

PROJECT MANAGEMENT

OCHILS' SKI CENTRE CASE STUDY



The Ochil Hills in winter

1. Introduction

Climate change is a complex phenomenon: Scotland has had more snow in recent winters, and some believe that this is part of a long term trend. There could be a major business opportunity to develop new skiing areas in Scotland. The Ochil Hills have been identified as a possible venue with good downhill skiing potential and great scope for assisted cross-country skiing across the tops. Most importantly, the area is close to many cities in central Scotland. Even if the skiing is not the best quality, the easy access could make the Ochils' Ski Centre an attractive business venture.

The Ochils' Ski Company (OSC) has been formed and has undertaken several studies. Extracts from the reports prepared by key personnel are provided, including: Managing Director, Finance Director, Marketing Manager, Company Solicitor, Architect, Construction Manager, Health & Safety Officer and Human Resource Director

2. Case Study tasks

Analyse the various options for the OSC project and prepare a report recommending the best course of action. It should include the standard sections:

- Executive summary (including key results and recommendations)
- Analysis (with sub-sections for each component of the analysis, e.g. schedule, finance)
- Conclusions (with clear interpretation for management)
- appendices (tables summarising results, e.g. milestone dates, should be included in the main body of the report but full printouts of schedules should be placed in appendices; each should have a distinct title and be numbered so that they can be cross referenced from the main text)

Where there are any ambiguities or a lack of data, make sensible assumptions. Record your assumptions in full. The report should include:

- a project network plan and a schedule analysis estimating key dates for each option
- a financial appraisal of each option
- an analysis of the uncertainty in demand and its effects on your recommendations

- the submitted report should be accompanied by an MS Project file and an Excel file to allow appraisal of the logic and figures

3. What the Executives say about the Project

Managing Director

“All the preliminary studies have now been completed. More information might be desirable, but the financial backers are now expecting a definitive project plan. The proposals will be put to a board meeting on 7 June 2022 and work could begin two months later if the board approves the plan. The development is supported by the Scottish Government, and it is expected that the plans will be approved without a lengthy public enquiry. I am keen on the full-scale development (see Figure 1 and Table 1): I think it would add to the attractions of this area of Scotland and help the local economy. But we are a commercial company, and we need to make sure that the finances work.”

