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**Definitions**

- ◆ **Management** (from Encarta)
  - The act of handling or controlling something successfully
- ◆ **Mobile Plant**
  - Dump trucks
  - Loaders
  - Dozers, etc

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**Contents**

- 1 Assessment
- 2 Purchasing
- 3 Operations
- 4 Maintenance

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Assessment

1

◆ Perform an operational assessment of the work

- What is the job?
  - What tasks will the machine perform?
  - How much does it need to do?
  - How many hours can it work?
- Model equipment capability using software tools such as Talpac, FPC or OFR to:
  - Determine machine productivity/ fleet numbers
  - Identify job productivity barriers
  - Highlight incompatibilities between machines and application



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Is it the correct machine for the application?

1



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Assessment

1

◆ Assess other ways to do the job

- Changes in equipment technology have changed the way we run our sites:
  - Electric shovels gave way to wheel loaders
  - Scrapers gave way to articulated dump trucks and excavators in many applications
- Is the way you are doing the job the best way or is there something else that could be used?
  - Surface miners are useful in some applications
  - Draglines maybe?



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Is there a better way to do things?

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Assessment

1

◆ Perform a risk assessment of the machine

- Safety implications
  - Operator access
  - Maintenance access
  - Operator environment
  - Visibility
- Environment
  - Oil change interval
  - Exhaust emissions
  - Noise



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What are the safety implications of the selection?

1



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**Assessment** 1

- ◆ **Best practice**
  - Perform an Operational Assessment of the tasks the machine will be performing
  - Assess other ways to do the job
  - Perform a Risk Assessment on the proposed machine

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**Purchasing** 2

- ◆ **Develop and use detailed machine purchase specifications**
  - It is extremely difficult for a dealer to cost a machine for you if you don't know exactly what you want - e.g.:
    - Application
    - Capability required
    - Annual usage
    - Optional fitments needed
  - A detailed specification allows you to communicate exactly what you need
  - Modify the specification(s) over time as you are better able to understand your company-specific needs

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**Equipment specification example** 2

**MACHINE SPECIFICATION & REQUEST FOR INFORMATION**

CLIENT SITE  
SOMEWHEREVILLE

MACHINE TYPE AND CLASS  
85T CAPACITY RISE HAILTRUCK

Manufacturer \_\_\_\_\_ Model \_\_\_\_\_

**INSTRUCTIONS FOR USE**

1. Read and understand the instructions before use.

2. Read and understand the instructions before use.

3. Read and understand the instructions before use.

4. Read and understand the instructions before use.

5. Read and understand the instructions before use.

6. Read and understand the instructions before use.

7. Read and understand the instructions before use.

8. Read and understand the instructions before use.

9. Read and understand the instructions before use.

10. Read and understand the instructions before use.

**SPECIFICATION**

**A. Machine Application**  
The machine must be used in the field of the client's business.

**B. Manufacturers Compliance Statement**  
The machine must be used in the field of the client's business.

**C. Safety**

**1. SCOUR-FORM**  
The machine must be fitted with a certified Roll Over Protection Structure and a certified Fall Protection Structure. These may be integral to the same structure.  
Manufacturer's specifications must meet AS 2062 (2007) (Rev. 2011).

**2. Emergency stop**  
An emergency stop must be fitted to the machine at ground level for easy access. The stop must be visible for easy access.

**3. Stakes**  
A stake must be fitted to the machine to ensure the machine is stable at a 1:1 gradient in the field of use.

A suitable vehicle system that allows the machine to be driven with the stake in the ground must be fitted.

**4. Emergency steering**  
The machine must be fitted with a supplementary steering system that allows the machine to be driven in the field of use.

**5. Lock out**  
The machine must be able to be locked out and starting maintenance. The machine must be able to be locked out and starting maintenance. The machine must be able to be locked out and starting maintenance.

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Purchasing

2

◆ Develop and apply life cycle costing models to decision making

- Equipment costing is not just about initial purchase price
- Thorough analysis requires you to take into account:
  - Purchase price
  - Operating cost
  - Residual Value
- Build up life cycle costing models to help you understand the cost of owning and operating the proposed equipment



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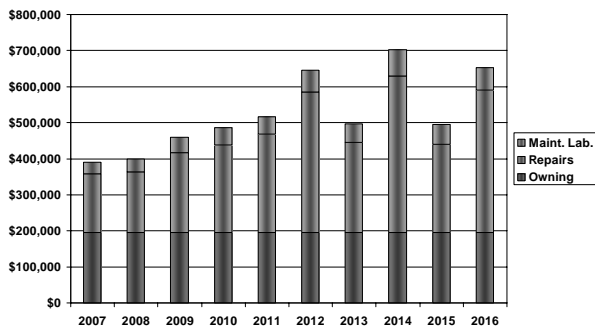
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Life cycle costing - Cost by Year

2



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Purchasing

2

◆ Have a ranking process to determine the correct machine

- This is a good way to compare the offerings of a number of dealers in the fairest way possible.
- Factors to consider are (amongst others):
  - Owning cost
  - Operating cost
  - Delivery date
  - Dealer service
  - Job match
  - OHSE



