

Navig Aero Share Scheme

Rolling share issue

Plan 2014 - 2015 – 2020

Navig Aero Limited Incorporation Date : 5pm, 7th December, 2013

dreamsoarer 



dreamtourR 

Let's forge a dream into reality and fly it worldwide. **Join the adventure!**

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Introduction

Why involve other people at this stage?

The dreamsoarer concept is established, but now comes the real detail work. To take this well rounded idea and forge it into reality. To delve into every aspect, component and component relationship. To decide, identify, optimise, cost, refine each washer, bracket, mechanism and spatial position and choose their individual material specification and dimension. Each part requires a deep dive and vigorous discussion between the team which will take place during:

- quarterly weekend workshops at Duxford IWM
- monthly webinar workshops
- ongoing live forum

We require brutal brainstorming exchanges to banish all wishful thinking and deliver a prototype result for each and every part, system and calculation. To manage that process alone seems unwise and unnecessary given the wealth of talent out there wanting to become part of a high energy aircraft development. Therefore it is time to bring in other viewpoints, opinions, expertise, brains, to broaden the dialogue and accelerate the discussion.

Concept design by committee leads to dull products, but once that product concept is established, like the dreamsoarer, thereafter the more people involved the better. Navig Aero is seeking collaborator-investors to stake modest sums into the project and to lend their acumen. By demanding both a financial and intellectual investment into the product, we ensure the people who come aboard this adventure believe in the dreamsoarer concept.

Most aero-people have a daydream to create their own aircraft. but time, ability, finance or opportunity is usually lacking. The ones who do try this find the project unravels into a desperately tough, long lonely journey. I am inviting you to review a ground breaking advancement aircraft concept and become part of a team.

You will commit modest resources and modest time. The project will not become overbearing and yet you will extract a great deal of satisfaction and social energy from it, and perhaps even a decent financial return.

There are tax advantages to investing ([SEIS](#)) while industrial investment is [tipped](#). Thank you for considering being part of Navig Aero Limited.

Yours sincerely,
Ben Collins.



Ben Collins

Ben is an experienced transport designer with a 20 year track record of simplification and innovation. Ben developed the first sub €10 active headrest and numerous engine innovations. He is especially interested in aerodynamics, transport design and engine technology in a career taking him to Portugal, Scotland, Germany, Italy and Sweden. A design philosophy of "nature is the best designer" and life interest of birdwatching lead to the creation of polymorphic wings and an airframe to complement that. Manufacturing the dreamsoarer is a long held ambition.

Roles 2014 : Design leader, powertrain, patent, prototyping, co-ordinator.

dreamtourR 



dreamsoarer 

Plan Outline

Summarising 2014-2020

We have a single target for 2014, to build full scale manufacture-models of the dreamsoarer and dreamtourR. That will massively advance the project from today's scale-concept-models.

Armed with full scale manufacture-models, costing, BoM and calculations means we will have established a tremendous platform to go forwards with Navig Aero in 2015.

During 2014 the projected company valuation will double, providing the investor with a virtual 100% return. However we must be realistic that share value doubling is dependent on both a successful manufacture-model and someone willing to buy your share.

In the latter part of 2015 we will build and ground test a dreamsoarer prototype. This also allows full publication of the project to ascertain market potential.

In 2016 we will fly the prototype, begin taking advance orders and prepare for batch production, at the end of the year.

In 2017 we will start to expand the business and move away from "development" toward "manufacturing" and the real business of building aircraft.

During the following years, the dream family of small aircraft will be expanded and introduced to new customers and markets. By 2020 Navig Aero will have established a manufacturing and organisational platform. This will not be a smooth, easy journey.

Concentrating on 2014

Increasing project valuation from £100,00 to £200,00

Your initial investment, the one this plan wishes to entice you into, is targetting a clear result – the full scale manufacture-model. If the manufacture-model is brilliant then there is every reason that the project valuation rises from today's £100,00 to £200,00 or more. If that model is not brilliant, then the project valuation and your share will be less or may even have diminished completely to £0. It is your responsibility to evaluate the dreamsoarer and dreamtourR and ask yourself three questions:

- Are today's 2013 scale-model-concepts and business plan worth £100,000?
- Will the manufacturing-model in 2014 and collated project team be worth at least £100,000, or even close to £200,00?
- Do I believe that Ben Collins and the people sat next to me can deliver that in 2014?

The detailed plan for 2014-2015 (section B) and then long term plan for 2014-2020 (section C) will now be explained in tables and diagrams on the following pages. The final section (D) discusses the business of making aircraft. In the next two years we move from scale-model to model and then a real plane, ready to fly and make aviation history.

Join the adventure!

dreamtourR 



dreamsoarer 



B Short term plan 2014-2015

Build one dreamsoarer

Prospectus and investment scheme

Share tranches and **RULES**

Two year tasklist

Task list timing and funding

Plan Summary



2014-2015 Prospectus and Investment Scheme

This prospectus serves as both project definition and investment contract.

The document values the proposal at £100,000 at kick off and £300,000 at close Dec 31st 2015.

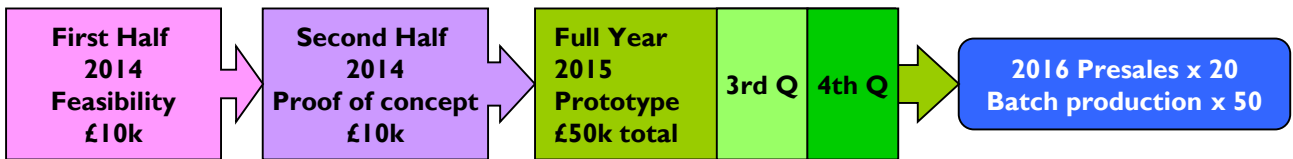
The first tranche £20,000 December 2013 buys 20% share : project value £100,000.

The first investors have first choice to choose to invest further, not invest further but retain existing share or sell share. In the event of selling then resale of project share value has open market price but other existing shareholders have first refusal at market value.

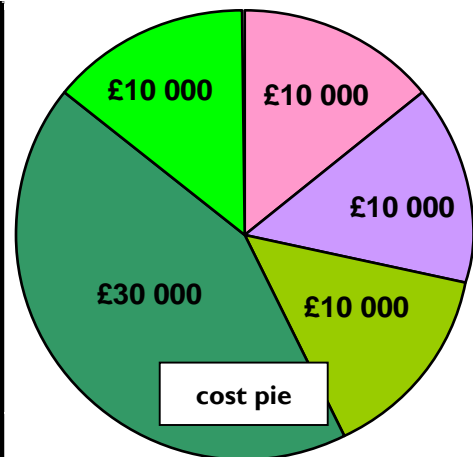
- The second tranche £10,000 Jan 1st 2015, buys 5% share of the project, then valued at £200,000.
- The third tranche £30,000 July 1 2015, buys 15% share of the project, then valued at £200,000.
- The fourth and final tranche £10,000 Nov 1st 2013, buys 2% share, then valued at £250,000.
- With a test marketed and ground tested prototype at the end of 2015, the estimated value of Navig Aero is £300,000+.

If a single investor were to invest all tranches that would cost £70,000 and give 44% project share assuming the prices of the share issue followed this table – only the first 20 shares have a fixed price however. At the start of the project, before any investment, Ben Collins owns 100% of the project.

The project share means ownership of the entire project, including manufacturing rights and intellectual property. Any public funding grant assistance contributes directly to the project. The result of the project to 2015 is a ground tested prototype and sales tool for limited production.



