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# ROLLING INDUSTRIES

**Strategy**
**Manufacturing**

**High difficulty**
**Candidate-led case**

This case focuses on increasing Return on Invested Capital (ROIC) for Rolling Industries, a manufacturer of train parts. The case is intended to be candidate-led, requiring strong case leadership skills and solid numeracy skills, particularly to set up the equations. All dimensions of the case scorecard are tested, with a particular emphasis on quantitative reasoning and case leadership.

## Problem definition

Your client is a global manufacturer of parts for trains, originally from Europe. It has grown significantly over the last few years, mainly through acquisitions, and has now become a USD $4 billion revenue company with 8 plants in 3 world regions.

Despite this growth, however, the Board is unsatisfied with the company's current performance. They believe that the firm's Return on Invested Capital (ROIC), a key metric in this industry, is poor.

The CEO has brought in your team to assess how the client can realize improvements in this area. They have a specific ROIC target to reach: an increase in ROIC from 8% today, to 13% in five years' time. The CEO wants us to recommend initiatives that could realize this target within that time window.

**What action(s) would you recommend the client take to reach this target?**



## Additional information

If asked at this stage or later, please share that:

- The client manufactures a variety of parts for trains of several common model types. The firm sells globally but is stronger in some markets than others (this will be covered in more detail later).
- The client manufactures in Canada, the USA, Belgium, Germany, Vietnam, and India. These choices around manufacturing location are largely down to legacy, where acquired firms had established plants.
- Globally, the industry tends to be quite fragmented, with regional or national players tending to dominate a home market. However, there has been some consolidation in recent years, including by the client.

- Revenue and profits have been growing steadily, for the client and the industry. However, the client's profitability slightly lags their competitors, which in part has prompted the concern on ROIC.
- There is no target other than to get ROIC to 13%. However, the client wants to make sure it does this without affecting client satisfaction. The client would tolerate limited reduction in gross revenue to achieve its goal, but not a reduction in net profits.
- The client typically breaks down its business into three geographic areas: Western Europe, North America, and Asia.

If a candidate has no knowledge of ROIC, share the essentials of the calculation:

- ROIC = Net Operating Profit After Tax (NOPAT) / Invested Capital (IC).
- NOPAT is equivalent to EBIT * (1 – tax rate).

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**Question 1 (Structuring)**

**How would you approach this problem?**

**Guidance for interviewer**

The candidate needs to develop a structure that breaks down the drivers of ROIC and considers potential causes such as geography / product segmentation and allocation of capital across assets. A strong candidate will recognize the challenges of use good judgement to identify drivers that will be meaningful for driving a ROIC improvement in this industry.

**Possible answer**

*In order to grow ROIC, we'll need to look at meaningful segments that contribute to ROIC - here geographies seem to make the most sense – and to prioritize the analysis where ROIC is the lowest as it might have the highest potential for growth.*

*Broadly, the client should look at the underlying performance in each region and then look across the regional mix to either:*

1. *Improve ROIC by increasing returns on currently invested capital:*
    a. *Increase operating profit (e.g., increase revenue, decrease cost):*
        i. *Explore opportunities to raise prices or volumes (e.g., by bundling commonly-purchased or complementary products, additional warranties or other offers)*
        ii. *Strategic sourcing of materials, parts, and inputs*
        iii. *Explore labor reduction requirements (e.g., can work be distributed to lower-cost countries, can technology reduce overall labor needs?)*
    b. *Lower tax bill (likely limited opportunity, but given the client's global footprint there may be opportunities to recognize profits in a lower-cost country)*
    c. *Reduce invested capital needed to sustain activity (e.g., lease capital intensive assets, consolidate assets).*
2. *Divest from segments with performance below the target, provided that:*
    a. *Divestiture is contingent on finding a willing buyer, and*
    b. *Any economies of scale or synergies from the client's current footprint should be considered in the analysis of the impact of divestiture*

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**Question 2 (Numeracy)**

**How would you assess the client's performance in each region?**

### Additional information

If asked, please share that:

- The client typically breaks down its business into three geographic areas: Western Europe, North America, and Asia
- The client has multiple plants within certain countries, mostly because of its legacy of acquisitions

### Guidance for interviewer

The candidate should look to explore how ROIC compares between different investment options or business units in the company, prioritizing the analysis on those locations where ROIC is the lowest, as they have the greatest potential to impact overall ROIC. When a candidate turns to assess this topic, share *Exhibit 1*, and describe the geographical segmentation the client uses.