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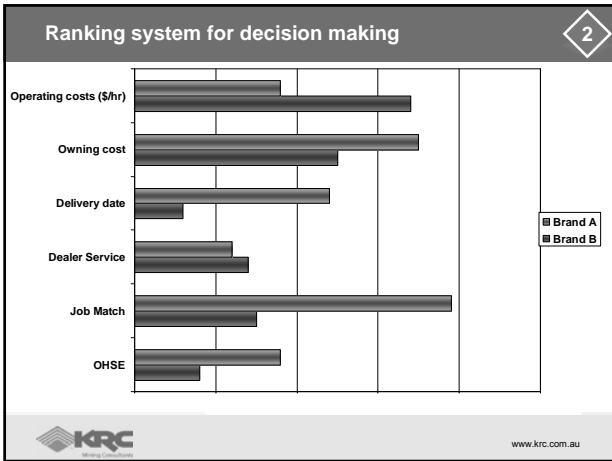
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- ### Purchasing
- Best practice**
- Develop and use detailed machine purchase specifications
  - Develop and apply life cycle costing models to decision making
  - Have a ranking process to determine the correct machine
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- ### Operations
- Know what the machine is capable of**
- Design operations in such a way as to complement the equipment being used to do the work:
    - Job layout
      - Is the blasting methodology suitable for the loading tool being used?
      - Is working room sufficient for the machine type?
    - Haul road construction
      - Is there a haul road construction standard for the site?
      - Are the roads wide enough?
      - What grade can the trucks safely operate on?
      - Is there an emergency exit for an out-of-control machine?
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Has the worksite been designed for the machine?

3



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Operations

3

◆ Know what impacts machine productivity

- Use equipment analysis tools such as Talpac to:
  - Understand what factors impact productivity
  - Determine alternate ways of running the operation
  - Rank productivity reducing factors for improvement
- Ensure that supervisors and operators are briefed on analysis work:
  - Operators are generally interested in finding out better ways to do things
  - Supervisors often need help in quantifying their decision making process.



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Operations

3

◆ Train your operators and supervisors

- Equipment is a big cost to the operation – make sure your employees are making the most of that investment:
  - Operators
    - Machine operation
    - Machine application
    - Machine productivity skills
  - Supervisors
    - What the machines are capable of
    - Machine application
    - How to coach and correct operators



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**Operations** 3

◆ **Measure productivity**

- Measurement of productivity is critical to understand whether you are getting the best out of the machine
- Systems such as TPMS, VIMS, PLM, VHMS etc should be considered a mandatory part of new equipment specification
- Supervisors and managers need to be trained to use and apply what is found to:
  - Production planning
  - Resolution of production issues
  - Equipment abuse problems

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**Operations** 3

◆ **Best practice**

- Know what the machine is capable of
- Know what impacts machine productivity
- Train your operators and supervisors in correct equipment use
- Measure productivity

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**Maintenance** 4

◆ **Have a maintenance plan for each machine**

- Work out what needs to be done to the machine over its life:
  - What maintenance activities need to be done?
  - How often?
  - How much do the parts cost?
  - Will you repair or service exchange the component?
  - How much labour is required?
  - What type of labour is required?
  - What will the delay hours be?

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Maintenance

4

◆ **Manage spares and consumables to ensure adequate, timely supply**

- Good spares management comes from having a maintenance plan for the machine
  - What parts are required?
  - How often?
  
- Failure to provide basic consumables can have a major impact on machine costs and maintenance planning



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Is this getting the best out of GET or negligence?

4



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Maintenance

4

◆ **Use a Work order system to manage maintenance activities**

- Management of repairs is made difficult if you have no way to:
  - Know what needs to be done
  - Know what parts need to be on hand to get the job done
  - Know when repairs need to be done
- Prioritise repairs
- Give feedback to stakeholders about what has been done to the machine



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Maintenance

4

- ◆ Ensure that operator requests and concerns are addressed in a timely fashion
  - Operator performance and morale is strongly linked to perceived handling of maintenance issues:
    - Small things like rattling doors drive operators to distraction and are a primary cause of gripes and upsets
    - Where issues raised on pre-start sheets are ignored (or appear to be so), morale declines
  - Fix the things that operators write on their pre-start sheets or communicate to them why you haven't



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Is this good for morale (or safety)?

4

10	Charges and Warning Lights			
11	Major Oil Leaks			
12	Two-Way radio			
CATEGORY B				
13	Reversing Alarm			
14	All Lub Points Adequately Lubricated			
15	Pivot Point Condition **			
16	Minor Oil Leaks	✓	Every Where	
17	Tyres Condition (cuts, etc)	✓		
18	Air Conditioning/Heater	✓		
19	Seat Condition	✓		
20	Mirrors	✓		
21	Bucket Cracks, etc			
22	Lift Arm Damage or Cracking			
23	Cabin Glass & Windscreen Wipers	✓	New Wipers (Please)	
COMMENTS				
2000hr Service (Please)				

\* Fluid levels should be maintained as specified in operators handbook  
\*\* Inspect pivot points for wear, in particular main articulation pivot, lift arm pivot and bucket pivot.  
Page 1 of 1



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Maintenance

4

- ◆ Best practice
  - Have a maintenance plan & budget for each machine
  - Carry out condition monitoring of the machine
  - Manage spares and consumables to ensure adequate, timely supply
  - Use a Work Order system to manage maintenance activities
  - Ensure that operator requests and concerns are addressed in a timely fashion (and not just dismissed)



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**Summary**

**Assess** *Know what you want*

**Purchase** *Buy the right one*

**Operate** *Get the most out of the machine*

**Maintain** *Make the most of your investment*

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**Company details**

◆ We provide a range of services to the mining industry:

- Equipment selection
- Maintenance budgeting and planning
- Site reviews & Operational Improvement
- Mine scheduling & Budgeting
- Mine Feasibility studies

◆ Contact details

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