Navig Aero dreamsoarer 2014-2015		Cost & Timings		
		Weeks	Hours	Cost
21st Nov 2013 Ben Collins				
A : 2014 First half	Feasibility	25	1000	£10 000,00
B : 2014 Second half	Manufacture-model	25	1000	£10 000,00
C : 2015 First half	Detailing	25	1000	£10 000,00
D : 2015 Third quarter	True Prototype	12,5	500	£30 000,00
E : 2015 Final quarter	Commissioning	12,5	500	£10 000,00
Total		100	4000	£70 000,00



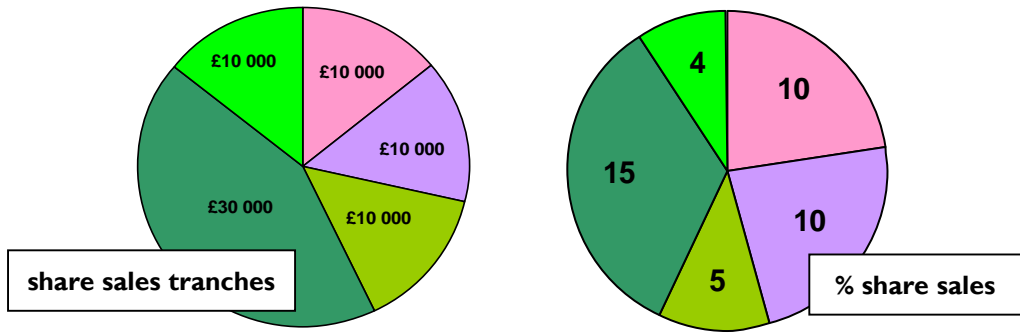
Navig Aero dreamsoarer

Investment and Tranche Funding 2014-2015

21st Nov 2013 Ben Collins

		Share price value	Project share	%tage share	Total sold project shares	Remaining project shares	Total value per share	Nominal project valuation	Project share sale and funding tranche
A : 2014 First half	Feasibility	fixed price	10	10	10	90	£1 000	£100 000	£10 000
B : 2014 Second half	Manufacture-model	fixed price	10	10	20	80	£1 000	£100 000	£10 000
C : 2015 First half	Detailing	open market	5	5	25	75	£2 000	£200 000	£10 000
D : 2015 Third quarter	True Prototype	open market	15	15	40	60	£2 000	£200 000	£30 000
E : 2015 Final quarter	Commissioning	open market	4	5	44	56	£2 500	£250 000	£10 000
Total			44	44	44	56	£3 000	£300 000	£70 000

Please note at the end of 2015 the project (Navig Aero Ltd) valuation £300,000 is entirely estimated, this could be £1M or £0.



Rule ref **Navig Aero Limited rolling share sales rules and incorporation Dec 7th 2013.**

- Rule1 At the start of December 7th 2013 Collins will own 100 shares, 100% nominally valued at £100,000 or £1,000 each
- Rule2 At 5:00pm December 7th 2013 Collins will offer for sale 20 shares, 20%, valued at £20,000 or £1,000 each.
- Rule3 The first issue of shares £20,000 / 20 shares / 20% will be distributed according to availability of buyers and a judgement on each buyer's ability to contribute technically, or with their time, or financially in the future. That judgement will be made alone by Ben Collins.
- Rule4 Existing shareholders have first option on each new share tranche by proportion according to their existing share investment.
- Rule5 Each new share tranche is sold on open market price, except the first 20 shares which are sold by subscription Dec 7, 2013.
- Rule6 Each share tranche will be sold up to the value necessary to complete the next stage according to the investment summary table.
- Rule7 In the event of insufficient bidding for shares available, sold to meet next stage costs, more Collins shares will be sold at a lower (market) price.
- Rule8 In the event of oversubscription of bidding for the next tranche to meet the stage costs, fewer Collins shares will be sold, i.e. sold at market price.
- Rule9 The third year, 2016 will raise funds through further share sales and or loans made against orders, note 2016 requires much greater funding.
- Rule10 Shares can be traded freely at any time, but before shares are sold they must be offered to fellow shareholders on first refusal at market price.
- Rule11 **There will only ever be 100 shares.**
- Rule12 **English private limited company law and rules applies in all aspects of the running of Navig Aero Limited.**



Navig Aero dreamsoarer : Two year task list and labour cost

21st Nov 2013 Ben Collins

Ref A : 2014 First half		Feasibili	40
F1	Task	Hours	Weeks
F1	Start bank & tax accounts, website, email, database, contacts, meetings, drawing system.	140	4
F2	Rapid second loop and identification of project design areas; sorted, intermediate, vague.	140	4
F3	Present work, printing, fix agenda, all aspects "deep dive" review of kick off status.	140	4
F4	Derive cascade of uncertain areas and proceed with solution development and refinement.	140	4
F5	Define all standard parts or smorgasbord : cost, supplier, weight, specs, powertrain.	140	4
F6	Interim review of status, what is missing, what is defined, what needs refinement.	140	4
F7	Nailing down of CAD spatial packaging, modules, assembly, sizing, thickness, weights, and detail:	120	3
F8	Collate work, including drawings renderings, BoM and video sequence. Present.	40	1
Total		1000	25

Ref B : 2014 Second half		Manufacture-model	
PoC	Task	Hours	Weeks
PoC1	Define product specification for manufacture model.	160	4
PoC2	Adaption for scaling, source parts, materials and standard, motor fixings etc. Ordering.	160	4
PoC3	Control wiring packaging parts routing, adjustment, assembly, harness, powertrain.	160	4
PoC4	Assembly sequence and grouping of modules. Start of fabrication.	160	4
PoC5	Fabrication, assembly and finishing. Powertrain testing, control element testing.	160	4
PoC6	Presentation of completed package, drawing collation and model. Prototype finishing & ergonomon	200	5
Total		1000	25

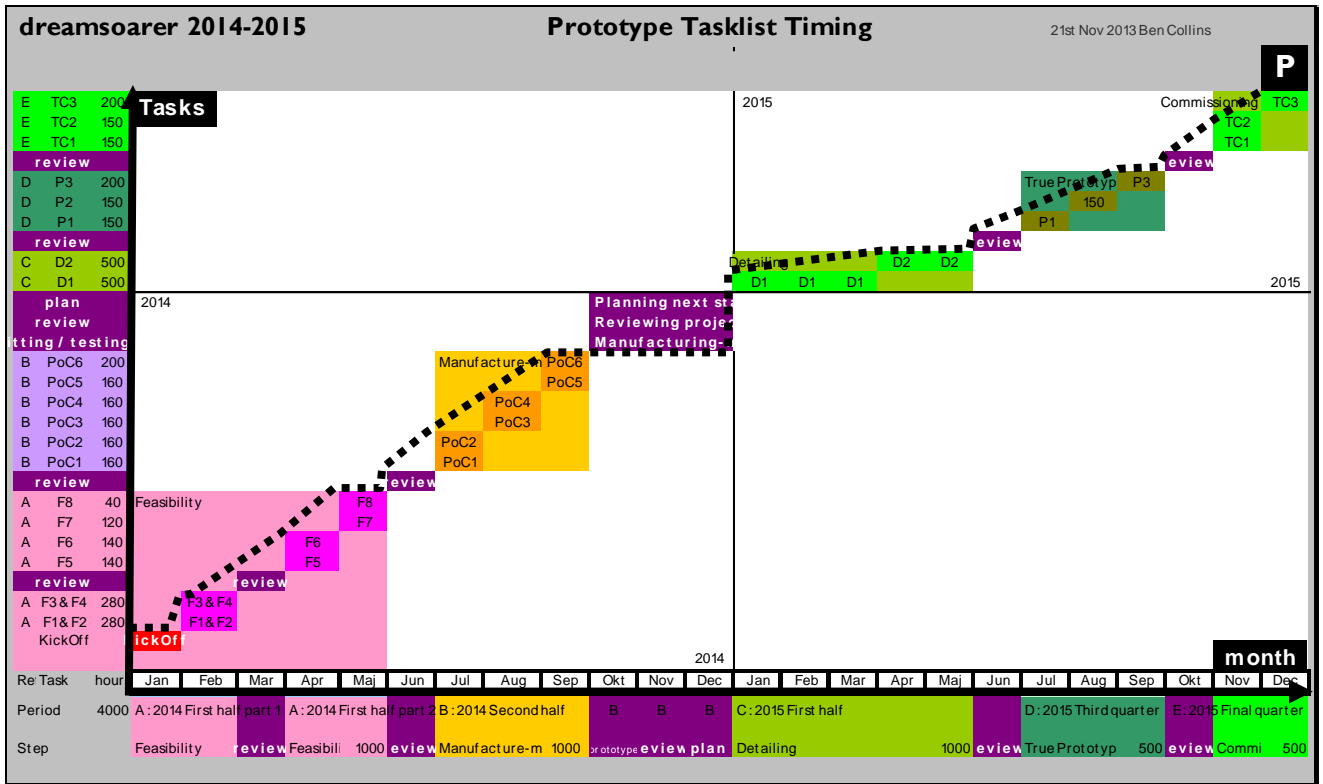
Ref C : 2015 First half		Detailing	
D	Task	Hours	Weeks
D1	Airframe analysis, BoM and definition of all modules, parts, assembly, process, review .	500	13
D2	Parts, suppliers, drgs, patents, electrical, safety, legal, tolerances, cost, ordering, workshop.	500	13
Total (note more detail on 2015 tasks at the end of 2014)		1000	25

