AI-8914

LINKWEST

STRATEGIC PLAN

NEPEAN ASTRONOMY CENTRE

PERIOD 1997 - 2001

Linkwest, PO Box 10

Kingswood, NSW

Australia 2747

Telephone:+61-2-678 7650

Fax:+61-2-678 7649

Prepared by:

Glen Walton

Creative Planning Centre, Penrith

7 February 1997

Nepean Foundation Limited trading as
Linkwest ACN 068 508 018

CONTENTS

1. Executive Summary

This plan has been prepared as a draft in order to generate further discussion about the future of the Nepean Astronomy Centre.

The brief, under which this plan was produced, outlines that the University of Western Sydney, Nepean has a number of outcomes that it wishes to achieve. There is no indication among these that the Centre is to be "mothballed", on the contrary the brief talks positively about what it would like to see achieved.

There are several alternative courses of action available. These alternatives have not been canvassed because of the direction of the brief.

However for the sake of completeness they are mentioned here:-

1. The Centre remaining an internal resource of the Faculty of Science and Technology with no outside usage/users. This is definitely the least costly alternative but it would fail to meet the desired outcomes;

2. The Centre could be "hired out" in a passive way with no marketing and minimal resources applied. This would be mainly to groups such as Continuing Education West; and

3. The Centre could be outsourced to another organisation to manage. The University would loose control which would seem to be an undesirable result but not one that should be entirely discounted.

The alternative upon which this plan is based is that the Centre become a fully functional, self supporting, business operation. A unit of University that has a definite charter to act as an "attractor" to the University and the Science and Technology Faculty in particular.

Much of this plan rests a few fundamental concepts. Firstly, the need to provide a memorable "experience" for the visitors. An "experience" that will have them talking positively and enthusiastically about the Centre to their acquaintances. Furthermore, there is a need to approach the operation of the Centre in a professional manner with an attention to detail that brings together a "package", which is delivered with enthusiasm, and a willingness to create an enjoyable environment. Most importantly, there needs to be a willingness of all those involved with the Centre to "buy into" what is being created and share the ideal.

The processes, by which "the package" is delivered, are briefly outlined in the plan. Suffice to say, that they depend on a subtle blend of ***entertainment and education*** which is tailored to meet the needs of the target audience. The Centre should not be seen as an extension of the "school experience", where material is delivered within the constraints of the resources of the teacher. It should be viewed as an opportunity to pass on knowledge, (and as a means of introducing the University), to an audience who may not have any idea in the slightest about astronomy.

The plan also relies heavily on a level of co-operation within the University, as between the various Faculties, that maybe impossible to orchestrate. The absolutely massive advantage that could be gained from harnessing the intellectual capital, the energy, and the creativity that exists within the University would seem to suggest that the Centre could become more than what is portrayed within these pages. It may provide a model for future ventures conducted by the University, Of course, the real impediment can only be the human factor, and convincing other Faculties to become a part of the recreation of the Centre may prove too formidable a task.

The other major stumbling block to the successful completion of the plan is the need to inject further funds into the Centre. The amount required is based on a number of assumptions, all of which are up for testing.

Specific projects within this entire project require relatively large capital amounts. But these mini projects are necessary in order to complete the total "package". The nature of these mini projects suggests that they should be specifically funded for example via sponsorships or other such mechanisms.

The viability of the Centre depends on a number of events planned or otherwise coming together not the least of which is the selection and recruitment of a manager. If this process is not completed successfully, then there is little chance that this plan will come to fruition.

The continued existence of any organisation stems from the fact that it serves a purpose! To the extent that it grows, even beyond what is originally imagined for it, and moves towards achieving what its potential is, depends how big and how necessary its purpose. What follows is an attempt to identify a large enough purpose (or reason for being) for the Centre that will galvanise and motivate the people and secure the resources needed to move forward from this point we are at now.

The other major element needed is some understanding of the values held by the organisation. The combination of having a basic knowledge of why you exist together with the rules or guidelines by which you are prepared to operate (your values), give the organisation real power to accomplish its objectives.

The balance of the plan outlines some strategies, mini objectives and actions that comprise a set of possibilities offered as a means to an end.