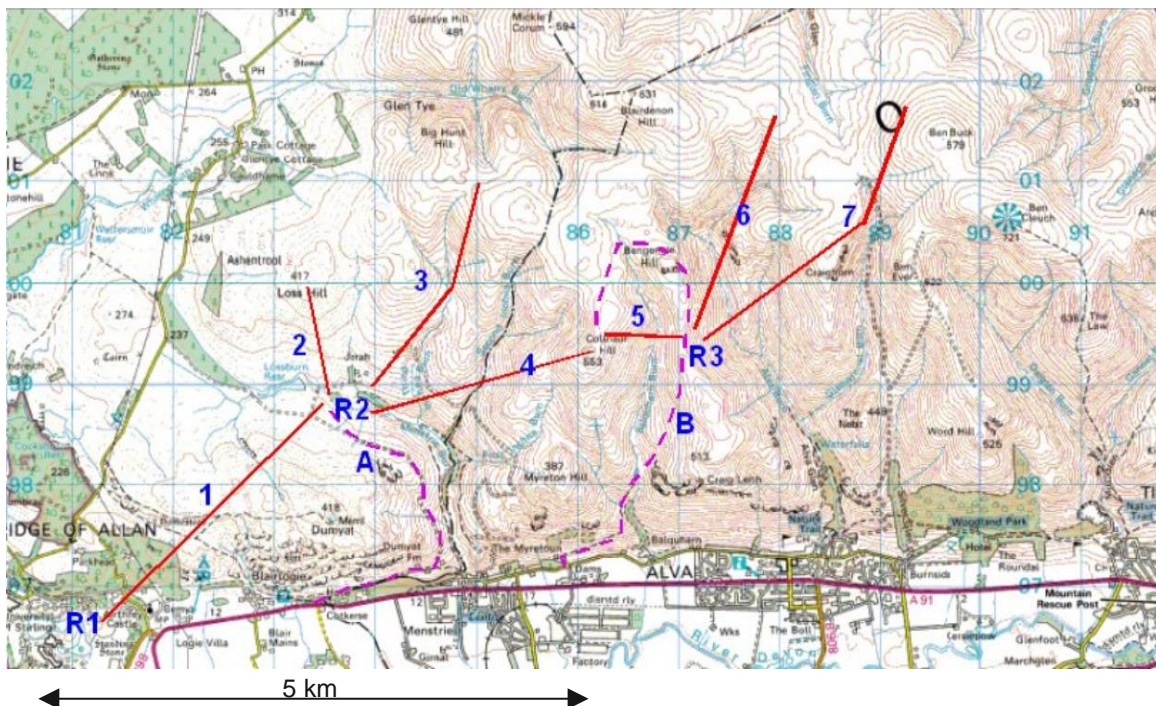


Figure 1 The proposed OSC Development

Key for Figure 1

- Ski-lifts: 1,2,3,4,5,6,7
- - - Shop and office: S&O at Airthrey
- - - Access roads A and B
- Restaurants
- R1 at Airthrey
- R2 at Lossburn
- R3 at Balquharn

Finance Director

“Any project with a major capital investment has to ensure the long-term revenues can justify the initial expenditure. This challenge is even greater when you consider the seasonality of this business. If you’re only able to open the new ski centre in May, you must wait until December until any significant income starts to flow. Our financial year starts on 1st April, so all of a single season’s skiing income is easily attributed to one year. It would be great if we could open in time for December 2023. We have two main options: Option 1 is smaller but quicker to build. I’m worried that Option 2 will just take too long, delaying the start of our income stream. We really need any project like this to provide an IRR of at least 10%.”

“Once the OSC is open for business it will cost about £0.9M per annum to operate Option 1 or £2.4M per annum for Option 2, with the vast majority of these costs incurred during the skiing season.”

Table 1. Main Options

Option	Lifts	Restaurants	Access Roads
1	1, 2, 3	Airthrey	A
2	1, 2, 3, 4, 5, 6, 7	Airthrey, Lossburn, Balquharn	A, B

Marketing Manager

“With Option 1 the skiing will be quite limited so we cannot charge too much for the lift pass but we still make money from the restaurant and ski hire. Experience elsewhere indicates that we should be able to get an average income of about £60 per skier-day with the small ski centre. Given our location I would hope to be able to attract 40000 skier-days over a skiing season (1 December – 1 April), assuming average winter conditions. But of course, this is highly variable and depends on the snow and weather conditions. I have managed to get some data from the Cairngorm Mountain ski centre to illustrate the problem in estimating demand: their average is 104550 skier-days, but this has varied considerably (Table 2.).”

Table 2. Skier-days at Cairngorm Mountain

Year	Skier-days
2014/15	145007
2015/16	121420
2016/17	66463
2017/18	112430
2018/19	77430
mean	104550

“The larger Option 2 would be more attractive to skiers, offering more and longer ski runs. We could charge a higher price and attract more skiers. I estimate that with Option 2 we could get an income of £70 per skier with 80000 skier-days per year.”

“We will need to have a marketing campaign and develop our website before the ski centre opening. The advertising budget can be quite small since I expect we will get a lot of media interest for free. We need to prepare our materials (13 weeks; £70000) and establish agreements with various agents around the UK (12 weeks; £20000) before the marketing campaign is launched (15 weeks; £200000).”

Company solicitor

“There should be no real problems in completing legal and planning arrangements for the development. The purchase of land and the planning approval should each take about 6 months from the start of the project: both can be done at the same time since we already have draft approval. The cost of preparing the documents and the various fees is about £100000 for Option 1 and £200000 for Option 2. No construction can take place until the land purchase and the planning agreement is signed, though the architect can start the design work as soon as possible.”

“There is some local concern about the possible long term environmental effect of the development so we have had to agree that the ski centre is a temporary feature that could be abandoned if there are any significant environmental problems. We cannot actually buy the land: we can only get a lease until April 2038. Although the facilities would have some residual value this will probably just be enough to pay for cleaning and restoring the site. I reckon that the land for Option 1 will cost us £6M; say £12M for Option 2. This is a single upfront cost that has to be paid before we can start any construction work”.