Exhibit 1 provides a breakdown of revenue, NOPAT, and capital allocation. Candidates are expected to calculate the ROIC for each segment, using the following approach: (Current Revenue * NOPAT Contribution) / Invested Capital.



### Possible answer

*We can use Exhibit 1 to compute ROIC numbers for the firm's respective geographies and provide an initial insight into firm performance. Running the numbers for each geography yields the following results:*

*Asia: $1,000 M x 0.36% / $360 M = $3.6 M / $360 M = 1.0%*
*North America: $1,800 M x 1.9% / $190 M= $1,800 / 10000 = 18%*
*Western Europe: $1,200 M x 1.35% / $120 M = 10 x 1.35% = 13.5%*

*Looking at the ROIC figures across geographies we can draw three conclusions:*

- *In Asia, the client's ROIC is very low. We should explore ways to improve ROIC within Asia, and if we believe that it cannot be improved to the target, consider divesting those operations*
- *North America has already a ROIC well above the target. We should maintain our position in this region, given that our NOPAT is quite strong*

- *Western Europe's ROIC is slightly above the target, and has a comparatively low share of invested assets. We might explore ways to further improve its position, and/or consider investing more assets, if they can continue to be productively deployed there*

**Exhibit 1: Revenues, NOPAT (Net Operating Profit after Tax) contribution and Invested Capital per geography**

| Geography | Revenues ($M) | NOPAT Contribution (as % of Revenue) | Net Fixed Assets ($M) |
|---|---|---|---|
| Asia | 1,000 | 0.36% | 360 |
| North America | 1,800 | 1.90% | 190 |
| Western Europe | 1,200 | 1.35% | 120 |
| Total | 4,000 | 1.35% | 670 |

**Question 3 (Judgement & insights)**

Share *Exhibit 2.* We've received the following data regarding the client's plants in each region.

**What opportunities would you explore to improve our client's ROIC in Asia?**

**Relevant information**

If asked, please share:

- The client has recently optimized a number of things in its P&L:
    - Pricing is well-optimized
    - The salesforce is strong and sales-effectiveness opportunities do not seem to exist.
    - There is no real opportunity for a blanket reduction in operating cost (e.g. headcount reduction)
    - Taxes have already been optimized across geographies
- There is nothing in principle preventing consolidation of plants within a country in Asia; in the extreme case, the client could merge all of the Indian plants and both Vietnamese plants, leaving one in each country
- We believe that merging the 3 India plants would allow for divestment of $60m of the currently invested capital while annual overhead costs would drop to 11% of Net Assets for the combined plant
- Merging the 2 Vietnam plants would allow full divestment of the smallest plant and combined annual overhead costs would drop to 11% for the combined plant
- Tax rate is 20%



**Guidance for interviewer**

Candidates exploring this section will find that most potential opportunities higher up in the P&L (e.g. pricing) do not yield fruit. However, there are two major levers for ROIC improvement:

- Capital allocation is an issue, specifically in Asia
- Divesting from low return areas could yield immediate NOPAT improvement (and some reduction in Net Fixed Assets)

Once the candidate identifies the capital allocation issue in Asia and looks to explore this further, share Exhibit 2, which show the breakdown of capital invested by location. This exhibit should prompt thinking by the candidate about why ROIC is so low in the region and set context to dive deeper into the solution.

A strong candidate will realize that improving capital efficiency in Asia is critical to the case objectives, but will not be enough and will lead to identify other opportunities. When the candidate mentions the need to reduce cost, share Exhibit 3.

**Possible answer**

*There appear to be limited options in the top part of the P&L. As the client considers price and taxes to be optimized already, we can eliminate either of those areas of opportunity, and we also know that blanket spend reduction levers (e.g. headcount reduction) are out of scope. Therefore, I suggest that we ensure our investments are targeted and optimized for the largest return.*

*One of the key levers to improve NOPAT for the client is improving operating efficiency in Asia. Based on Exhibit 1, I can see that our overall investment in Asia represents >50% of our global investment, but only accounts for 25% of our revenues, suggesting inefficiencies, perhaps due to our number of locations. There are more plants here than in Europe or North America and the overall investment in relation to our revenue is also much higher. Our NOPAT in Asia is also below average, suggesting that our costs are high in the region – and this suggestion is corroborated by the relatively high administrative costs we see in Exhibit 3: $55 M/year, around 15% of invested capital, as compared with overhead costs < 10% of Invested Capital in either of the other two regions.*