2. Purpose - (Mission)

The Nepean Astronomy Centre's (NAC) purpose is to expose as many people in the community as possible, to the wonders of science and technology, and the broader contribution that is made to the welfare of humanity via these pursuits. Using the magic, the mysticism, the romance and the sense of adventure that mankind has always experienced in his journey of discovery of the universe; to demonstrate the wonder, excitement, and the absolute satisfaction that can be personally gained by participating in the discovery of nature; and how UWS can provide the means to achieve this personal fulfilment.

3. Core Values (& Philosophy)

The Nepean Astronomy Centre will encourage excellence in everything that it does.
It will recognise the contribution that the individual has and can make to the advancement of mankind through science and, in particular, astronomy.
It will actively encourage young people to explore their potential through science.

4. Major Objective (Preliminary)

To become world renown as a teaching observatory and, for its ability to excite the imagination of its visitors fuelling their natural curiosity, enticing and encouraging them to expand their knowledge of the sciences, ultimately, with the conscious and specific intent, of converting them from visitor to participant.

5. Envisioned Future

When complete, to the stage covered by this plan, the Nepean Astronomy Centre (NAC) should project a sense of anticipation and excitement for its visitors and users.

That process begins from the moment the decision is made to investigate visiting the Centre. Marketing materials are available to inquirers which starts the process of enticement. These materials are tailored for the various market segments.

Looking forward five years to the year 2001 this is how the Centre might be operating.

Taking the "schools market" as an example. There is a need to have available three sets of information for each of the target years (Years 2/3, Years 5, 8 and Year 11). A resource kit for the teachers; an information brochure for the parents, (photocopied by the school and sent to parents) and an audio tape for the children to listen to in class. This process continues by making the next point of contact with the NAC personnel one that engenders confidence in the teachers that the Centre can deliver on its "promise". For this to happen, the staff have been well trained, are courteous, knowledgeable about the process and enthusiastic. In fact, there are processes that are followed consistently so that the experience is a pleasureable one no matter what the point of contact with the Centre. This means, an attention to detail and an understanding of what the concerns of the various visitors might be, taking time to address those concerns and needs.

Once a booking has been made and confirmed the excursion commences. On the day a coach arrives at the school, at the appointed time. The coach is clean and the driver is friendly and courteous, with a ton of patience. The coach approaches the school so that the children are prepared to board immediately. As it approaches, they notice that this coach is a little out of the ordinary. It is in fact painted and decorated to the theme of the excursion. On the coach at some point through the journey, the driver, in conjunction with the teacher, play an audio tape outlining events that are likely to happen, filling in some of the blanks with answers to frequently asked questions and generally continuing to build the anticipation of the next couple of hours. For the younger ones, this would mean that the audio tape use a new character, the Centre's mascot, to help with the process of association and entertainment. For the older children, the material is suitable graded with content to address their curiosity. Upon arrival at the Centre the first sights are of the external facility. The grounds have been prepared with exhibitions and displays of various items again to compliment the picture that has been building in their minds. The building itself is theme painted along the lines of the coach. Before entering the main building visitors must walk some distance. To continue the "experience" there is a paved and covered walkway. As the visitors move toward the building, the walkway comes alive with an audio presentation welcoming them. At this point theme music is played in conjunction with a laser or fibre optic display which progresses along the path.

Entry into the observatory foyer is in keeping with the concept so far. The foyer has music playing with a voice over of famous historical events. For example Neil Armstrong's "..the Eagle has landed...." and "One small step for man, one giant step for mankind". etc. The foyer also has displays and exhibitions, together with paintings and posters and a general backdrop of "space".

Visitors are greeted by the staff who will have a uniform consisting of black pants/jeans, black shoes/sneakers, and a black polo neck t-shirt with the Centre's logo on the pocket.

The theme of "space" continues throughout the whole building. The main lecture room is set up to accommodate the various age groups that are intended to use it. With working models, computer simulations, experiments and activities. Given that it will be daytime when the children are using the facility and that they will undoubtedly have expectations of viewing through a telescope, the Centre will have previously arranged internet connections with observatories in the northern hemisphere to facilitate this.

The children move between the various activities in the lecture theatre, viewings through the telescope, outdoor activities and the planetarium. The planetarium will enable the Centre to completely capture and demonstrate the cosmos. It will become an important ingredient to rounding out the "experience".