Ref D : 2015 Third quarter		True Prototype	
p	Task	Hours	Weeks
P1	Fabrication in house and at suppliers & ongoing component refinement.	150	4
P2	Assembly & ongoing component refinement.	150	4
P3	Finishing and powertrain testing & ongoing component refinement.	200	5
Total		500	13

Ref E : 2015 Final quarter		Commissioning	
TC	Task	Hours	Weeks
TC1	Patent Applications final "in house" drafts & ongoing component refinement.	150	4
TC2	Ground trials, powertrain duration test, preparation for flight trials & ongoing component refineme	150	4
TC3	First dummy flight trial sequence. Deep project review. Define status, plan 2016.	200	5
Total		500	13

		Hours	Weeks
Full scale ground tested dreamsoarer		4 000	100





Notes:

There are regular monthly webinars, quarterly workshops and an ongoing forum. Frequent reviews, planning for the next stage, robust discussion and quite simply, deliberation from all, especially input from stakeholders or external consultations.

There will also be plenty of unlogged contributions from all stakeholders. Discussions, tests, travelling etc. Given the vocational nature of the project there can be a degree of voluntary contributions of time from all parties.

The first year 2014 should not be a burden for stakeholders, and remain *fun*.

Navig Aero Ltd : quid pro quo funding 2014-2015 21st Nov 2013 Ben Collins

Step	Title	Funding		Funding Schedule	Funding Dates
		Needed	Result required		
A : 2014 First half	Feasibility	£10 000,00	Drawing suite & detail solutions	£10 000	Feb 2014
B : 2014 Second half	Manufacture-mode	£10 000,00	Manufacturing-model-prototype	£10 000	Jul 2014
C : 2015 First half	Detailing	£10 000,00	Calculations, parts and suppliers	£10 000	Jan 2015
D : 2015 Third quarter	True Prototype	£30 000,00	Build it	£30 000	Jul 2015
E : 2015 Final quarter	Commissioning	£10 000,00	System and ground testing	£10 000	Nov 2015
Total		£70 000,00		£70 000	



dreamsoarer		Prototype Costing			21st Nov 2013 Ben Collins 2014-2015	
A Feasibility A : 2014 First half						
Cost Item	Unit	Quantity	Unit	Total	Notes	
Labour	hour	1000	£10	£10 000	CAD labour £10 ph + £2 CAD office = £12ph	
Total				£10 000	running total £10 000	
B Manufacture-model B : 2014 Second half						
Cost Item	Unit	Quantity	Unit	Total	Notes	
Labour	hour	1000	£10	£10 000		
					Collins or grant to subsidise	
1/1 scale prototype					£0 prototype costs	
Total				£10 000	running total £20 000	
C Detailing C : 2015 First half						
Cost Item	Unit	Quantity	Unit	Total	Notes	
Labour	hour	1000	£10	£10 000		
Total				£10 000	running total £30 000	
D True Prototype D : 2015 Third quarter						
Cost Item	Unit	Quantity	Unit	Total	Notes	
Labour	hour	500	£10	£5 000		
Prototype parts				£20 000	raw materials, source parts, specials, finishing	
Workshop				£1 000	share workshop , 8x6m@=50m2 4 months	
Tools				£1 500	specialist tools required	
Contingency				£2 500		
Total				£30 000	running total £60 000	
E Commissioning E : 2015 Final quarter						
Cost Item	Unit	Quantity	Unit	Total	Notes	
Labour	hour	500	£10	£5 000		
Tuning & Avionics				£5 000		
Total				£10 000	running total £70 000	
Total				£70 000	Labour 2 years £40 000 Parts £30 000	

Plan Summary

This plan is dramatic in its ambition, but also practical in the first steps. There is no rigid timetable for product expansion and true focus remains on the first three steps in 2014 and 2015, feasibility, proof of concept and prototype.

Even to build manufacture-model for an aeroplane for £20,000, will be a tremendous challenge and achievement. To then take this aircraft and deliver a working prototype to form the basis of future sales again presents real issues and risk.

Once a working prototype is ground tested and test marketed we will know an awful lot more than today and can begin to think seriously about flying the prototype and producing it. If the dreamsoarer can deliver all or most of what is promised then the plane should sell.

If we can really design and build this in two years for £70,000 all in then it will be remarkable. According to this plan, it is possible.





C Long term Vision 2013-2020 To manufacture aircraft

Target 2011-2020

Quid pro quo pyramid of funding and targets "poker"

Quid pro quo poker explained

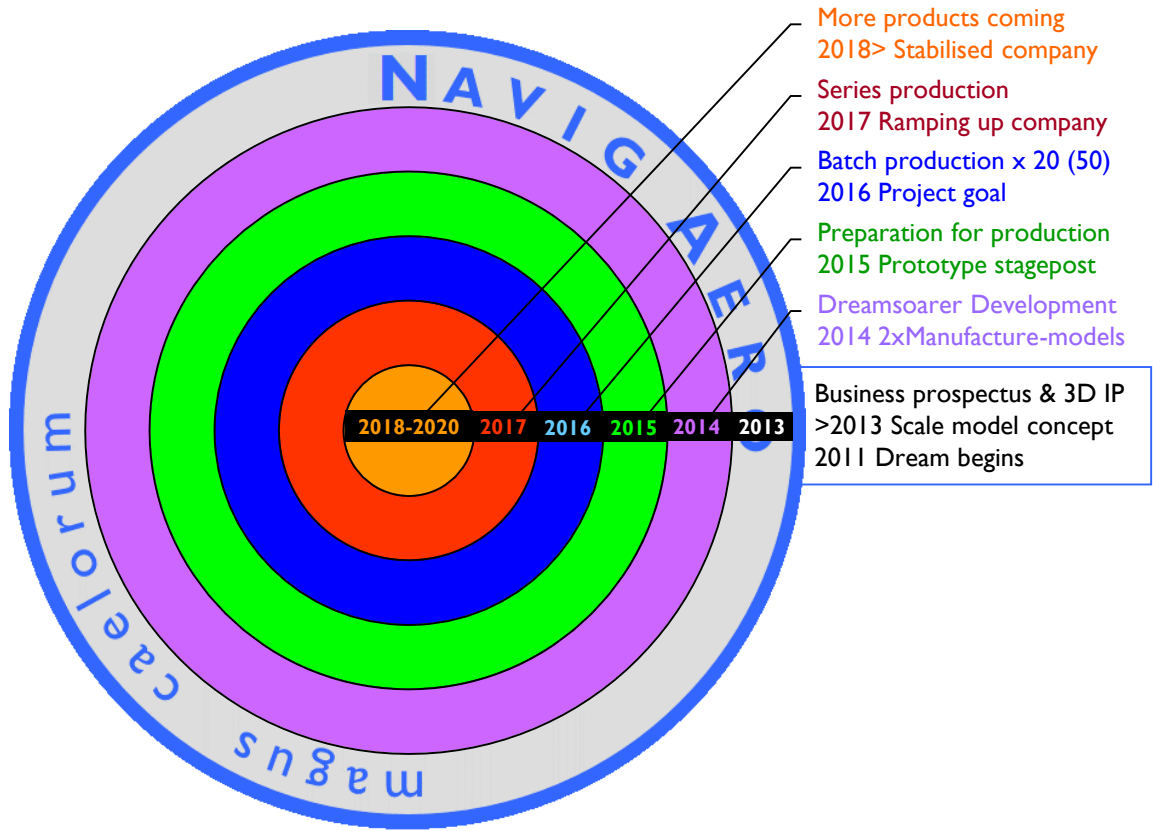
Budget 2014-2020

Making money and increasing share value

Medium term model family

Long term model pyramid

2011 - 2020



Status

2011-2013 Scale model concept established, basic drawing suite & 3d models, business prospectus. Extensive intellectual property developed and identified. Project valued at £100,000.

