9th May 2017

hardman&co

Full EIS Report

International Ambulances Ltd

Gold Due Diligence for GrowthInvest

International Ambulances is designing and building a new ambulance which will be the first that is designed specifically for this application.

	Positives	Issues
Why Invest?	**Strategy:** The ambulance is designed to have several advantages relative to existing designs, some of which will be hard for competitors to match.	**Early stage:** The company is currently producing its first prototype. There are further development risks.
The Management	**Team:** An experienced management team has been brought in to progress the company further.	**Company size:** There are no staff other than the senior management. Further recruitment will be required, including senior operating staff.

Nuts & Bolts

- **Share Issue:** Open offer issue for 11,765 shares (12% of enlarged equity) at £85 per share i.e. raising £1.0m.
- **Offer**: Offer is currently ongoing.
- **Exit Strategy:** No specific timeline, but if the management is successful then there will be several options.

Specific Issues

- **Design targets**: The aim is for the new ambulance to have much lower operating costs than existing products. These cannot be evidenced yet. The pricing strategy depends on achieving most of these savings.
- **Related party licensing**: The engineering technology is owned by related companies, which will receive license payments on each vehicle.

Company Information

Pre-money valuation	£7.0m
Target fundraise	£1.0m
Post money valuation	£8.0m

Risks

- **Timing:** There is some inevitable uncertainty about the timing of the first production vehicles. The timescale set by the company is feasible but still ambitious. Delays may affect sales and cash flows.
- **Finance:** The company intends to have two further fund raisings after the current round, after which they expect to be self financing. There is some slack in their forecasts and the company could achieve this with much lower sales than planned.

Analyst

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Factsheet

International Ambulances

Product name	International Ambulances Ltd
Tax eligibility	EIS
Type of product	Single company equity issue
Term	N/A
Sectors	Automobiles & Parts
Diversification	
Number of companies	1
(Expected) Gini coefficient	1

Fees	Amount	Paid by
	None	

Advisor fee facilitation	Yes (via GrowthInvest)
Advisor fee amounts	As agreed with investor
HMRC approved fund?	No
HMRC Advance Assurance granted	Yes
Reporting	At least three times a year
Minimum investment	£10,000
Funds raised as of 07/05/2017	£200,000
Fundraising target	£1,000,000
Closing date(s)	31/05/2017
Expected exit method	Not determined

Source: International Ambulances, Hardman & Co research

Offering

International Ambulances (IA) is making an offer of shares in a single company which will produce a new custom designed ambulance. The open offer is for 11,765 shares in the company at £85 each, looking to raise £1,000,000 in total with a pre-money valuation of £7.0m.

There is no specific exit plan or timetable: management sensibly believe that by building a successful company they will then have several options.

Summary of Risk Areas

Note: In addition to the specific ones commented on below there are generic risks from investing in EIS or unquoted companies. Comments on relative risk refer to other EIS investments and not to wider investments.

Company

Products

IA is producing a new ambulance, which for the first time in the sector will be designed as such from the outset. There are several specific improvements that are targeted, including improved passenger experience, lower running costs and medical benefits. Although these are backed by research, the first prototype is currently being built so some of the benefits are, as yet, unproven.

Operations

Development is being undertaken in conjunction with Bevan Davidson International, a related company. As yet IA has no operating infrastructure, but is considering three locations for its manufacturing plant, which it aims to have operational in the first half of 2018.

Marketing

IA has done its market research and estimates that there are around 1200 new emergency ambulances purchased in the UK each year. The key market is the NHS Ambulance Trusts, with 13 across the UK. Discussions have already been opened with one Trust, with good interest, and an approach is being made to a second. Discussions are also underway with a leasing company which could be a significant buyer. Little can be determined until the ambulance is ready for them to trial.

Finances

After the current funding round of £1m, IA estimates that it will need two further rounds to become self-financing. The current round is to fund the completion of the first prototype. The business plan proposes raising £1m in summer 2017, to fund a second prototype and road certification. The final round will be towards the end of 2017, to fund the preparation of the production facilities and first production vehicles.