The tours, lectures and classroom activities will be conducted in a professional manner by well trained staff. These are not necessarily astronomy students or even students from the Science and Technology Faculty. They could be students, or parents, who have been trained to deliver a scripted performance, depending on the audience.

In keeping with the intention to create both a memorable and educational experience. The staff understand the degree of entertainment versus education that each of the target groups is looking for, and that, even within these groups, there will be a variation of knowledge and enthusiasm that needs to be addressed.

The body of the excursion will consist of curriculum related material with a strong emphasis on the practical application of knowledge to everyday life and how this knowledge has as its source discoveries through science and in passing, astronomy. The purpose of the lecture, from the Centre's perspective is to; a) encourage a desire to explore and gain further insight into the role of the sciences in our everyday lives; and, b) to create a fundamental desire to come back to the Centre either as part of a family or on some future excursion. This means that the Centre will need to continually update and refine its programs, exhibitions, displays and other material, most probably on a yearly basis.

Leaving the Centre should not be a let down in the "experience". The children should have the opportunity to purchase a memento of the visit but more importantly they should be handed a kit in the form of a bag which contains such things as a club membership, a badge, a poster, and a question and answer sheet for assignments. The bag will be sponsored by major businesses in the area.

The return journey back through the walkway will farewell the visitor from the Centre ready for the trip back to school.

At this point the Centre would be remiss if it did not take the opportunity to provide the teacher with further resources to enable the completion of any assignment work.

During the process the Centre has managed to capture the names and addresses of each of the visitors to enter onto the database for future marketing.

The other main market, that of the family evening, would be addressed differently, but with same attention to detail and professionalism in the Centre's approach.

In this case the night should be one where the family has an opportunity to experience together, some of the magic and awesome wonder of the universe. There would probably be a stronger emphasis on entertainment in these evenings.

Again upon arrival at the Centre the visitors first sights are of the external building and of the external displays. Being at night time these have been highlighted with appropriate external lighting to create an air of anticipation and of curiosity. The approach to the Centre is via the covered walkway. This will provide the opportunity to enhance the special effects possible given the time of day, typically from 7.30 pm onwards.

The visitors are greeted by the staff who are in the Centre uniform. They are also trained to the same level as the daytime staff. The night-time visitor will have an opportunity to view through the telescope. Given the numbers needed to sustain the Centre, it is envisaged that there will also be appropriate technology to allow as many people as possible to enjoy this experience at the same time. Besides the telescope, there will be other activities to take part in to enhance the outing. The shop will give the visitors the chance to capture some part of the experience with a range of product to appeal to all budgets. And club membership will also be offerred.

A "Friends of the NAC" program will be established to assist in the running of the Centre, particularly at night. Even though these are voluntary helpers they will, because of the culture established, exercise the same professionlism as other staff, including in their dress.

The primary purpose of these evenings is to a) entertain the entire family, while giving them a glimpse of the impact of the sciences on mankind; and b) enlighten them as to the role UWS may play in their own and/or their children's future education.

The other segments of the market that have been identified will have the same attention to detail and professional approach. The enrichment weekends will have as their purpose a desire to take the participants beyond their current levels of knowledge and understanding to new heights and it will use suitable resources such as visiting experts, and special materials developed to cater for their specific needs. The school holiday program will become such an attraction for the participants that early bookings in order to get in will be mandatory. The program, in keeping with the concept, will offer a combination of entertainment and education in a manner that will stretch the children in an exciting and enjoyable ways. Much of the work done for the normal schools program can be used but with a slight shift in emphasis towards the entertainment spectrum.

The transition from visitor to user however, has become the ultimate challenge for the Centre. Hopefully, by starting at an early age and introducing the children to the possibilities of a science education at UWS, the Centre will have begun to achieve its purpose.

Along the way, and to some extent behind the scenes as painted above, there is being established a "Centre of Excellence" in astronomical research. The Centre will run, in conjunction with its public program of edutainment, an undergraduate, post graduate and research program that will see it become world renown as a teaching and research facility. This phase is merely building upon the base that already exists but with a stretch goal that will see the Centre become a place where researchers from around the world will want to spend time. The Centre will have acquired a pre-eminent position in Australian science because of its efforts to foster and develop its people into scientists who have become the embodiment of the Centre's philosophy and values.

