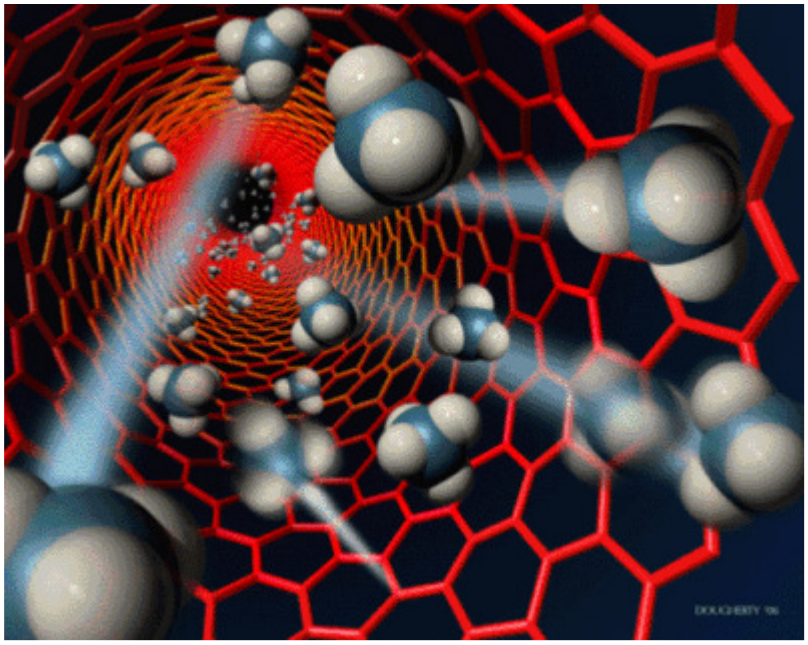
CARBON NANOTUBE COATINGS



APPLICATIONS

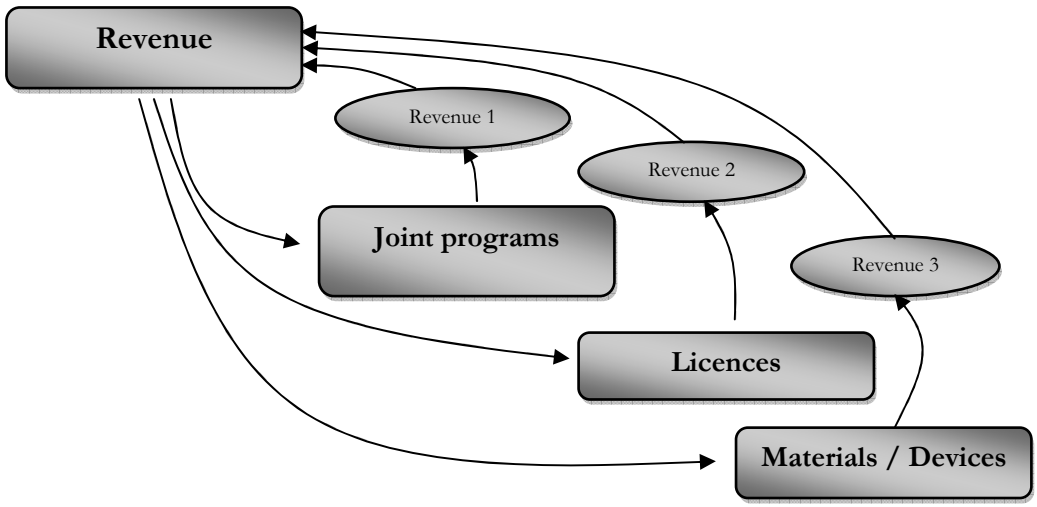
MICHEL ENGLISH
publications

Executive Summary

Newco Inc. is developing unique conductive and semi-conductive coatings, composites and compounds using carbon nanotubes as its primary element which it produces using a proprietary arc discharge reactor. The formulations yield unlimited materials, electrical and electronic applications namely as thin and thick films, electronic ink, printed electronics, sensors and smart materials. The company has chosen a joint development strategy to commercialize its formulated coatings and materials. Initial applications are sought within the energy, aerospace and environment related industry sectors manufacturers where performance demonstrations are planned.