Management

Executive Team

The founder, Phil Bevan, has brought in two new Directors to strengthen the commercial experience of the team. The new MD has a strong background in vehicle engineering with Ford, while the other has broad Board experience. As yet, there are no staff and making the right appointments into several key roles will, as usual, be vital.

Non-executives

As yet there are no non-executive directors.

Regulation

Company

HMRC Advance Assurance has been received.

Risk Analysis / Commentary

The concept of International Ambulances is a simple one – by building an ambulance that is designed as such from the outset it believes it can produce something better than the existing market, which is based on modifying light good vehicles. They have tapped into some research work that suggests they can bring medical as well as engineering benefits to patients and paramedics.

There is some impressive engineering technology which should allow significant operating cost improvements over existing vehicles. We do note that the team have produced some impressive performance figures for the technology, however these have not yet been verified by a third party.

Currently, the first prototype is being built. The IA team believe that they can produce a vehicle that has much improved operating costs relative to existing vehicles. While they do not need to reach all these to make a good case to purchasers, failure to do so may limit the opportunity. A greater risk may be delays in their timescale.

As a new company, the corporate governance that investors would expect has only recently been put in place. The new Directors have considerable experience and an established track record. We note that the engineering technology is not owned by IA. There is a related party transaction, with other companies owned by Phil Bevan (the majority shareholder in IA) receiving substantial licensing payments for each vehicle produced. The IA team believe the cost/benefit trade off is appropriate.

Overall the strategy of the business looks good: it is ambitious, but not unreasonably so. The main risks relate to the early stage that the project is at. The sales targets suggest a high rate of contract wins, but the company can still be successful without reaching its targets.

Company Analysis

Product Line

Over the last year, International Ambulances (IA) has created a new, custom designed Accident & Emergency (A&E) ambulance, ACESO. With most existing ambulances being based on modified light goods vehicles, the IA team believe that they can create something that will provide a significantly improved customer experience.

The company will also use some interesting technology, particularly torque multiplication in the transmission which it will license. The team believe that when combined with other design aspects that they can significantly lower operating costs relative to existing vehicles. If they can achieve improved reliability and durability then this should also allow longer lease periods too. The initial cost for the ambulance will be higher, but the aim is for the overall costs to the user to be similar to or lower than existing vehicles, though this is as yet unproven.

The company is currently building the first prototype, but has already had interest from potential purchasers. Initially, it will focus on the UK market, though there is clear international potential.

Brief Product Analysis

Design & Technology

The origins of the project are in a bad experience that the creator of the project, Phil Bevan, had when being transported in the back of an ambulance. As he was somewhat thrown around on Norfolk roads he believed that he could design something better.

A lot of research work had already been done on this, with the Helen Hamlyn Centre for Design having run a multi-year project supported by the NHS looking into improving ambulance design. Although funding for this ceased in 2015, the design of the ACESO is intended to address the key shortcomings that the project identified. IA has also sourced a team of medical advisors to provide further input.

Prototype ACESO

Source: International Ambulances

While the exterior of the ACESO shows a significant departure from existing ambulances, IA intends to base their marketing case on better all-round performance. In particular, they are working on improvements in the following main areas:

- patient experience;
- reduced operating costs;
- medical benefits.

Existing ambulances are based on light goods vehicles. In most cases, the cab and chassis from an existing design are used with a new body added on the back to incorporate the ambulance element. The most common bases used in recent years for new vehicles are Mercedes, Renault or Peugeot vans.

Patient Experience

The improved patient experience will include improved vehicle access and better ride quality. The former will come from a rear that can be lowered to allow smooth access into the interior. The rear door will open upwards too, rather than the split sideways-opening doors that are standard, with improvements in ease of access. This is corroborated by the Helen Hamlyn research.

In light good vehicles, the smoothness of the ride is a lower priority than for passenger vehicles. Some existing ambulances have been modified with better

suspension, but most use the standard equipment. The ACESO will use active air suspension, which should give a much smoother ride. The twin rear axles will use rocker-bogies with each side operating independently, which should also help with the ride quality.

The patient trolley will be secured centrally, rather than being to one side which is standard in the industry. Independent testing conducted by the Helen Hamlyn Centre testing produced very positive feedback from both patients and paramedics.