The Centre, via the Faculty, will offer a broader range of course material than usual, including for example, "Management of Observatories", and cross links with other Universities and centres such as NASA, to offer greater possibilities and opportunities for its graduates.

The "experience" is paramount and consistently delivering the experience is absolutely critical.

No small detail can be overlooked. No single member of the staff or person associated with the Centre should allow the standard to drop. The success of the Centre will depend on the development and deployment of a total "package" that acknowledges that there is only a very short time to grab and hold a visitor's attention and imagination before noise intrudes to distract them. The "experience" will be meant to lock out as much as possible of that external noise so that, for the short period that someone is visitor to the Nepean Astronomy Centre, they are totally captivated by the process - the ***"experience"***.

All of this will require a tremendous amount of organisation to pull off and this will be accomplished via a full time manager and eventually a part time assistant.

The Centre manager will report to the Board. The Board will be responsible for policy and review. They will meet quarterly. The Board should consist of UWS representatives with a strong representation from external sources with experience in both technical matters pertaining to the observatory and business acumen. A management committee will meet monthly to guide and assist the centre manager in the running of the Centre. Again, it should have representation from internal and external sources.

Financially, the Centre will be self sufficient. It will have a positive cashflow from operations and be able to make a payment to UWS of 10% of operating revenue from the first year of operation.

There will be a "Friends of the Nepean Astronomy Centre" sponsorship program which will operate for the purpose of adding additional facilities to the Centre and also for the sponsorship of talented and gifted children to further their studies. Other sponsorships will be operating for research.

6. Major Strategies

With the assistance and support of the Faculty of Science and Technology:-

1.Create a "Centre of Excellence" in Astronomy.

2.Create a conduit for the transfer of knowledge to the two main market segments:-

Children K-12

Families,

-so as to capture their imagination and enthusiasm for learning and thereby create a desire to expand their knowledge even further.

3.Offer the Centre as an opportunity for business to contribute to the advancement of knowledge and help redress the loss of interest in the sciences.

To achieve this the Centre will require the financial assistance of the University and the backing of management in the concepts outlined herein.

It will need to enlist the creative support from several other Faculties including:-

Performing and Visual Arts

Humanities - Communications

Education

Engineering

and of course Science and Technology

It will need to reinvigorate the Board with the updated vision, and

It will need to hire a suitable manager who can create the culture that is needed to make the Centre a success.

7. Staging

The plan covers a period of five years and obviously, there are many opportunities to manipulate the timing of events as proposed. However, as the plan now stands, these are the major programs that form the basis of what is a complete package.

1. The hiring of a competent manager by March/April '97.

2. The commencement of the first marketing program for the schools to operate during the daytime. This should be operational by April/ May '97.

3. The commencement of the second marketing program for the family segment which is to operate at night from 7.30 pm to 9.00/10.00 pm to commence in May '97

4. The completion of all external and internal refurbishment work ASAP.

5. The development of the enrichment weekends program to commence in July '97.

6. The development of the school holiday program to commence in August/September '97.

7. The purchase of the telescope system that will allow multiple viewing by the public during 1997.

8. The commencement of the coach service by 1998.

9. The construction of the covered walkway during 1998.

10. The building of the planetarium by December 1999.

8. SWOT

The SWOT analysis has been carried out only from the basis of discussions and material supplied. The Board should complete a more thorough analysis as soon as practicable.

8.1. Strengths

1. Existing facility

2. Existing Board with vast amount of experience.

3. Contacts and assistance available from various organisations including NASA

4. Prior experience in running the Centre

5. Vast, untapped resources of UWS

6. Co-operation of the various Faculties of UWS

7. Well known / world class astronomer in Dr White

8. Existing astronomy course material and students

9. Existing curriculum material

10. No debt funding to service

11. Penrith, and it surrounds, is a significant and growing tourist destination, especially for day trippers

8.2. Weaknesses

1. Lack of capital to complete the package

2. Pricing constraints of the main markets does not allow for value capture, survivability depends on numbers of visitors

8.3. Opportunities

1. Existing knowledge of the market

2. Lack of facilities for educational excursions in Western Sydney

3. To capture a share of the family budget spent on outings

4. Existing interest in astronomy / space is substantial

5. Fringe subjects such science fiction have very strong followings

6. Many possible synergistic associations with other organisations; some goods ones in the Penrith area too

7. Cross marketing opportunities eg IMAX Theatre, Museum of Fire, Sydney Observatory.

8. Strong interest from overseas visitors

8.4. Threats

1. The future of the Centre is almost entirely dependant on the initial financial support of UWS.

9. Risk Management

1. Concerns include the inability to capture the numbers of visitors as quickly as anticipated which would lead to a cash flow shortage.