Goals

2014 Feasibility and proof of concept : 12/12 months : £20,000

Detail develop the concept, including a full scale manufacture-models - dreamsoarer and dreamtourR.

2015 Presentation of Product : 12/24 months : £50,000 (total £70,000)

Create a flyable dreamsoarer prototype, sufficient to entice investment for production.

2016 Batch production 20-50 units : 12/36 months : £130,000 Secured against orders margin (total £200,00)

Break even manufacture the dreamsoarer in low volume secure batch production.

2017 Batch-serial production : 12/48 months : £200,000 - loan secured against orders x 50

Develop the dreamsoarer building technique into a range of light aircraft.

2018-2020 Serial production : 36/84 months : £Organic Growth

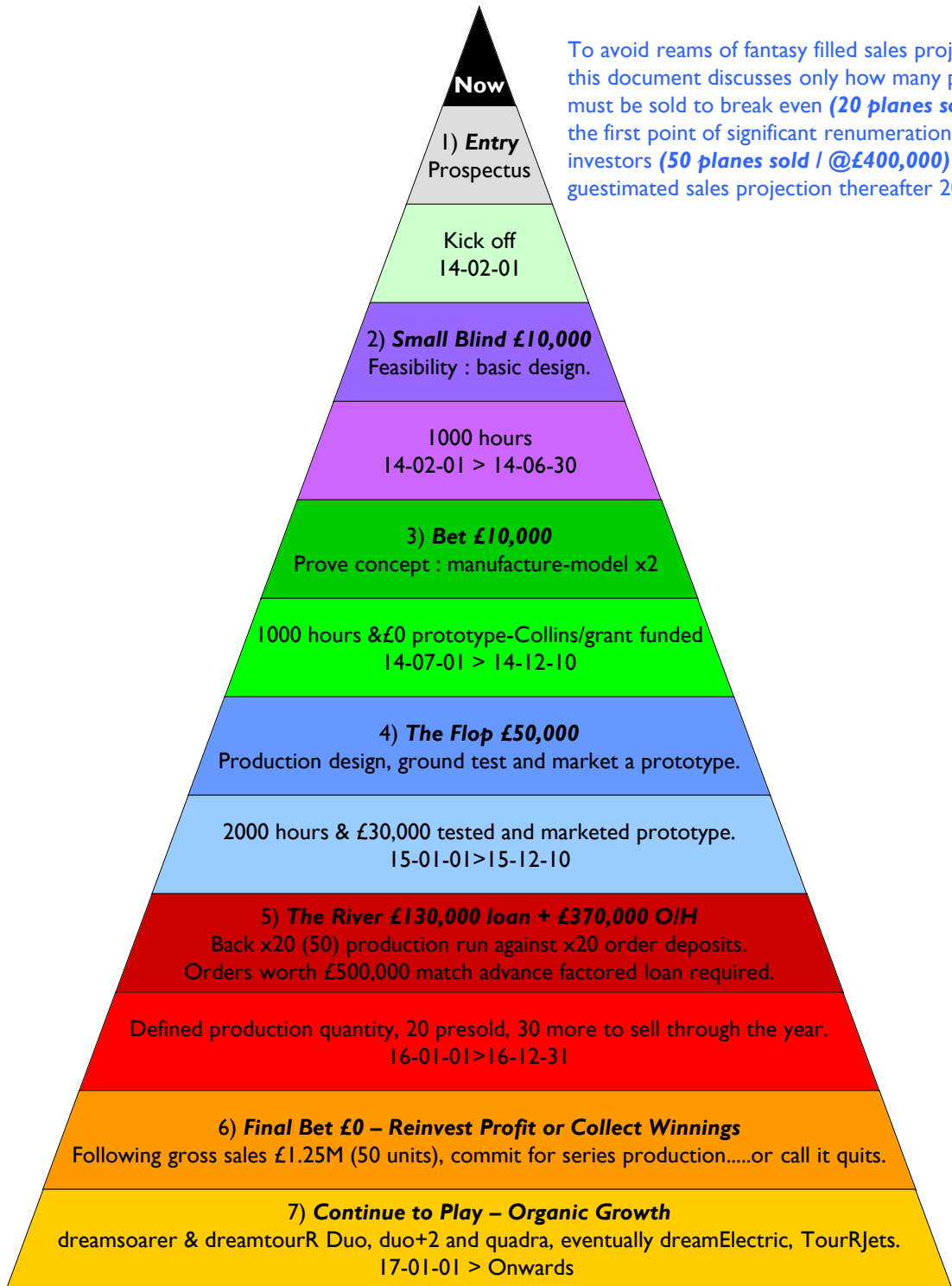
Develop the dreamsoarer building technique into a range of light aircraft.

Certify dreamtourR & dreamsoarer duo, dreamsoarer & dreamtourRelectric, dreamsoarer scale model plane, dreamtourR duo+2, dreamtourR quadra, dreamtourR jet, dreamtourR military utility and civilian duty specialist variants.



Navig Aero Economic Plan

Quid Pro Quo Poker Moderating Risk



To avoid reams of fantasy filled sales projections, this document discusses only how many planes must be sold to break even (**20 planes sold**) and the first point of significant remuneration for investors (**50 planes sold / @£400,000**) with a guesstimated sales projection thereafter 2016-2020.



Navig Aero Investment – Structured Poker Moderating Risk

Stage 1) Entry to the Game- Coming to Duxford

Reading this investment prospectus, we can see that by taking small steps, with a pause “check” or stop “fold” option at every juncture, the investor is not hurried into commitment without seeing a result, *quid pro quo*.

Stage 2) Small Blind £10,000 First half 2014

Completes the basic design, every tube, nut and bolt is defined and counted, though some supplier decisions, costs and calculations are missing.

Stage 3) The Bet £10,000 Second half 2014

If the design is agreed as satisfactory, we proceed to the manufacture-model development. The detail design is further advanced, now including aerodynamic profiles and most calculations.

Stage 4) The Flop £50,000 2015

A big step and the highest risk phase for the investor. A prototype plane is built ready to be flown in early 2016. Production suppliers are nailed down and costs defined. Structural calculations complete a further loop of design development, with a final loop considered after prototype testing.

- The prototype is used to hook at least twenty sales deposits.
- With a real plane, real sales and a defined batch run, economically rewarding production can be started with low risk to the investor.

Stage 5) The River £130,000 + £370,000 OIHs pro-rata 2016-2017

Back x50 production run against x20 order deposits.

Orders (including £1,000 deposits) worth £500,000 match the investment advance required. £130,000 raw loan, £370,000 slush fund/tranche drip-funded to cover the years overheads pro rata. If 20 pre orders are obtained, it is reasonable to assume a further 30 orders can be hooked further on, therefore the batch quantity is geared to fifty.

This quantity can be re-evaluated after test markeing and prototype flight.

Stage 6) Final Bet £0 – Reinvest Profit or Collect Winnings 2018-2020

Stage 6 Version 1) **Collect Winnings** That will be bring us to a tipping point-.....continue to steady and expanding serial production or call it quits and job well done, fifty planes built during an enjoyable and modestly profitable venture (@£400,000). Create an owners club and service organisation-cooperative.