Efficiency

The reduced operating costs derive mostly from improving the fuel economics. The engine that will be used is an existing 6.6L V6 Duramax from General Motors that is usually used in heavier trucks. This is a well established design, reliable and, under the targeted loads, capable of lasting for up to 400,000 miles. It will be dual fuel, capablae of using diesel together with natural gas, the latter usually being much cheaper than the former.

Overall, at a target gross vehicle weight of 3.5 tonnes, the ACESO will be lighter than existing ambulances which would also help to improve economy.

The main benefit will come from the use of proprietary torque multiplication technology. In essence, this is a sophisticated gear box that more or less continuously adjusts the gear ratio to maximise efficiency. In this case, this will allow the engine to run at low revs, which will maximise economy. As a diesel engine, it will also still provide high torque to allow good acceleration.

The aim is to provide a minimum fuel economy of 34mpg, though IA management aspire to an even better figure. IA's research estimates that a typical A&E Ambulance does 40-45,000 miles per annum and existing vehicles get around 16mpg. If IA delivers as promised then they should indeed provide significant cost savings.

It should be noted that so far this technology has only been used in Trident Sports Cars. While the manufacturer has produced startling economy figures for these vehicles (70mpg at 70mph), these have not been independently verified. In particular, they have not yet been proven over the sort of urban cycle than most ambulances will experience. With the prototype still to be finished, the actual economy may be less than targeted.

Downtime for servicing is also a subject of IA's targets, where they believe that they can improve on existing operations. Some of this is related to protocols that have not been re-examined for some considerable time, and it may be that a revision could help existing providers too.

It should be noted that reducing operating costs is a key part of the IA offering, as the ACESO will cost more than existing ambulances. The aim is for the new ambulance to have a longer lifespan too. The IA team believes that in aggregate it can give a lower lifetime cost than the competition. For some components, such as the engine, a longer lifespan is realistic, but cannot be demonstrated for the whole vehicle yet.

Medical Benefits

Within the NHS there is an ongoing review of how ambulances are used. In 2016, according to a National Audit Office report, 48% of patients that were dropped off at a hospital by an ambulance were not admitted. This is almost 2 million patients.

The report estimated a cost of around £200 per patient, so the NHS could potentially make significant savings by reducing these numbers. The same report highlighted that around 500,000 'ambulance hours' are lost due to delays in processing admittances at A&E departments due to overcrowding.

The NHS would like to deal with more patients without bringing them to a hospital unnecessarily and are using a two-pronged approach: 'hear and treat', where patients are dealt with over the phone; and 'see and treat' where they are discharged via the ambulance.

One of the approaches that are being adopted in the design is to focus on handling minor physical injuries in the ambulance. This will mean equipping ACESO with the appropriate facilities, including ultrasound to assess internal bleeding and potential fractures, and point of care assessment capabilities.

The Helen Hamlyn research also identified other improvements in what equipment is included and how it is accessed. The latter includes packs that are robust, easily accessed in the ambulance but also removable and portable for external treatment. In their testing, this improved treatment times compared to existing designs, in some cases significantly. IA have not used the Helen Hamlyn design directly, but have adopted many of the ideas they generated.

As a new design, ACESO can have better electrical integration than existing vehicles. This includes a modern communication system, with data communication direct to the hospital direct from monitors within the ambulance.

The new body design is moulded and will have rounded corners. This should make the vehicle easier to clean than normal 'box' corners, which should lead to improved infection control.

Competition

As indicated above, current ambulances are based on the chassis/cab of existing light good vehicles, with the adaption being done by body-modifier companies. If the IA approach is correct then the improvements that they are suggesting will be hard for them to match.

The advantage on the medical benefits side is probably easier for them to match. Adding further equipment will be feasible, albeit for some it may take some time to make the design alterations. Some of the items IA cite are already appearing in ambulances elsewhere. The IA team are aware that staying at the forefront on this side of things will be an on-going task and require continuing research and investment.