Newco recently completed a preliminary IP portfolio that combines coatings & compound formulations as well as two equipment innovations that will be available for license to equipment manufacturers in the 3Q FY1. A third equipment innovation will be filed in the 4Q FY1 and is related to solar water generation and desalination. The timing is excellent as the market is ready and favorable to the implementation of new solutions that improves energy efficiency, reduces consumption and provides economic and efficient essential needs (water) to underdeveloped countries and regions affected by disasters.

The management team has conceived a business model that ensures early revenues in the form of license fees, planned system deliveries, scheduled royalties and first call on production volume for protected markets. This four level business model will generate revenues growing at 200% per year for the first five years.



Business model

The team involved in the deployment of Newco is composed of senior entrepreneurs with strong core expertise in technology, operations and project management. The technology aspects will be handled by John Smith member of the ASHRAE association and AEE enjoying years of R&D implications. An application engineer will lead the company's strategy and marketing functions and also take on the challenge of integrating the technology at customer sites and supervising demonstrations. The finance management aspects of the company will be handled by Joseph Mooney, a veteran finance manager.

Based on performance test results, Newco is undertaking demonstrations that will lead to initial contracts valued at 600 K$ worth in the first year of operations and targets 4 M$ sales for FY3. Because the company owns the full rights and patents of both the process and the formulated material, sales will grow exponentially as more and more manufacturers integrate the materials into their equipment**.** As a result Newco foresees a highly profitable start of its operations with the following objectives;

		FY 1	**FY 2**	**FY 3**
Sales	M $	1,0	2,0	4,0
Gross margin	%	42%	42%	41%
EBITDA	k $	(100)	360	730
ROI	%	0 %	30 %	59 %

These forecasted results are based on the availability of a 2 M$ investment needed to implement the necessary operations and to fuel the company's growth. Exit strategies for investors are planned for yr3 to yr5 and include two possible buy back options at proposed multiple values triggered at one of the two following events;

1. Second round expansion venture investment.
2. Initial public offering.

A cumulative rate of return of 30% is estimated and calculated after conservative cash reserves have been set aside for new equipment, process expansions and implementation of investor exit strategies.

TABLE OF CONTENT

TABLE OF CONTENT (Continued)

Appendices

LIST OF FIGURES

ABREVIATIONS

AD	Arc discharge
CVD	Chemical vapor deposition
CNT	Carbon nanotubes
IP	Intellectual property
LED	Light emitting diode
MWCNT	Multi wall carbon nanotubes
OLED	Organic light emitting diode
PVT	Photovoltaic thermal
SCM	Supply chain management
SWCNT	Single wall carbon nanotubes

1.0 BUSINESS DESCRIPTION

1.1 OVERVIEW

Newco is the result of previous development projects involving the founding team. First, the development of a smart material was a key element in a prototype magnetostrictive piston and a thick film sensor used in a micropump proposed to the laboratory equipment division of Newtech. Then, the development of thin film coatings applied to a new PVT solar cell was developed in 2005. After developing the idea further, it was discovered that the coatings could be produced using a mixture of carbon nanotubes and carbon black. Carbon nanotube's then pricing could not be afforded and a method was recently found that allows producing the expected quality of carbon nanotubes at competitive costs. The team's know-how sums up a decade of development work on projects calling for innovative applications of smart materials, thin and thick film technology for customers in the commercial refrigeration, HVAC & energy sectors.

The project aims at commercializing coatings and materials produced from carbon nanotubes (CNTs) using a proprietary process. Applications are numerous and the company seeks to create joint development programs with equipment manufacturers (end users) in high end technology segments. The development of specially formulated materials composed of CNTs, metal oxides and rare earth elements constitute part of our expertise. CVD deposition, spin coating, screen printing, molding, micro machining and photolithography are some of the processes that can be employed to apply the proprietary coatings and materials.