Stage 6) Continue? £0 – Organic Growth

Organic growth can expand the company to eventually become the “British Cessna”, logical ongoing product expansion, providing:

- certificate dreamsoarer duo.
- certificate dreamtourR duo.
- dreamsoarer electric.
- dreamtourR electric.
- dreamsoarer scale model plane.
- dreamtourR duo+2.
- dreamtourR quadra.
- dreamtourR private jet, military and civilian duty variants.

dreamtourR 



dreamsoarer 

Navig Aero Budget 2014-2020

Navig Aero Limited : Budget 2014-2020					ref linkcell X		Navig Aero Limited : Budget 2014-2023					21st Nov 2013 Ben Collins	
Year	Task	Funding Needed	Organic reinvestment	Gross margin Units per unit	Gross income	Gross Profit/loss	Estimated Tax and other costs	Net Profit/loss	Proposed Dividend per share	Estimated share price each	Funding How	Funding Dates	
2014	Proof of concept and manufacture-model	£20 000	£0	0	£0	-£20 000	£0	-£20 000	£0	£1 000	Share sales	Feb 12014	
2015	Prototype build and ground testing	£50 000	£0	0	£0	-£50 000	£0	-£50 000	£0	£2 000	Share sales	Feb 12015	
2016	Flying and one off batch production	£130 000	£0	20	£6 500	£0	£0	£0	£0	£3 000	Share sales and or loa	Feb 12016	
2017	Streamlined batch production & certification	£200 000	£0	50	£8 000	£200 000	£50 000	£150 000	£0	£4 000	Loan against sales	Feb 12017	
2018	Serial production and range expansion	£0	£100 000	80	£10 000	£800 000	£150 000	£150 000	£1 500	£9 500	Organic growth	n/a	
2019	Stabilisation of company and model expansion	£0	£500 000	120	£10 000	£1 200 000	£100 000	£100 000	£1 000	£13 000	Organic growth	n/a	
2020	Stabilisation of company and model expansion	£0	£1 000 000	200	£10 000	£2 000 000	£750 000	£750 000	£7 500	£27 500	Organic growth	n/a	
2021			£500 000										
Seven year totals		£400 000	£2 100 000	470	£44 500	£4 530 000	£1 050 000	£1 080 000	£10 000				

Navig Aero Limited : Budget 2014-2020					ref linkcell X		
Year	Task	Funding Needed	Organic reinvestment	Units	Gross margin per unit	Gross income	Gross Profit/loss
2014	Proof of concept and manufacture-model	£20 000	£0	0	£0	£0	-£20 000
2015	Prototype build and ground testing	£50 000	£0	0	£0	£0	-£50 000
2016	Flying and one off batch production	£130 000	£0	20	£6 500	£130 000	£0
2017	Streamlined batch production & certification	£200 000	£0	50	£8 000	£400 000	£200 000
2018	Serial production and range expansion	£0	£100 000	80	£10 000	£800 000	£800 000
2019	Stabilisation of company and model expansion	£0	£500 000	120	£10 000	£1 200 000	£1 200 000
2020	Stabilisation of company and model expansion	£0	£1 000 000	200	£10 000	£2 000 000	£2 000 000
2021			£500 000				
Seven year totals		£400 000	£2 100 000	470	£44 500	£4 530 000	£4 130 000

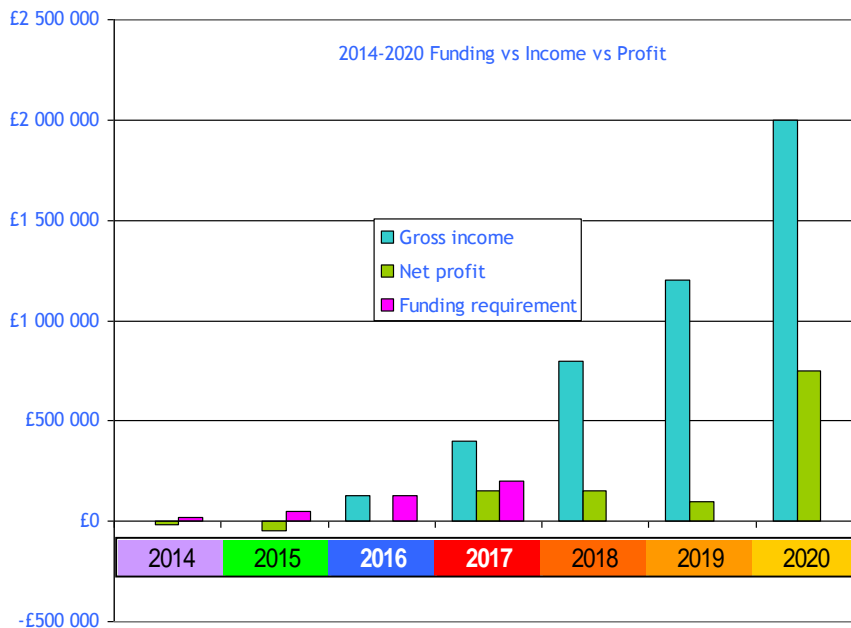
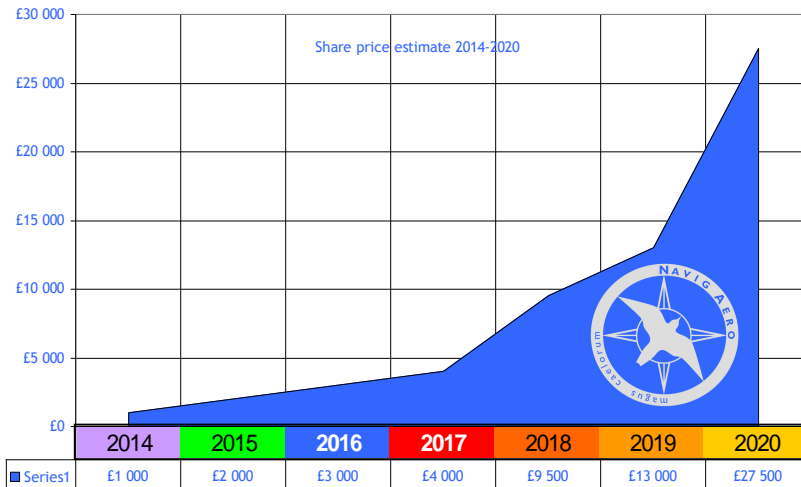
ref linkcell X		Navig Aero Limited : Budget 2014-2023					21st Nov 2013 Ben Collins	
Gross income	Gross Profit/loss	Estimated Tax and other costs	Net Profit/loss	Proposed Dividend per share	Estimated share price each	Funding How	Funding Dates	
£0	-£20 000	£0	-£20 000	£0	£1 000	Share sales	Feb 12014	
£0	-£50 000	£0	-£50 000	£0	£2 000	Share sales	Feb 12015	
£130 000	£0	£0	£0	£0	£3 000	Share sales and or loa	Feb 12016	
£400 000	£200 000	£50 000	£150 000	£0	£4 000	Loan against sales	Feb 12017	
£800 000	£800 000	£150 000	£150 000	£1 500	£9 500	Organic growth	n/a	
£1 200 000	£1 200 000	£100 000	£100 000	£1 000	£13 000	Organic growth	n/a	
£2 000 000	£2 000 000	£750 000	£750 000	£7 500	£27 500	Organic growth	n/a	
£4 530 000	£4 130 000	£1 050 000	£1 080 000	£10 000				



Making money and increasing share value 2014-2020

The figures herein –derived from the budget table - paint a pretty rosy picture, it probably will not extrapolate quite so smoothly - but we **are** aiming to make money, not just aircraft, wrinkles and headaches.

These figures are our main target, while our second base target will be to keep share value rising at least with inflation during the first, possibly very difficult, years.



In the event we can start producing planes that cost £10,000 to make, with a ticket price of £25k and a margin of >£5,000+ then there is some money to be made by 2020.

However the business of aircraft production involves a whole heap of costs and issues to be discovered along the way, things like product liability, IP, certification, CE-marking, different legal rules for every country. It will not be easy!

Navig Aero Medium Term Model Family

The most difficult stagepost is to build a prototype.

This will determine whether the project has merit.

The goal is then to sell twenty and make fifty planes, after that everything is a bonus.

Assuming a satisfactory rollout of production and reasonable sales demand, we can plan for a family of logically related products with significant commonality.