2. The package does not provide for the possibility of unfavourable weather conditions.

3. The manager should be on a performance based contract so that, if necessary, corrective action can be swiftly taken.

4. The major Proportion of the $135,000 seed capital is for equipment of which at least 50% is on items that could be used elsewhere in the University.

5. The success of the project relies on the creation of an atmosphere - an experience. There is, apart from the ongoing work needed in respect of building the culture of the organisation, a once off cost of setting-up the experience of visual and auditory sensations created to leave an indelible memory. Educational/Entertainment material is now available from a number of sources at very affordable prices. And the Centre will not require any major pump priming to continually kick-start it. It is anticipated that the experience offered by visiting the Centre will create very strong "word of mouth" referrals and leads leaving only a low level maintenance type marketing program to be put in place.

6. The major concern is that the "level" or standard at which the experience is pitched will not be sustained over the long term. This will kill the project. There is also a need to continually upgrade the material, displays and exhibits so as to generate the opportunity for repeat business which far more easier than trying to capture and convert new leads.

7. The management and Board will need to institute the financial checks and balances. While this would seem obvious it is for that reason that it is often overlooked.

See sensitivity analysis in Appendix 2.

10. Appendix 1 - Forecasts & Budgets

10.1. Highlights

10.1.1. 5 Years

Period	Revenues $	Operating Profit $	Operating Profit %	EBITDA $	External Funds $
1997	54,887	-37,517	-68	-22,128	135,000
1998	165,500	-25,382	-15	-2,715	175,000
1999	186,500	-21,325	-11	4,675	375,000
2000	201,560	-18,334	-9	8,027	375,000
2001	215,421	-15,669	-7	10,998	375,000
	823,868	-118,227	-14	25,031	375,000

Definitions:

Operating Profit - Depreciation = EBITDA
EBITDA =Earnings Before Interest Tax Depreciation & Amortisation

10.2. Cashflow

10.2.1. 5 Years

	1997	1998	1999	2000	2001
+ Debtors	54,887	165,500	186,500	201,560	215,421
- Purchases Payments	77,015	157,450	181,451	193,065	203,558
- Equipment Payments	108,000	50,000	10,000	200,000	10,000
Total Disbursements	185,015	207,450	191,451	393,065	213,558
Net Operating Cash Flows	-130,128	-41,950	-4,951	-191,505	1,863
+ Funds Received	135,000	40,000	200,000	0	0
Cash Flow Requirements	4,872	-1,950	195,049	191,505	1,863
Acc. Cash Flow	4,872	2,922	197,971	6,466	8,330
Opening Bank Balance	0	4,872	2,922	197,971	6,466
Net Cash This Period	4,872	-1,950	195,049	-191,505	1,863
Closing Bank Balance	4,872	2,922	197,971	6,466	8,330
Credit Line	0	0	0	0	0
Deficit in Funding	0	0	0	0	0

	1997	1998	1999	2000	2001
Net Profit/Loss	-37,517	-25,382	-21,325	-18,334	-15,669
+ Depreciation	15,389	22,667	26,000	26,361	26,667
+ Change in Creditors	0	14,314	881	976	865
- Change in Stock	0	3,549	507	507	0
Net Cash From Operations	-22,128	8,050	5,049	8,495	11,863
- Change in Plant	108,000	50,000	10,000	200,000	10,000
Net Cash - Investment	-130,128	-41,950	-4,951	-191,505	1,863
+ Funds Received	135,000	40,000	200,000	0	0
Net Cash Flow	4,872	-1,950	195,049	-191,505	1,863