Issues

The main issue is that until the prototype is completed and evaluated many of the projected improvements cannot be evidenced yet. The timescale set out is plausible, but still ambitious and is discussed further under **Financial Projections**.

All this innovation has a cost and it is expected that the ACESO will be more expensive to buy than existing products, but that this will be more than offset by the lower operating costs and a longer lifespan. While leasing can result in no net increase in annual payments for the Trusts, the higher upfront cost may be an issue.

To allow it to manufacture as planned, IA will need to settle on a single design that is acceptable to all purchasers in the UK market. Failure to do so may lead to fewer opportunities, though there is a desire within the NHS for a standard ambulance to improve operating flexibility.

Patents & IP

IA will not own the proprietary technology that is being included in the ambulance, in particular, the torque multiplication technology. The rights to these will remain with Trident Torque Multiplication Technologies Ltd and Bevan Davidson International Limited. The former is mostly owned by Phil Bevan, the majority shareholder in IA and latter wholly owned by him.

The royalty payments will be £15,000 per ambulance, or around 6-7% of the expected price. The transmission unit will cost around £500. The IA team believe that the improvements in operating costs will justify the amount of the payment payments. The contract will last for 15 years.

Hardman & Co View on Products

The combination of innovative technology and academic research suggest that the ACESO has the potential to be significantly better than the existing products in the market. Given the stage of development is difficult to be more definitive, and there are inevitable risks associated with that.

There are also some risks around market acceptance – as a new vehicle with significant performance differences, it is not clear how much testing the Trusts will require before accepting the vehicle.

Development & Manufacture

The design and development of ACESO has been led by Phil Bevan, with the construction of the prototype being done by Bevan Davidson International on a fixed price contract. Although the company does not have existing operations, it has been able to source experienced staff in its location in East Anglia.

The current funding round of £1m is to fund the completion of the prototype, with completion targeted in June.

This will be followed by a period of road testing, including the build of a second prototype. The target is for this to be completed by the end of October. This will allow time for minor adjustments, but if major changes require a second testing cycle then this could lead to a 3-4 month delay. The IA team believe they can avoid this by over-engineering from the outset.

At the time of writing, IA management are assessing locations for the manufacturing plant, with the North East, Norfolk and South Wales being the options. Each have suitable locations and staff availability, but the financial considerations, particularly grants, are being assessed. They have already started to identify senior people for this stage.

The current business plan aims to start work on preparing the facility after the testing is finished in October. The equipment required is mostly standard commercial items, with the only specialist pieces being the moulds and jigs for the exterior and interior, which will have been prepared by Bevan Davidson for the prototypes.

The construction facility will be for small scale production, which is practical for up to 1500/2000 units a year. This is much more than IA's five year target.

Management believe that they will have the first finished ACESOs coming off the production line in 3-6 months from the receipt of funding for this part of the project. The target is to be able to produce 2 vehicles per day at 9-12 months from funding. This will be done from a single shift, with increases beyond that requiring the addition of further shifts up to three rather than investment in equipment.

Marketing

IA will be initially focussed on the domestic UK market, in particular, the NHS. They have done market research and, over the last four years, an average of around 1,200 new A&E ambulances have been purchased each year.

Within the NHS, services are split across NHS Ambulance Trusts with ten covering England and separate ones for Wales, Scotland and Northern Ireland. For new ambulances they tend to have a five year procurement cycle. Each has a tender process, after which a supply agreement is put in place for the following five years, usually with a single supplier, with existing vehicles being replaced on a rolling basis.

IA has already been in contact with one Ambulance Trust with regards to it becoming a development partner for the ACESO. Initial feedback has been positive and the Trust is willing to support IA during the development of the prototype.

Each Trust will have to get comfortable with the new vehicle and it seems likely that this will involve some testing. Trusts do run their own testing vehicles, and it would seem likely that IA will get several orders for a small number of vehicles early on while they evaluate the new ambulance. Further success will depend on the results of those tests.

Part of the design challenge for IA includes getting a standard design that is acceptable to all the Trusts. Management are optimistic they will get cooperation from Trusts to allow them to do that, but failure to do so may reduce the prospective market.

Future Options

Although the company is rightly focussed on getting the vehicle to production and on initial sales, it does have some future options to develop further.