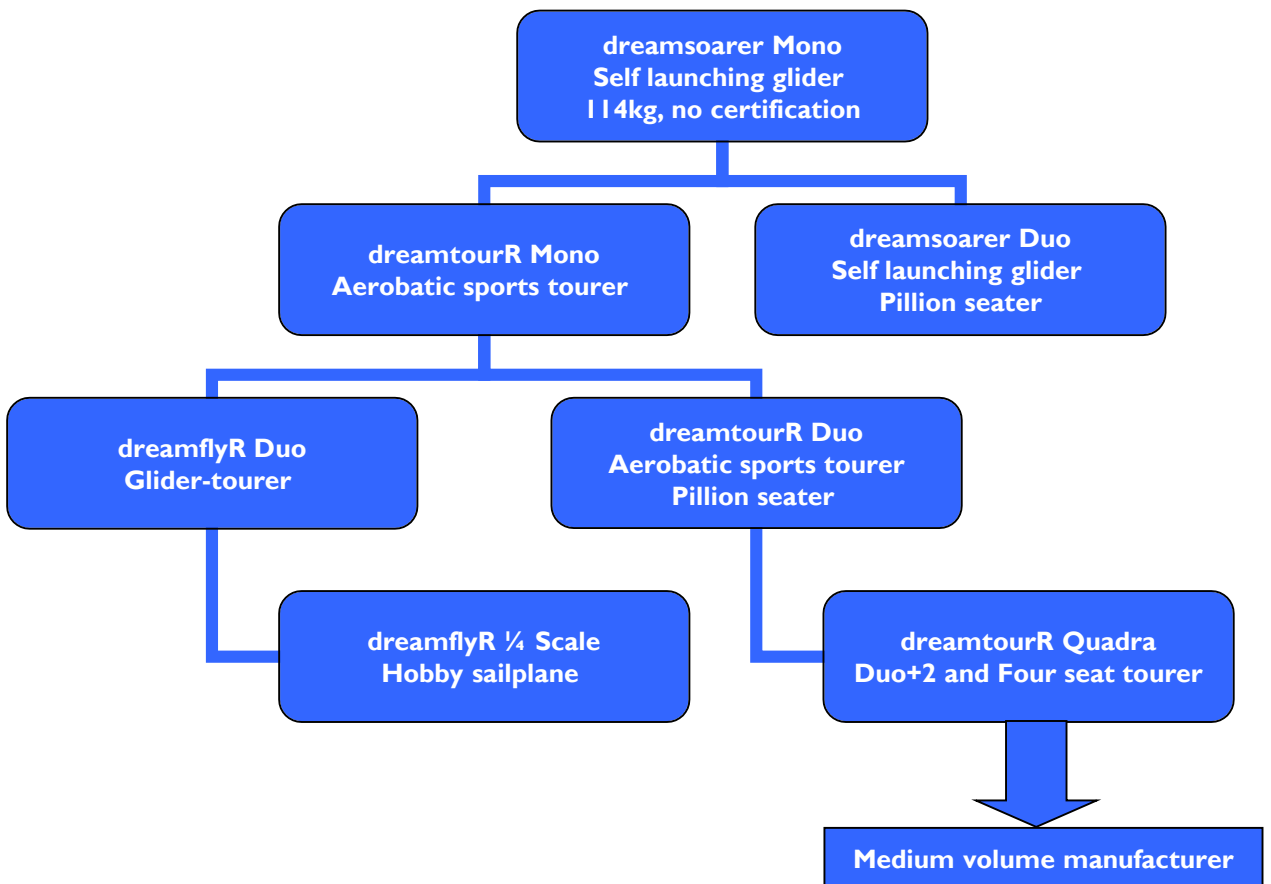
The speed of product rollout should be tempered by means to production and testing rather than specific dates. No need to rush forward, however no harm in some ambition.

(some confidential text removed)

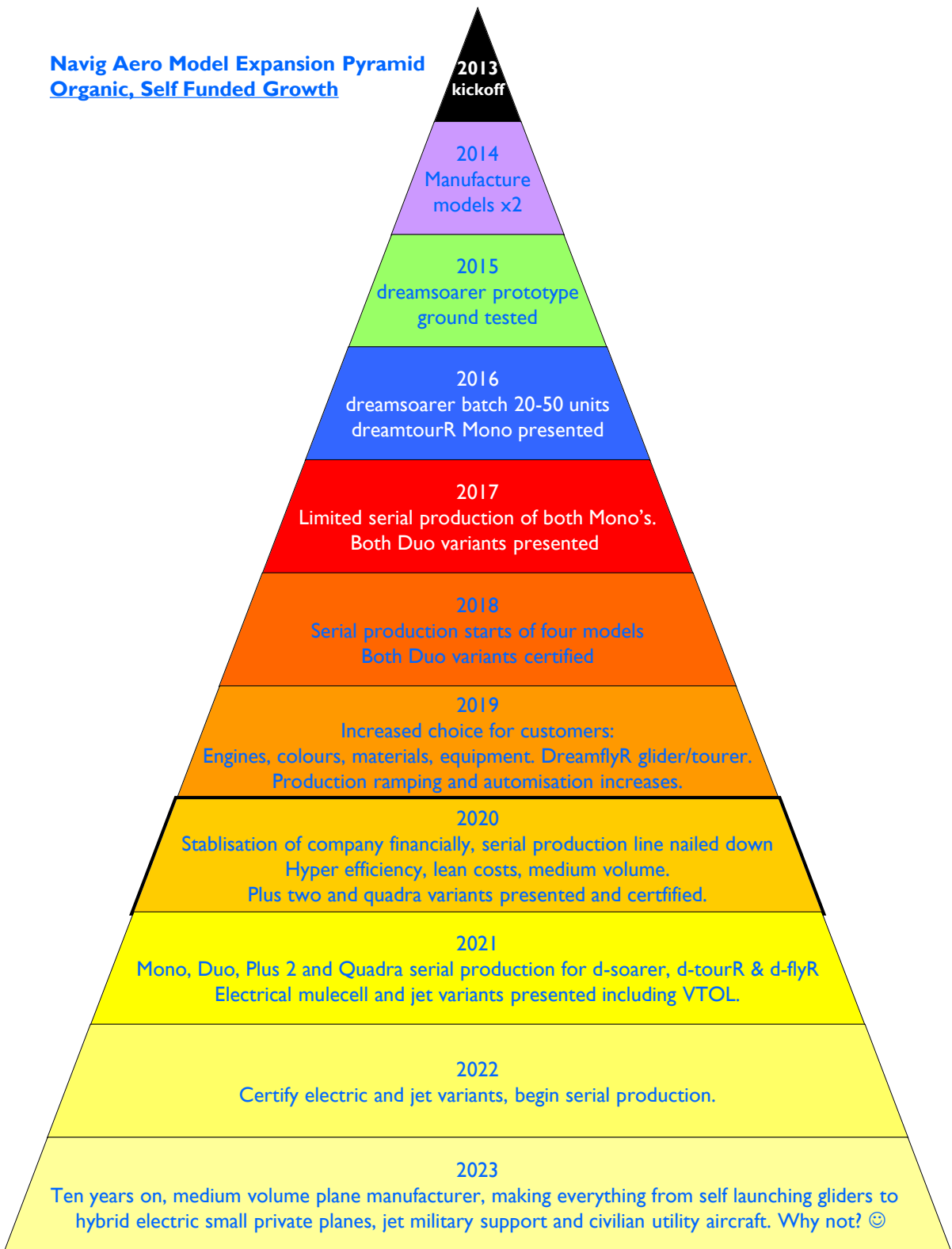
Despite the commonality, producing these planes will take Navig Aero from "high tech shed fun project" to serious medium volume plane manufacturer. For example the dreamtourR Duo, is something that should generate worldwide interest and demand.

Who would not want an easy to land, fast, aerobatic two seater plane with very high cruise economy, low price and attractive looks. That has a big potential.

There are even more possible derivatives – but the diagram below could take a decade.



Navig Aero Model Expansion Pyramid
Organic, Self Funded Growth



Small steps can lead to big steps, as long as realistic robust decision making is made at each stage.
Easy to make a pyramid, nice to dream, hard to accomplish! Just completing 2014 is the real issue.





