PSA during warranty period from



9. Advantages of maintenance outsourcing for Container terminals.

- Allows terminals to concentrate on the more important competencies such as Information Technology, integrating the terminal's information with that of the shipping and port user communities, marketing and operation.
- Frees up capital that would have been set aside for spare part inventory.
- Achieve a higher level of equipment reliability and availability
- Frees up management time – terminal operators are becoming global players, management time would have been better used in seeking opportunities internationally



10. Concerns of Container Terminals in Outsourcing

- Loss of control and dependence on Contractor for equipment maintenance, an important function. This concern can be minimised by:
 - Appointing 2 or more contractors to encourage competition and reduce reliance on a single contractor.
 - Having equity stake in the maintenance company. Example: PT Portek Indonesia, a joint venture company between Pelindo III and Portek Group.
 - Working only with reputable contractors whose core business is crane maintenance.
- Not keeping apace with crane technology

The terminals can still maintain a small team to oversee the maintenance and keep up with technology. In fact, this will enable the terminal to use its technical

resources for innovative work rather than the mundane day to day maintenance work.

11. Outsourcing scenarios for different terminal sizes

Let us look at the scenarios for different sizes of terminals:

Small terminals with 4 or less quay cranes, there are overwhelming arguments for maintenance outsourcing. Small terminals suffer from a severe lack of economies of scale, and face tremendous odds in attracting people with the necessary skills. This can be effectively addressed by outsourcing.

Medium sized terminals – those with about 12 quay cranes. Ideal for outsourcing. The terminal can split up the maintenance of the quay cranes and RTGs among 2 or more contractors to let them compete in price and quality. Benchmarking one contractor against the other.

Large terminals with more than 20 cranes do enjoy economies of scale. However, they may not want to be saddled with an army of maintenance personnel. The terminal can therefore retain a small team to maintain a portion of the equipment, and farm out the rest of equipment to 2 or more contractors. This way, the terminal can concentrate on the developmental or higher value added work, and leave the contractors to perform the day to day maintenance work.

12. Conclusion

Maintenance outsourcing is a win-win situation.

Maintenance outsourcing is cheaper, more efficient, gives the terminal a higher level of equipment reliability and availability.

In short, If you can buy milk,



Why settle for a cow ?