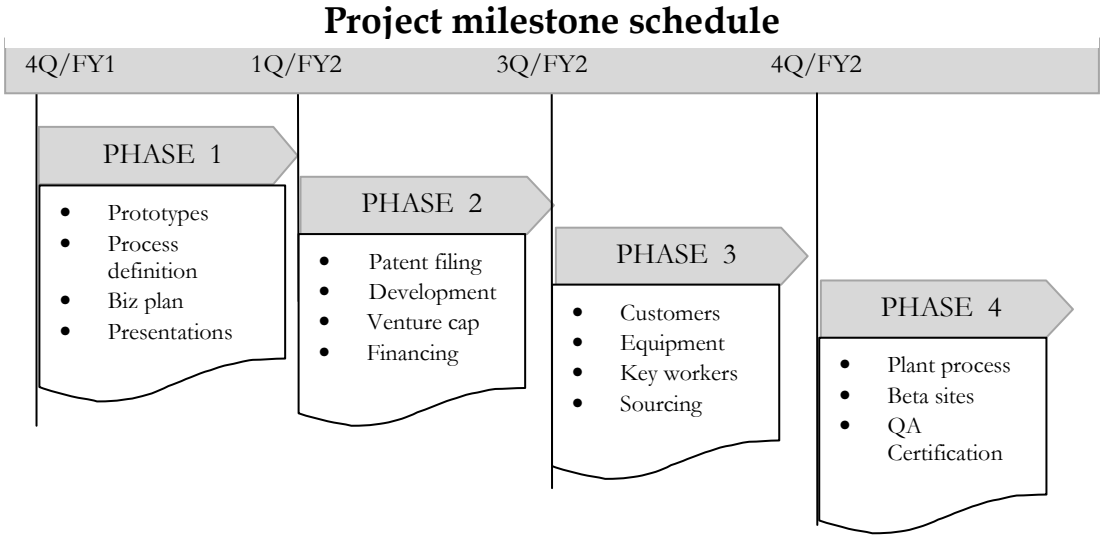
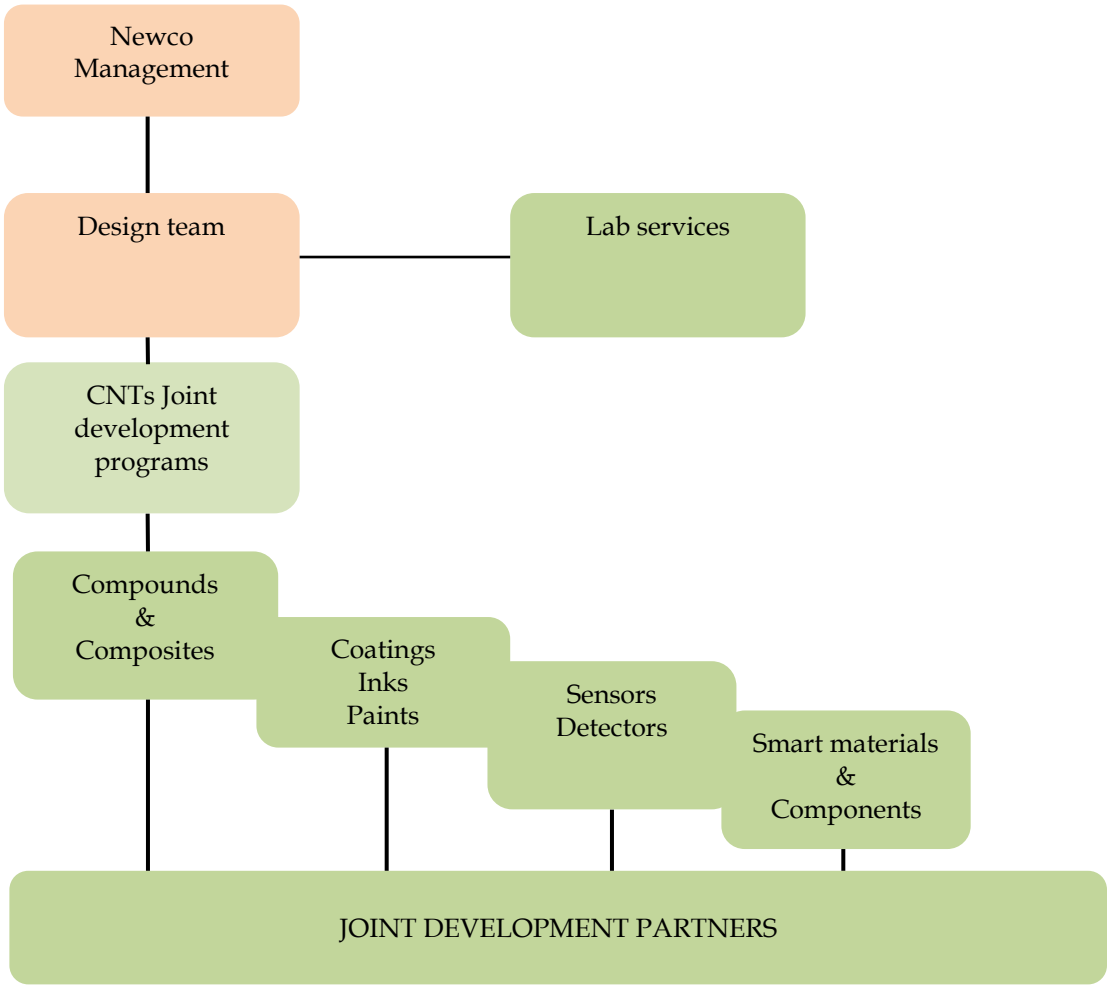