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From 1:10 scale concept to 1:1 manufacture-model

Navig Aero dreamsoarer Project Introduction

Description

The dreamsoarer build technique is suitable for micro, small and small-medium aeroplane building. The technique develops five key advantages which combine to create a commercially attractive aeroplane; best of breed performance with an accessible price.

1. Safest*
2. Best flying*
3. Best structurally*
4. Accessible cost
5. Most attractive ownership*

(* in weight class)

The first proposed is in the ultralight class, weighing around 115kg.

The dreamsoarer MONO is a single seater self launching SSDR sailplane.

Manufacturing Summary

Manufacturing a commercially successful product in northern Europe, i.e. economically with a margin, presents a massive challenge. Add in; *low volume, mature competitors in a discerning and depressed market* and any new product has a mountain to climb.

However, with the right approach and preparation, mountains are climbed.

The dreamsoarer technique creates a significant performance and cost advantage versus contemporary products to enable sophisticated yet realistic build cost. This creates an attractive ownership proposition appealing to a diverse and global customer matrix.

Business Summary

This project has a structured sequence of modest tranches/buy-ins to refine design, build a full size prototype, all leading to a batch then series production of a single seater self launching sailplane. To commit to the first 50 unit batch run, twenty presales are required using the single prototype as sales hook.

The first big step is 12 months funding for a 1:1 manufacture-models x2 : £20,000.

Widening the Product Range

Successful manufacturing ventures usually face pressure to increase their product range. Something to consider is this may cannibalise existing sales rather than create conquest sales. However, certification of the dreamtourR (sports tourer) and dreamsoarer is a priority, simply because a single seater aircraft has limited appeal, most people want to share the experience.



Lean Production, Lean Everything

This document is packed with "good news", predicting outstanding performance, product integrity, lowest price and even profitability at low volume. So how can that idealistic combination really be achieved where others have failed?

The route to this ideal product scenario is "lean" everything. Lean marketing, sales and finance has been made possible by the internet. Customer and maker are now connected directly. Orders, payments etc, are now semi-automated. This leaves manufacturing a lean product. Lean production is a well versed cliché in manufacturing circles but how is it applied in the dreamsoarer?

(some confidential text removed)

Lean Production of Wings

Wing construction is traditionally laborious, intricate and expensive.

(some confidential text removed)

Cheap parts yet best materials, cheap assembly yet brilliant result. LEAN.

Moderating Tooling Amortisation

Like every manufacturing project, this is subject to amortisation, namely any tooling preparation costs must be paid off according to the production numbers and time limit of that production.

This demands an up front investment and a relative leap of faith from the investor that a sales volume will be reached. However, given there is very little tooling on this product, the tool amortisation "ball and chain" is moderately sized, and conceivably controlled and paid by a run of twenty units. Every unit thereafter, earns a percentage profit.

There is scope for state assistance, toward the prototype builds and the purchase of machinery, though this is notoriously time consuming to procure and maintain.

Lean Product Development

Under the scheme prosed herein, we will develop a manufacture-model prototype for £20,000 – cost that as a normal industrial project and it will come to a minimum of £500,000. However I am willing to work full time for pocket money for a year on this. I need to find investor-collaborators willing to chip in their brains, energy a few thousand pounds and four weekends per year. We can do it!



Direct Competitor Analysis

<http://www.pipistrel.si/plane/panthera/overview>

Pipistrel make conventional self powered gliders and private planes, i.e. have a product portfolio similar to that proposed herein for Navig Aero Ltd.

They are established, make beautiful innovative planes for decent prices.

This looks like a competent and tough competitor, with nice presentation.

Given their established production capacity and base in Slovenia, only a more radical design departure can derive a successful competitor. Trying to emulate their products with a conventional design combined with higher UK base costs can only lead to commercial failure.

Many competitors are based in central and eastern Europe and enjoy highly competent low cost workforce and sites. e.g. the Alatus-M self launching ultralight carbon fibre glider built in the Ukraine. A superb SSDR 112kg competitor. <http://www.flylight.co.uk/gliding/index.htm>

A deeper analysis of competitors will be carried out in the first phase by a team member. We can be fairly confident however that there is nothing similar to match the dreamsoarer's unique combination of qualities, or at least there is nothing else so good as to render 50 dreamsoarer Mono sales wholly improbable.

dreamsoarer USPs

- Economic cruise, ExSTOL.
- Pilot Safety cell, fully triangulated airframe, full size and soft landing gear.
- Excellent sailing and thermalling, aerobatic capability, polymorphic wings.
- New economical and high strength wing and airframe production.
- €30,000 ticket price.
- Uninterrupted view, fantastic looking, <115kg.



Sailplane ownership

The purchase of a sailplane is in direct competition for disposable income with many other product spheres from; slate based snooker tables, conservatories, to yachts, cruises and even plastic surgery and of course direct competitors, some of whom we just discussed.

The dreamsoarer is a "product" for sale at a price that most silver foxes and professionals can afford to buy, brand new. It is a non-essential purely hedonistic device. There is very little out there that can compete with the joy that sailing a plane can bring. However like many hedonistic products, buying a sailplane is a commitment that comes with a long list of ownership negative baggage.

- advancing personal sailing skills
- storage
- transport
- insurance
- launching arrangements
- costs and fees
- personal risk
- setup
- maintenance
- engine overhauls
- weather dependency

Considering the list above, it is little wonder people drift away from hobby flying. Disposable income is hard to come by and will be spent on something that really provides quality of life not ownership headaches.

It is these disadvantages, and the minimisation of them that can make or break a buying decision for a flying enthusiast. While baggage such as weather dependency and personal skill level is unavoidable, the rest of the list can be minimised.

This is what the dreamsoarer must achieve to become commercially successful, ***practicality of ownership and desirability in equal measure.***

Thankfully the dreamsoarer will be easy to live with; affordable, safer, beautiful, self launching aerobatic sailplane with high performance. It offers something to match the highly competent Central European conventional competitors.



dreamtourR



dreamsoarer

Profitability With Low Volume

With harsh market conditions and increasing sophistication of production in cheap labour markets, manufacturing a globally consumed product in the UK is a tremendous economic battle. The main manufacturing challenge throughout will be to maintain quality, efficiency and profitability.

It is tough to predict sales volumes, but certainly less than 10 sales per year is unsustainable. With one flying prototype it might be realistic to first procure a block of sales from interested prospects. A minimum of twenty sales would be necessary to kick start batch production without financial risk. The market volume is presently underdeveloped for the simple reason the right product has yet to be created. Let us hope, if we build it, they will come.

A short note on carbon fibre and kevlar; expensive exotic materials offer considerable buyer kudos, thereby raising perceived product sophistication and allowing higher ticket pricing. Specific material choices can be explored later.

Example Bulgarian competitor:
<http://www.aeroplanesdar.com/>

There remains the alternative opportunity to develop a successful design, and then licence it to existing manufacturers, rather than manufacture it in-house.

Marketing

Sometimes marketing is about the product, sometimes the product is about the marketing, in this case it is very much the former due to the functional nature of the plane. High performance, competitor beating stats and aesthetics can be leveraged whenever and wherever information is shared with sales prospects.

The main marketing challenge will be to gain worldwide product exposure and the trust of the market within a short space of time from an unknown brand.

Fortunately the internet has brought producer and global consumer into sharp focus worldwide, especially for niche products such as the dreamsoarer. Lean direct marketing and sales is the simplest and most cost effective route.

The number one sales tool to invest in is ***a beautifully slick website*** and secondly well presented infomercials on ***YouTube et al.***

Good use of press releases, videos, publically accessible owners forum can all raise the profile of the dreamsoarer without recourse to actual cost outlay marketing. Visits to shows, forum and blogg presence and personal presentations to European clubs, hire companies can be cost effective. "Timeshare" ownership should be encouraged between club members.



Making Aeroplanes

We are aiming to profitably manufacture small numbers of a self launching sailplane called the Dreamsoarer Mono.

This plan takes us from today's small scale concept only prototype to medium volume small plane manufacturer in a decade.

Measured patience in prototype development will lead to a truly optimal design and product result and reduce later costly redesign. However designing something great and producing it are two very related yet different achievements, one is creative, the other requires extreme vigilance and control.