The first of these is international. They estimate the global ambulance market as at least 60,000 vehicles per annum. While there will be cost in adapting to local regulations, both road and medical, there is clear potential if they are as successful in the UK as they expect.

They also see potential to widen the product range in related areas. These include military ambulances, other emergency response vehicles and a mobile operating theatre.

Overall there is plenty of potential for future developments, but these are unlikely to have much influence within the timescale of the current business plan.

Financial Projections

The projections provided by the company are given in the table below.

International Ambulances financial projections						
	£	2017	2018	2019	2020	2021
Estimated vehicle sales		5	30	85	255	430
Sales revenue		625,000	6,875,000	21,250,000	57,812,500	100,937,500
Costs	Build costs	-1,522,463	-4,704,300	-12,983,913	-45,994,096	-79,140,321
	Gross margin	-897,463	2,170,700	8,266,088	11,818,404	21,797,179
	Development	-1,802,500	-50,004	-50,004	-116,671	-183,337
	Overheads	-508,846	-1,773,365	-1,831,595	-1,751,595	-1,751,595
EBITDA		-3,208,808	347,331	6,384,489	9,950,139	19,862,247
Profit before tax		-3,275,275	69,784	6,101,129	9,661,019	19,567,367
Projected cash						
Fundraisings		5,500,000				
Year end cash balance		1,512,986	1,390,259	6,881,166	12,976,939	26,377,930

Source: company, Hardman & Co Research

Investors should note the following points when assessing these.

Generic disclaimer: *Generally, management projections, particularly for revenue, are at the optimistic end of likely outcomes. The planning fallacy can significantly affect timescales, and even those that are successful usually have delays somewhere that adversely affect revenue progress or increase costs.*

Specific Comments

The company expects to have three fundraisings in the current business plan:

- Current fund raise of £1m to fund the prototype development;
- Further fundraise of £1m around July 2017 to fund the road testing and second prototype;
- Final fundraise of £3.5m in the final quarter of 2017 to fund the production facility.

The first two will be entirely equity. The final fundraise may include some debt if IA can manage to get some presales. Management believe that the company will be self financing beyond that.

With IA having been incorporated in October 2016 there are no existing accounts yet.

Hardman & Co has been supplied with a detailed financial model covering the period to the end of 2021. We would make the following observations:

- **Timing**: As indicated earlier, the timing for development is both plausible and ambitious. Delays, such as in the road testing or in getting production going, would set their timetable back with commensurate delays in sales and revenues.

- **Initial sales**: It is possible that initial sales could be better than expected if the Trusts buy evaluation vehicles. IA has also been in discussion with an ambulance leasing company which may buy some trial vehicles and possibly be a significant long term buyer.
- **Contract sales**: The sales target for 2021 is 430 vehicles. Given that around half the NHS Trusts will have been through a procurement cycle in this period that is equivalent to winning around two-thirds to three-quarters of these tenders. We note in particular that delays of six months in development may impact on whether there will have been enough testing time to include the ACESO in the upcoming tender rounds, though there have been indications of flexibility if initial trials go well enough.
- **Pricing**: The assumed higher pricing is dependent on the ACESO achieving lower running costs. Management believe that hitting their design targets would allow a slightly higher price than in the model, so there is some slack. Nevertheless, if the running cost benefits are less than planned then IA may have to reduce the price to compensate.
- **Salaries**: The business plan includes a salary of £130,00 for the MD and other commercial salaries for the Financial Director and Head of Engineering with equity elements as listed below. It would be more normal in a start-up for the salaries to be lower, perhaps with a greater equity element. IA believe that the MD's prior experience is suitable justification.
- **Working Capital**: IA plans to have materials for at least ten vehicles in stock. We note that if they reach their sales targets then that is 6-7 days of production and it seems likely that working capital requirements will rise if the company is successful.
- **Debt**: There are no borrowings in the projections.

We note that although the sales plan is ambitious, the plans suggests the company could be self financing with much lower vehicle sales than those targeted.

