

# Case 2: Copper Ore Mining Investment

## Introduction

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### Problem statement narrative

Our client in this case is Excavator Mining Co, a large diversified mining company. Excavator is considering developing a mine site to produce copper ore. Excavator has two options for developing the site. Develop alone, or enter a JV with a competitor – Drillhammer Mining Co. In addition, Drillhammer owns a nearby mining site which it could develop to produce copper ore, supplying the same market. Should Excavator develop the mine alone, with Drillhammer, or not at all? What arrangements should be made with Drillhammer, if any?

### Overview for interviewer

This case has two main components. First, evaluate the financial attractiveness of each option for both Excavator and Drillhammer. Some cost and pricing information will be provided to do this. After this analysis, it should be evident that the JV is the preferred option as it creates the highest overall value for the industry. The second question is how should the value be split between the players under a JV arrangement.

After the candidate presents his/her framework, give candidate the handout containing an overview of the situation. The candidate can then be given cost and pricing as requested.

Case Type: Investment decision/JV negotiation

Case Style: Command & Control

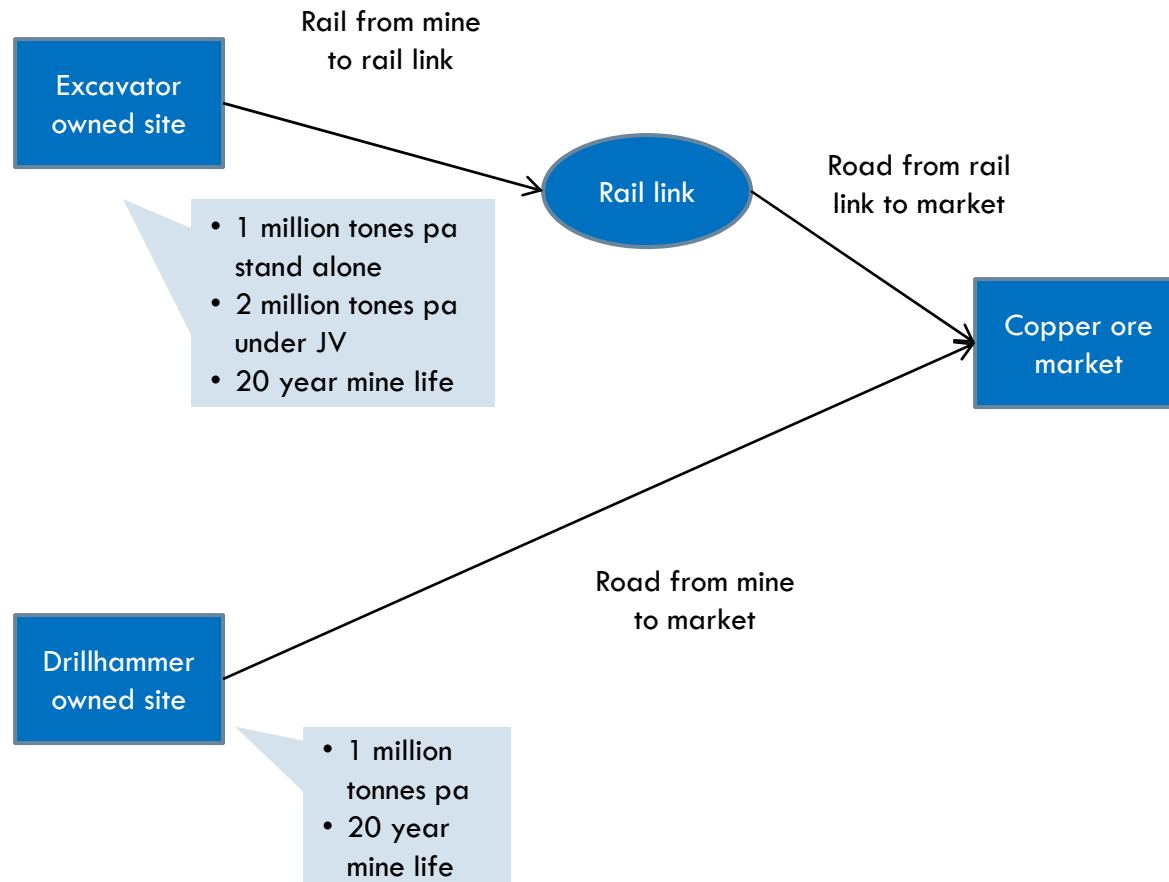
### Information to be provided upfront (hand candidate attached exhibit)

The information on the following page is to be given immediately. And provides an overview of the situation. The page that follows shows the calculation that the candidate should be working towards – estimated the value for each player under the different scenarios.

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## Financial Analysis of Investment Options

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MINE FINANCIAL ASSESSMENT				
		Excavator alone	Drillhammer alone	JV at Excavator site
<b>Capacity</b>	Tonnes pa	1,000,000	1,000,000	2,000,000
<b>Mine life</b>	Years	20	20	20
<b>Copper ore price</b>	\$ per tonne	50	50	50
<b><u>Operating Costs</u></b>				
<b>Mining costs</b>	\$ per tonne	20.0	28.0	15.0
<b>Rail transport costs</b>	\$ per tonne	10.0		10.0
<b>Road transport costs</b>	\$ per tonne	5.0	25.0	5.0
<b>Total operating costs</b>	\$ per tonne	35.0	53.0	30.0
<b>Operating profit</b>	\$ per tonne	15.0	(3.0)	20.0
<b>Total profit over mine life</b>	\$ Millions	300.0	(60.0)	800.0
<b>Capital investment</b>	\$ Millions	(180.0)	(140.0)	(340.0)
<b>Total Value</b>	\$ Millions	120.0	(200.0)	460.0

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## Discussion Points

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### Key discussion points

#### Industry overview

- The overall industry is not particularly relevant here, so steer the candidate away from any five forces analysis or similar

#### Financial calculations

- Provide information as requested by candidate
- Ignore time values of money
- A relevant question is why the mine production at Excavator's site is larger under the JV – this can be attributed to capital requirements for Excavator alone, or regulation

#### JV discussion

- Once the value of each option has been calculated, it is clear that the JV is the highest value option
- The next question is what JV arrangement would be acceptable to both parties? Is a straight 50/50 split (\$230M) fair?
- A discussion should follow around how each player would view the JV and what their next best alternatives are (we assume neither has copper ore mining options beyond those here).
- Without the JV, Drillhammer will not invest in its site (loss-making) and so the value it receives is 0. Excavator will invest alone, and will receive \$120M of value. The total value for both players is \$120M.
- With the JV, the total value for both players is \$460M. So the JV adds  $\$460M - \$120M = \$340M$  for the industry. This \$340M should be split evenly between the two parties vs their next best alternative. Drillhammer receives  $\$170M + 0 = \$170M$ . Excavator receives  $\$170M + \$120M = \$290M$ . This is the most likely outcome of a negotiation between the two parties.
- Other broader discussion points:
  - History of JVs between the two parties?
  - Alternative use for the mine site – could it be sold for more than JV value?
  - Potential for infrastructure sharing between the two sites?

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### Sample Recommendation

Excavator should pursue the JV and settle for not less than \$290M worth of value from the site.

### BONUS

#### Sensitivity to pricing assumption:

- Forecasting the Copper ore price over the next 20 years is a difficult exercise - how would a higher or lower copper price affect the decision? What if prices were high enough for Drillhammer's site to be profitable?