10.3. Profit and Loss

10.3.1. 5 Years

	1997	1998	1999	2000	2001
Revenues	54,887	165,500	186,500	201,560	215,421
COGS	0	3,500	4,000	4,500	4,500
Depreciation	15,389	22,667	26,000	26,361	26,667
Gross Profit	39,498	139,333	156,500	170,699	184,254
People	46,627	99,615	106,225	112,256	118,335
Marketing	9,244	23,550	26,450	28,521	30,238
Operating	21,143	41,550	45,150	48,256	51,350
Total Operating Expenses	77,015	164,715	177,825	189,033	199,923
Operating Profit	-37,517	-25,382	-21,325	-18,334	-15,669
Accum. Net Profit	-37,517	-62,898	-84,223	-102,558	-118,227

Definition: COGS = Cost of Goods Sold (or Purchases)

10.4. Balance Sheet

10.4.1. 5 Years

	1997	1998	1999	2000	2001
Cash	4,872	2,922	197,971	6,466	8,330
Stock	0	3,549	4,056	4,563	4,563
Current Assets	4,872	6,471	202,026	11,029	12,892
Fixed Assets	108,000	158,000	168,000	368,000	378,000
Accum. Depreciation	15,389	38,056	64,056	90,417	117,083
Total Assets	100,917	134,507	319,554	308,055	299,463
Creditors	0	14,314	15,194	16,170	17,035
Current Liabilities	0	14,314	15,194	16,170	17,035
Funds from UWS	135,000	135,000	135,000	135,000	135,000
Sponsorships Etc	0	40,000	240,000	240,000	240,000
	135,000	175,000	375,000	375,000	375,000
Total Liabilities	135,000	189,314	390,194	391,170	392,035
Retained Earnings	-37,517	-62,898	-84,223	-102,558	-118,227
Total Liabilities and Equity	97,483	126,415	305,971	288,612	273,809

10.5. Sales Plan

10.5.1. 5 Years

Sales Plan (in Units - No. of Visitors)

	1997	1998	1999	2000	2001
Year 2/3 Program	390	1,000	1,100	1,210	1,331
Year 5 Program	1,426	4,000	4,600	5,290	6,084
Year 8 Program	1,426	4,000	4,600	5,290	6,084
Year 11 Program	1,426	4,000	4,600	5,290	6,084
Guides Program	40	500	500	500	500
Scouts Program	40	500	500	500	500
School Holiday Program	100	400	400	400	400
Evening Sessions (3 people)	705	1,200	1,200	1,200	1,200
CEW	0	100	100	100	100
Enrichment Weekends	90	150	200	200	200
Total Visitors *	5,643	15,850	17,800	19,980	22,483
Retail Shop	0	7,000	8,000	9,000	9,000

Average Unit Price

	1997	1998	1999	2000	2001
Year 2/3 Program	3	3	3	3	3
Year 5 Program	5	5	5	5	5
Year 8 Program	5	5	5	5	5
Year 11 Program	7	7	7	7	7
Guides Program	5	5	5	5	5
Scouts Program	5	5	5	5	5
School Holiday Program	50	50	50	50	50
Evening Sessions (3 people)	15	15	15	15	15
CEW	80	80	80	80	80
Enrichment Weekends	150	150	150	150	150
Retail Shop (per customer)	3	3	3	3	3

Sales in $

	1997	1998	1999	2000	2001
Year 2/3 Program	1,170	3,000	3,300	3,630	3,993
Year 5 Program	7,130	20,000	23,000	26,450	30,420
Year 8 Program	7,130	20,000	23,000	26,450	30,420
Year 11 Program	9,982	28,000	32,200	37,030	42,588
Guides Program	200	2,500	2,500	2,500	2,500
Scouts Program	200	2,500	2,500	2,500	2,500
School Holiday Program	5,000	20,000	20,000	20,000	20,000
Evening Sessions	10,575	18,000	18,000	18,000	18,000
CEW	0	8,000	8,000	8,000	8,000
Enrichment Weekends	13,500	22,500	30,000	30,000	30,000
Total	54,887	163,400	184,100	174,560	188,421
Retail Shop	0	21,000	24,000	27,000	27,000
Total Sales	54,887	165,500	186,500	201,560	215,421