*The major opportunity is in consolidating plants. Based on the client's review, we can reduce our footprint in Asia down to two factories: one in India, and one in Vietnam.*

*We should now turn to calculate how NOPAT will change because of improved operating efficiencies, as well as how much ROIC will improve after divesting and consolidating the plants.*

*If we first look at invested capital, we can see we currently have $360m invested in Asia, out of a global capital investment of $670m. We can identify the following reduction opportunities through consolidation:*

- *The 3 India plants together represent $220m in Net Fixed Assets (100 + 80 + 40); a divestment of $60m while consolidating would lead to new Net Fixed Assets of $160m (220 - 60)*
- *The 2 plants in Vietnam represent Net Fixed Assets of $140m (100 + 40); we can divest the equivalent to the smallest plant ($40m) and reduce our Net Fixed Assets to $100m (140 - 40)*

*As a result of this, our capital invested drops by $100M to $260m in Asia and $570m overall.*
*The target NOPAT with this amount of invested capital is 13%*570 = $74m*

*To calculate the increase in NOPAT, we assess the savings on overhead in Asia, net of taxes:*

- *The yearly overhead was 17 + 12 + 5 + 15 + 6 = $55m*
- *The new overhead is 11% * 260 = $29m*
- *The total savings on overhead is therefore (55-29) * (1 - 20%) = $21m after tax*

*The new total NOPAT is calculated by taking the old total NOPAT ($4000m * 1,35% = $54m) and adding our overhead savings of $21m (net of tax): $75m*

*This is in line with our target, but we should also consider the investment needed for plant consolidation in the next steps of our analysis.*

*If the client wanted to pursue further ROIC improvement, it may consider other drivers such as:*

- *ROIC optimization in Western Europe*
- *Further overhead improvement, again most notably in Asia, due to its higher cost structure than other geographies*

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**Exhibit 2: Investment by manufacturing plant location**

| Region | Plant | Net Fixed Assets ($M) |
|---|---|---|
| Asia | Mumbai, India | 100 |
| | Surat, India | 80 |
| | Gujarat, India | 40 |
| | Hanoi, Vietnam | 100 |
| | Ho Chi Minh City, Vietnam | 40 |
| North America | Quebec, Canada | 50 |
| | Vancouver, Canada | 50 |
| | Houston, U.S.A. | 90 |
| Western Europe | Ghent, Belgium | 50 |
| | Kaiserslautern, Germany | 70 |



**Exhibit 3: Overhead costs by plant**

| Plant | Overhead costs ($M)* |
|---|---|
| Mumbai, India | 17 |
| Surat, India | 12 |
| Gujarat, India | 5 |
| Hanoi, Vietnam | 15 |
| Ho Chi Minh City, Vietnam | 6 |
| Quebec, Canada | 5 |
| Vancouver, Canada | 5 |
| Houston, U.S.A. | 8 |
| Ghent, Belgium | 5 |
| Kaiserslautern, Germany | 6 |

** Overhead refers to the yearly cost of management teams and other non-operating headcount overhead in each of the plants in a region*

**Question 5 (Synthesis)**

**What is your overall recommendation to the client?**

**Possible answer**

*We were tasked with trying to improve the client's ROIC from 8% to 13% within the next 5 years. We believe that this is achievable by consolidating the clients' plants in India and Vietnam to a single plant in each location. This adjustment will reduce overall invested capital by $100 M and increase NOPAT by $21 M per year through a reduction of overhead costs.*

*There are risks to this approach, however; if the client is not able to persuade key talent to relocate, or the changes in their regional presence inhibit their ability to maintain sales relationships and volumes, they might not achieve their targets. The consolidation might also prove to be expensive, and if the market for the client's products contracts, they risk not achieving their targets.*

*As a next step, we would like to perform the following three analyses:*

- *Estimate the investment costs for achieving the clent's target ROIC in less than 5 years*
- *Identify the feasibility of the specific operational improvements required to reduce share of overhead in line with the target*
- *Evaluate the potential for ROIC optimization in Europe to further improve ROIC and get ahead of competition*