We are aiming to make planes in what will be little more than a high technology shed, using just one or two people.

As the designer I am 100% certain this aeroplane will fly well and should find sufficient buyers. What remains our primary challenge from day one to the end of production will be to maintain absolute production quality, even on a bank holiday Friday afternoon at 3.30pm. There can be never be a single bad part, wrong part, short part, long part, bad joint or bad assembly, **ever**.

That demand must be combined with a realistic constrained financial environment. If there are bad planes, customers who put their faith in us and gave us their hard earned disposable income will be killed, simple as that.

Checking and retaining @100% quality in **everything, always, vigorously and whilst within budget**, is a tough ask. To run a small manufacturing operation sounds harmless enough but quickly becomes a "monster" project :

Logistics, labour issues, storage, problem customers, problem suppliers, problem employees, problem payers, break ins and security, quality problems, warranty issues, unexpected events, project delays. Everything surrounding the running of even a small manufacturing enterprise is considerable.

The reasons for frequent manufacturing failures are usually either making products that people do not want or being consumed by production inadequacies, e.g. circulatory warranty issues or production inefficiency. These problems are typically caused by a rushed initial design phase.

The Dream family of small aircraft is a product people will want, while being truly production friendly.

(some confidential text removed) from day one, production variances, tolerances and costs are screwed down. The dreamsoarer costs less than most rivals and performs better most rivals. Priced around £25,000 it makes an affordable purchase of a fantastically desirable and highly functional object.

dreamtour 



dreamsoarer 

dreamsoarer 2014 : From 2013's 1:10 Scale To 1:1 Manufacture reality £20K

While it is fun to plan the big picture, 2014 is the most important year of all, despite the modest £20,000 outlay.

2014 will create the base design and detail of the dreamsoarer and then prove it theoretically as a flying device. 2014 is split into two phases, **feasibility** and **proof of concept**.

Assuming the first *feasibility* phase confirms a convincing concept, we can then proceed to *proof of concept* in the latter half of the year with a 1:1 model built and tested using generic modelled and standard supplier parts.

Feasibility £10k

This determines the shape and limits of the project, the second design loop where this prospectus details the first design loop. This phase deals with establishing project fundamentals, costs in production, aerofoil selection, basic strength calculations, aeroplane control surfaces and mechanisms, materials, suppliers main parts.

All the rudimentary elements such as weights, sizes, thicknesses, spatial packaging and relationships of the project are determined and manufacturing questions answered.

Proof of Concept £10k

The proof of concept phase goes much deeper and seeks to nail down micro detailing. Proof of concept goes way beyond just building a 1:1 manufacture-model. This is where quotations and consultations are sought from experts regarding aspects of the plane design. Attention switches from *manufacture / form / airframe* toward *product / usage / maintenance*. Defining practical details like control cable routing and stabilisation of control surfaces, choosing parts and suppliers.

The concept then starts to become real, real models, real engines, real power delivery issues, real components mixed with plastic model dummies. While all paper designs "work" we can expect some issues arriving, needed to be ironed out while the scale model is commissioned.

Long term dreaming and future-proofing

Whilst nailing details even in 2014, we should keep in mind everything this plane family can be and incorporate that for the future. Right now these ideas seem a little far fetched, but at least thinking about them can avoid production restructuring later.

Future-proofing:

- Personal configuration, avionics, colours, materials, decals.
- Upgrade components e.g. carbon fibre or trim.
- Water, ice, snow landing variants.
- Utility aircraft with structural fixing points.
- Jet & electric mounting assembly packaging.
- Coast guard, traffic surveillance, VTOL, Medevac, coastal / ocean /land surveillance and surveying, crop spraying, military utilities, rescue, taxi duty, postal, medical, repair/service, veterinary.

State and local authorities in some districts and countries will be the main customers. Aircraft are not just playthings, so we should concentrate on building a workhorse aircraft platform. A plane that can become a benchmark in utility and adaptability, the way the dreamsoarer family et al is constructed, makes this possible.





E Summary

Business summary

Investment summary

Business Summary

Despite weighing under 118kg, the dreamsoarer is a high performance sailplane and aircraft that can perform a number of roles; hobby plane, sailplane, rental plane, observation plane. Self launched, whenever and almost wherever thanks to extreme STOL under 15 meters.

For an unproven scale-model-concept the dreamsoarer lays down some fine boasts; **best flying, best landing, highest safety, best running costs, best structure.**

When all the bluster of product design and judgement is done, the business survives or fails according to sales. Finding customers that will pay for their own dreamsoarer. Customer willing to forego slick marketing and established big names and literally risk their neck on an unknown brand and unproven product. And we need twenty people like that to justify production kick off.

So is this pie in the sky or profitable niche? This prospectus is created to convince the reader of the latter. It forecasts there will be modest yet sustained demand for this product, ideally around 50 units p.a. or one per week, with a required kick off of 20 presales.

The potential buyer is faced with several key decisions,

- Do I want it? Exceptional performance and aesthetics say yes.
- Can I afford to buy it? With or without finance, price is accessible.
- Can I afford to run it? Lowest insurance and lowest fuel usage mean yes.

To invest you must also be convinced that:

- The design is both realistic and high performance.
- Production cost can be held under £10,000.
- The aircraft can be built safely and weigh less than 115kg.
- People will put their hand in their pockets and buy this product.

If you are also convinced the above points are realistic, it is time to discuss your participation in the project.

With a reasonable demand and concentrated efforts on high tech yet economical production methods, there is scope to create a small manufacturing business. A lean direct marketing effort and equally lean web configured sales process complements the product to create an efficient business model.

Let us not be pessimistic about how to secure those first 20 presales; flying clubs, military trainers, hire firms, plane collectors will all be interested given the price and an opportunity to fly the sales demonstrator themselves. The dreamsoarer is a genuine ownership proposition; desirable and affordable. Question : *Do you think the dreamsoarer Mono can be built and sold for £25,000?*

I do.

Ben Collins Nov 21st 2013.



Investment Summary

The project is currently valued at £100,000 7th December 2013.

For sale are £20,000 of shares i.e. 20% i.e 20 shares at £1000 per share.

We also anticipate some modest grant funding to assist with full scale prototype costs during 2014, though this is not essential. Any grant contribution will be added to the development "pot" to improve the quality of the manufacture-model.

The target during 2014 is to develop from the current scale concept models to static manufacture-models and a fully resolved drawing suite. This will constitute proof of concept.

Investors are expected to contribute some time and energy in a discipline they feel most comfortable with, such as; market analysis, pilot ergonomics, avionics, electrical systems, aerodynamics, hydraulic systems, legislation, funding, finance, administration, secretary, treasurer, data handling, calculations.

Investors are expected to attend the majority of monthly webinars and quarterly design and management workshops and provide their input.

If the year is executed successfully, then by the end of 2014 the single goal is to have increased the project valuation from £100,000 to £200,00 or more.

In 2015 the aim is to build and ground test a full prototype including establishing supplier relationships. .

This document sets out both the long term plan and vision, as well as funding for 2014-2015. However, while we can plan sales, forecasts, margins and factory costs, that will only be fantasizing until we reach gate 2014. Gate 2014 is a manufacture model that where we know all the design details and costs.

Something we can sit in, touch, inspire and call "ours".

Shares will be apportioned equally according to demand and also ability / willingness to join a team, on the 7th Dec 2013 5pm in Duxford Lodge, up to a value of £20,000 / 20%. Minimum investment £1,000 (1 share).

For those with deeper pockets, there will be plenty of opportunity for deeper investment and more shares in 2015 and probably 2016.

- Early investors have first choice on later investment
- Early investment can be as little as £1,000 or even less if you are part of a group
- You can sell your share(s) at any time, but must offer the share to other existing shareholders as first refusal.
- You can sell your options in the investment queue for later years, but must offer the share to other existing shareholders first refusal.
- All shares are subject to normal limited company incorporation rules in law.
- Finally a word of warning, this could be a rocky ride, with hiccups and delays, we will be going into the unknown, consider this as adventure as much as an investment.

Let's forge a dream into reality and fly it worldwide.

Join the adventure!

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