Figure 1, Project Schedule

The management team prepared this business plan to methodically depict the depth of the technology, present its applicability and point to well identified industry segments, manufacturers and equipment innovations made feasible by applying the technology. The goal will be to secure joint development programs with key industry leaders to launch highly innovative applications.

Upon completion of the business plan, the founders will be presenting the technology in front of venture capitalist during matchmaking events held in Boston, New York, Philadelphia and San Jose.

During the financial analysis and due diligence, the founders will focus on preparing the startup which involves numerous tasks as depicted by the milestone schedule above. Some of the key aspects of the startup involve building a strong project team, project office and laboratory. The project office will be used to design and demonstrate materials and their applications while testing and carbon nanotubes will be produced at the laboratory. The functional organization will be as follows;



1.2 BUSINESS GOALS

1.2.1 MISSION

The company's mission is to lead its industry technologically maintaining superior customer satisfaction delivered by innovative quality products.

1.2.2 MANAGEMENT OBJECTIVES

The management team elaborated an efficient management plan applying control in key functions such as:

Project management
- Responsible project team
- Planned reporting
- Milestones schedule implementation

Finance
- Cost control
- Improved margins
- Lean operations
- Faster collection (milestone payments)

Technology
- Stick to the plan and IP focus
- File IP portfolio
- Introduce an upstream application think tank

The business model was optimized to deliver revenues by providing services, licensing the technology and collecting royalties on controlled raw materials. The business model is illustrated below.