Architect

"This is a great opportunity to design modern skiing facilities for a new resort in Scotland. The biggest challenge will be to design the hillside restaurants at Lossburn and Balquharn so that they blend into the scenery. The design work should take six months, but I would have to employ more staff for Option 2 (cost of Option 1 = £250000; cost of Option 2 = £500000). I would not recommend starting any construction until the whole design is finished."

Human Resource Director

"While I have a lot of work to do recruiting the staff needed for the construction and the operation of the OSC, I do not envisage that this will really have any impact on the project schedule. The only activity you might consider is the final staff training: training will take place earlier but the final training with the full operational ski centre can only happen once the Health and Safety inspections have been completed. We will attempt to simulate the whole centre's operations, using volunteers as customers. This training will require 1 week for Option 1 (cost=£20000) and 3 weeks for Option 2 (cost=£40000).

Construction manager

"Construction work cannot start until the planning permission is in place. However, every effort will be made to start construction straight after the planning permission is granted, and the land purchase is complete."

"The construction work can be grouped into a number of work packages:

- Developing the ski area, including constructing the access roads and building the ski-lifts and associated ski runs/ pistes. The map of Figure 1 indicates the proposed roads and lifts.
- Building the office block and the ski shop
- Building the new restaurant(s)"



A ski lift in Scotland

Constructing access roads

"The access roads are crucial. You can't start work on any ski-lift until you have finished the relevant access road to move materials to the top of the lift. And of course, no construction work on the hillside restaurants can begin until their access roads are open. There is a choice of contractors for these roads; both build good roads in this kind of terrain but uCan is much more expensive than MacAllan – Table 3 summarises the bids."

Table 3. Bids for access road construction

Work	Contractor	Cost (£'000)	Time (weeks)
Access road A	MacAllan	500	30
Access road B	MacAllan	1000	32
Access road A	uCan	800	20
Access road B	uCan	1300	26

Building the ski-lifts and pistes

“Building a ski lift can be an unpredictable process. We have collected experience from some other similar sites, as noted in Table 4. Hopefully this will help us estimate the likely costs and durations for the construction of the lifts for this project.” (Data describing these durations and costs from the previous projects are provided separately; each Project Group has their own data set).

Table 4. Previous ski-lift and associated piste constructions

	Length (km)
Ski-lift a	1.3
Ski-lift b	2.2
Ski-lift c	3.0
Ski-lift d	1.2
Ski-lift e	0.5
Ski-lift f	2.4
Ski-lift g	4.2
Ski-lift h	0.8

Office/ Ski Shop and restaurants

“Each of these building involves three stages: preparing the foundations and associated services (e.g. water and electricity), erecting the structure (e.g. walls, roof) and then fitting-out (e.g. decorating and installing equipment). We have a number of teams that can undertake this work. It is assumed that if we choose Option 1 that two teams will be sufficient; with Option 2 we think that three teams will be needed. The estimated costs and durations of each building activity is summarised in Table 5. It might be possible to hire more staff to speed up the work. Although the same total amount of work would be undertaken there are fixed costs associated with recruiting and managing each team so there would be an additional cost of about £50000 for each extra team.”

Table 5. Building the shop and restaurants

	Foundations			Structure			Fittings		
	Duration (weeks)	Teams required	Cost £'000	Duration weeks	Teams required	Cost £'000	Duration weeks	Teams required	Cost £'000
Office/ shop	8	1	50	8	1	100	6	1	30
Airthrey restaurant	12	2	100	10	2	200	8	1	100
Lossburn restaurant	16	2	250	14	2	300	10	1	150
Balquharn restaurant	18	2	300	16	2	350	10	1	180

Overheads

“In addition to the costs that can be associated with specific activities, there are more general overheads such as the project management and communication. The overheads for Option 1 should be about £10000 per week; Option 2 is bigger so we need to allow £15000 per week.”

Health & Safety Officer

“Health and Safety inspections of all the key facilities are necessary before the OSC can open for business. Once the restaurant(s) are completed, a Health and Safety inspection can take place, taking 2 weeks for Option 1 (cost=£20000) and 3 weeks for Option 2 (cost=£40000). The inspections of the lifts require 6 weeks for Option 1 (cost=£30000) and 14 weeks for Option 2 (cost=£70000); this time includes an allowance for fixing any minor problems and the inspectors making a repeat visit to give their final approval.”