10.6. Plant & Equipment

10.6.1. 5 Years

	1997	1998	1999	2000	2001
Office Equipment	15,000	0	0	0	0
Slide Video Projector	20,000	0	0	0	0
Paving Outside	3,000	0	0	0	0
Air Conditioning	10,000	0	0	0	0
Relocation of Dome	2,000	0	0	0	0
Planetarium	0	0	0	200,000	0
Computers etc	8,000	0	10,000	0	10,000
Public Viewing System	30,000	0	0	0	0
Covered Walkway	0	50,000	0	0	0
Audio System	5,000	0	0	0	0
Shop Setup Costs	15,000	0	0	0	0
Total	108,000	50,000	10,000	200,000	10,000

Relocation of the Dome refers to the "Small Dome"

10.7. People Costs

10.7.1. 5 Years

Fixed Costs

	1997	1998	1999	2000	2001
Manager	29,700	42,000	44,100	46,305	48,620
Oncosts	8,910	12,600	13,230	13,892	14,586
Uniforms	500	500	500	500	500
Assist. Manager	0	20,000	21,000	22,050	23,152
Oncosts	0	3,000	3,150	3,307	3,472
Total Fixed	36,500	75,500	79,250	83,187	87,320

Variable Costs

	1997	1998	1999	2000	2001
Wages Support Staff					
% of Sales	11	10	10	10	10
Amount ($)	5,871	16,550	18,650	20,156	21,542
Wages Oncosts					
% of Sales	2	2	2	2	2
Amount ($)	1,647	4,965	5,595	6,047	6,463
Total Variable	6,694	19,033	21,448	23,179	24,773

Total People Costs	43,194	94,533	100,698	106,366	112,093

10.8. Marketing Costs

10.8.1. 5 Years

Fixed Costs

	1997	1998	1999	2000	2001
Promotions	4,000	6,000	6,300	6,615	6,946
Launch	2,000	0	0	0	0
Astronomy Week	0	500	1,000	1,000	1,000
Open Day	500	500	500	750	750
Total Fixed	6,500	7,000	7,800	8,365	8,696

Variable Costs

	1997	1998	1999	2000	2001
Promotion %	5	10	10	10	10
Amount ($)	2,744	16,550	18,650	20,156	21,542
Total Variable	2,744	16,550	18,650	20,156	21,542

Total Marketing	9,244	23,550	26,450	28,521	30,238

10.9. Operating Costs

10.9.1. 5 Years

Fixed Costs

	1997	1998	1999	2000	2001
Consumables	2,250	5,000	5,250	5,512	5,788
Curriculum Material	4,500	5,000	5,500	6,050	6,655
Other	9,000	15,000	15,750	16,538	17,365
Total Fixed	15,750	25,000	26,500	28,100	29,808

Variable Costs

	1997	1998	1999	2000	2001
Overhead Recovery	10%	10%	10%	10%	10%
Amount ($)	5,393	16,550	18,650	20,156	21,542
Total Variable	5,393	16,550	18,650	20,156	21,542

Total Operating	21,143	41,550	45,150	48,256	51,350

11. Appendix 2 - Simulation Analysis

11.1. Operating Expenses

Change	Sales $	Gross Profit $	Gross Profit %	Oper. Profit $	Oper. Profit %
-50%	823,868	690,285	84	286,029	35
-25%	823,868	690,285	84	83,901	10
0	823,868	690,285	84	-118,227	-14
25%	823,868	690,285	84	-320,354	-39
50%	823,868	690,285	84	-522,482	-63

11.2. Price

Change	Sales $	Gross Profit $	Gross Profit %	Oper. Profit $	Oper. Profit %
-50%	411,934	278,351	68	-395,451	-96
-25%	617,901	484,318	78	-256,839	-42
0	823,868	690,285	84	-118,227	-14
25%	1,029,835	896,252	87	20,386	2
50%	1,235,802	1,102,219	89	158,998	13

11.3. Quantities

Change	Sales $	Gross Profit $	Gross Profit %	Oper. Profit $	Oper. Profit %
-50%	411,934	286,601	70	-387,201	-94
-25%	617,901	488,443	79	-257,714	-41
0	823,868	690,285	84	-118,227	-14
25%	1,029,835	892,127	87	16,261	2
50%	1,235,802	1,093,969	89	150,748	12