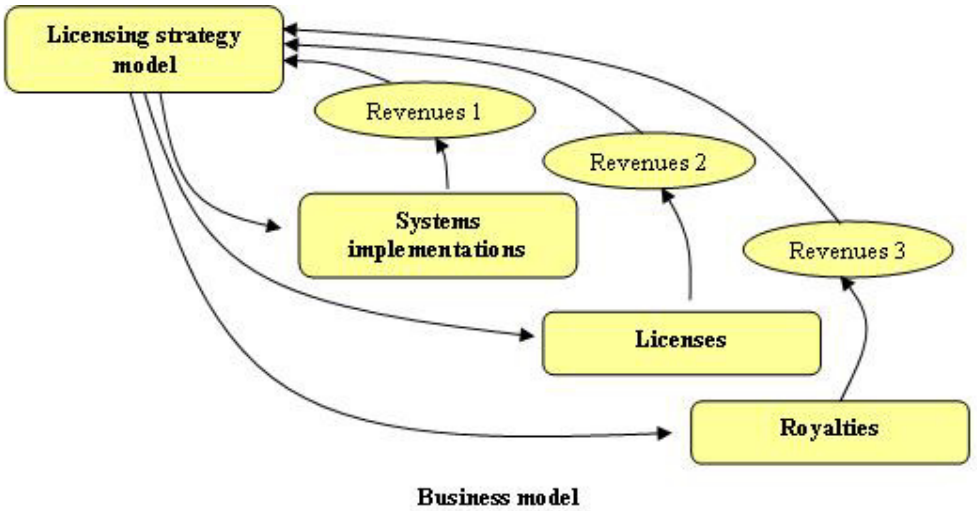


Figure 2, Business model

1.3 RESOURCES

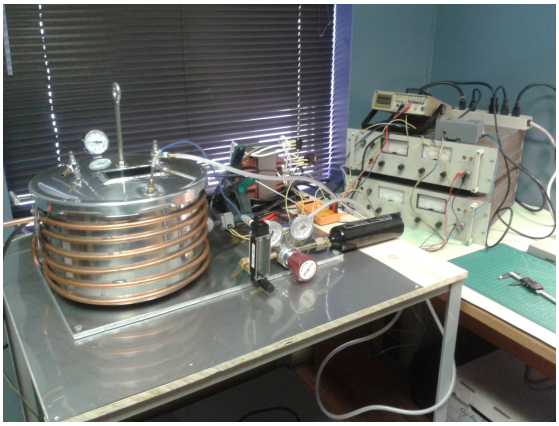
The human resources required to develop and implement the new materials and innovations include numerous trades. Most of the labor has been identified and are ready to join the action. To allow for growth, a training plan will be developed that will ensure each critical position is filled with multiple candidates. These include:

- Project mgr (John Smith)
- Mechanical designer
- Materials Technologist
- Chemist

1.4 TECHNOLOGY & APPLICATIONS

Newco is developing a batch reactor where doped graphite is pulverized under a controlled atmosphere composed of an inert gas. The technique can produce both single and multiwall carbon nanotubes.

The process consists in vaporizing carbon and graphite electrodes in the presence of catalysts (iron, nickel, cobalt, yttrium, boron, gadolinium, and so forth) under an inert atmosphere. After the triggering of the arc between the two electrodes, plasma is formed. The experimental reactor is cylindrical (30 cm in diameter) and approximately .5m in height, equipped with diametrically opposed sapphire windows located so that they face the plasma junction.



Carbon atoms are ejected from the anode, and accumulate in the form of nanotubes on the cathode. Arc discharge tends to produce narrower and shorter tubes than those obtained from laser ablation (up to 5 nm in diameter and around 1mm long). Like laser ablation, arc discharges tend to produce bundles of nanotubes. The CNTs are passed through a purification process to eliminate the catalyst residue and other unwanted impurities.

1.4.1 DEVELOPMENT PHASE

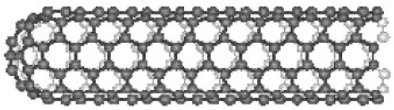
Applications for smart materials, thin films, thick films, conductive coatings and active compounds are countless and range from biotechnology & medical implants, aids and sensors to electronics, semi-conductive materials, molded actuation components to aerospace and military systems and devices to name just a few.

Some of the most promising application segments include;

- Conductive / resistive coatings and compounds
- Electro active & magnetostrictive polymers and smart materials
- Medical devices & implants,
- Printed electronics & semiconductors
- Sensors & detectors,

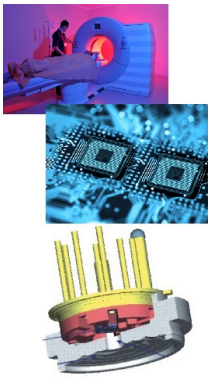
Smart materials, films, components and compounds made by Newco are developed using advanced methods, optimal mixing and bonding, Sol-Gel processes and deposition techniques. The sol-gel technique is widely used in materials science. It is applied primarily for the fabrication of thin films and coatings starting from a colloidal solution (sol) that acts as the precursor for an integrated network (gel) of either discrete or networked particles. Typical precursors are metal alkoxides and metal salts (such as chlorides, nitrates and acetates), which undergo various forms of hydrolysis and chemical reactions.

RESEARCH & DEVELOPMENT OUTCOME



Carbon nanotubes applications

Compounds/paints | **Composites/coatings** | **Electronics/smart materials**

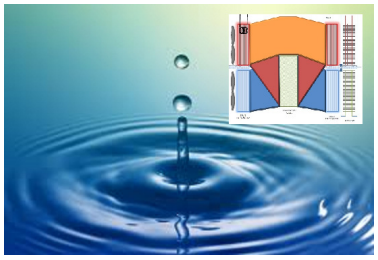


Conductive Inks	Composite materials	Semiconductors
EMI/RFI shielding paint	Resistive coatings	MEMs
Conductive Epoxies	Defrost coating systems	Smart materials
Conductive coatings	Anti-icing systems	Sensors & detectors
Transparent coatings		Medical devices

1.4.2 APPLICATIONS (initial development contracts)

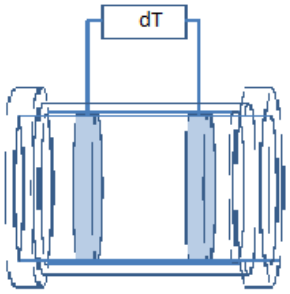
Newco is anticipating to initiate joint development applications with 3 customers in 2013. The team has presented its technology to interested partners in the HVAC sector for the development of water generation, flow sensors and evaporator defrost applications.