Ownership

The shareholder list currently has 15 shareholders listed. There are currently 82,910 shares in issue, with that largest shareholder Phil Bevan at 77%. The other two members of the senior management own almost 1% between them.

There will be options on 1,000 shares granted to each of Ben Butlin and Rob Shepherd on completion of the current funding round. The strike price for Ben Butlin will equal to the issue price of the offer, for Rob Shepherd it will be that of the previous fundraise, which was done prior to work on the prototype and getting interest from the market, and was at £50 per share. The lower price for the latter options reflects his work since the fundraise, for which he has not received a salary.

When the next round is completed there will be options over another 1,000 shares granted to each of them. This would increase the equity by 4.3% of the total shares in issue after the completion of this funding round.

The company intends to issue shareholder updates at least three times per year.

Exits

There is no specific exit timeline or plan, but the belief, reasonably, is that if the company is successful then there will be several options. If they get close to their business plan then an IPO may be an option, or it may be attractive to a buyer.

The company has also indicated that, if still private after 3 years, it will look to implement a share trading facility. A secondary market in unlisted shares is being worked on by several people, but as yet has generated little liquidity. The value of this option, as usual, is also dependent on IA's success.

Given the early stage of development, investors will need to treat this as a long term investment.

Management

To date, the company has been run by Phil Bevan. His skills appear to be stronger in engineering than business and Ben Butlin and Rob Shepherd have been brought in to provide professional management. We note that several of Phil Bevan's businesses have been late with Companies House filings. The new Directors are aware of this and intend to make sure that IA is run in a more compliant manner.

Formally, Phil Bevan is the only current Director, with the other two to be appointed soon.

People

Phil Bevan – Founder, Director

Has had an unconventional career, being involved in numerous vehicle and engineering projects since the 1980s. These include design projects for Scania, Ford and Hyundai in addition to specific projects in other areas. For the last decade, he has been focussed on developing the torque multiplication technology and vehicles in the Trident group, including a GT Sports Car and motorcycle.

Ben Butlin – Managing Director

Joined Ford in 1992, where he worked his way up from junior engineering roles to senior management. These included Product Planning Manager for Global Light Commercial Vehicles and Small Car Platform Business Director in Japan. From 2011, he was Research Director at JATO, where he worked on strategy, improved financial performance and supervised a team of 300 people across 48 countries.

Rob Shepherd – Director

Started his career as a facilities engineer at Shell, before becoming an investment banker at ABN Amro in 1995. In 2007, he was appointed Finance Director at Dominion Petroleum, where he spent five years. Since then he has fulfilled a variety of executive, advisory and non-executive roles, mostly in the energy sector. He has been an advisor to Trident Sports Cars since July 2016.

Potential Conflicts of Interest

Although in the normal course of events many business relationships of its Directors are positives for a company, under some circumstances they may cause conflicts of interest. We note those that have been disclosed to us.

Phil Bevan, who is currently the majority shareholder in IA, also owns Bevan Davidson International and is the majority shareholder in Trident Torque Multiplication Technologies. Both of these companies will receive license payments for use of their technology in each ambulance.

The contract with Bevan Davidson for the production of the prototypes is at a fixed price. Ben Butlin has indicated that, based on his experience, the price being paid is considerably below normal market costs.

Appendix – GrowthInvest Bronze Due Diligence

Documents held by GrowthInvest		
	Yes / No / NA	**Notes by/Comments**
Advanced Assurance Certificate	*Yes*	
Business Plan	*Yes*	
Financial Forecast (3-5 years)	*Yes*	
Certified copy of Bank Statement to receive funds	*Yes*	
Historic Management Accounts (where applicable)	*N/A*	
Articles of Association	*Yes*	
Shareholder Agreements (where applicable)	-	
Copy of employee contracts	*Yes*	
Director service agreements	*Yes*	
Director CV's	*Yes*	
Share Register	*Yes*	
Share Subscription Agreement	-	
GrowthInvest Due Diligence Pack	*Yes*	
KYC, AML and Criminal convictions reports for all directors and shareholders greater than 25%	*Yes*	
Director One	*Phil Bevan*	
Director Two		
Director Three		
Director Four		

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Version 2 - August 2015

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