Water generator



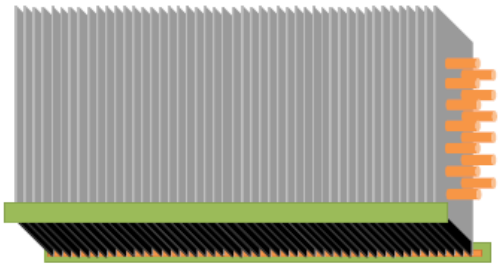
Water generation is achieved by accumulating moisture from surrounding air until saturation and rapid condensing through electronic cooling. The absorption phase uses high density CNT/silica coatings while the desorption phase uses highly efficiency CNT resistive coatings. The development team is currently discussing the terms of a joint development contract with a collaborating customer. The intellectual property is being compiled and a patent will be filed in June 2013.

DP/DT Flow meter



Newco has demonstrated the feasibility of highly accurate flow metering using multiple CNT temperature mapping rings. The technique allows the measuring of proportional flow through the reconstruction of the flow profile using multiple temperature points. The development team is currently discussing the terms of a joint development contract with two collaborating customers. The intellectual property is being compiled and a patent will be filed in June 2013.

Evaporator defrost



A method to rid of ice accumulation on evaporators such as found in food display cases has been demonstrated. The method consist in coating the leading edge of evaporators with a thin resistive coat of CNT/resin which removes heat in less than 30 seconds as opposed to current methods consisting in hot gas returning to the coil for several minutes when blocked and causing considerable food temperature increase. The development team is currently discussing the terms of a joint development contract with two collaborating customers. The intellectual property is being compiled and a patent will be filed in December 2012.

1.4.3 INTELLECTUAL PROPERTY

Newco will file three - six initial international patents in Canada and the US. It is currently developing an IP strategy with a patent attorney. The company will complete the filing of its IP portfolio upon closing of the initial venture capital investment. All the IP was created by the founders and has been transferred to Newco pursuant to a conditional license valued at 400K$. Further licenses will be awarded by Newco to customers and include conditional rights and cost. Typical license cost will be 100K$ per licensee.

Patent title	Filing date
CNT backed evaporator defrost	FY1
Plasma reactor process & control	FY1
Carbon nanotube (CNT) conductive coating	FY1
CNT backed generator	FY2
Multiple CNT ring profiler	FY2
CNT backed deicing system	FY2

1.4.4 VALUATION

A valuation of the intellectual property will be performed on the basis of the actual value of future benefits generated by the process technology over the period of 7 years.

The intellectual property value will be estimated for the purpose of negotiating the participation of a venture capital firm upon completion of the fundamental research phase

An estimated 19M$ USD net profits will be generated by the technology over the next 7 years.

1.5 PROJECT COSTS

Use of funds

Equipment	300 000.
CNT development equipment[1]	250 000.
Initial projects	250 000.
Market Development	600 000.
Total cost	**1 400 000. $**

Sources of funds

Founders[2]	400 000.
Venture capital[3]/Investors	400 000.
Small Business Loan[4]	300 000.
Government support	300 000.
Total funds	**1 400 000. $**

Other cashflow (collected during initial 3 years)

Research and development tax credits	1 400 000 $
Labor tax credits	200 000 - 400 000 $
Assets investment tax credits	30 000 $
Total future cash inflow	1 830 000 $

[1] The CNT development equipment is required in the 4Q FY1 to build the initial carbon nanotube reactor and produce initial batches of CNTs for customers joint development programs. It is eligible to RS&DE investment tax credits.

[2] The founders have invested 400K$ to date in cash and another 600K$ in-kind investment.

[3] Investors & venture capitalist is expected to invest a total of 400K$ for a participation of 10-25% in ordinary voting shares.

[4] The company will file a bank loan application on the small business loan program to support its initial equipment. The SBA is guaranteed by the government at 90%.

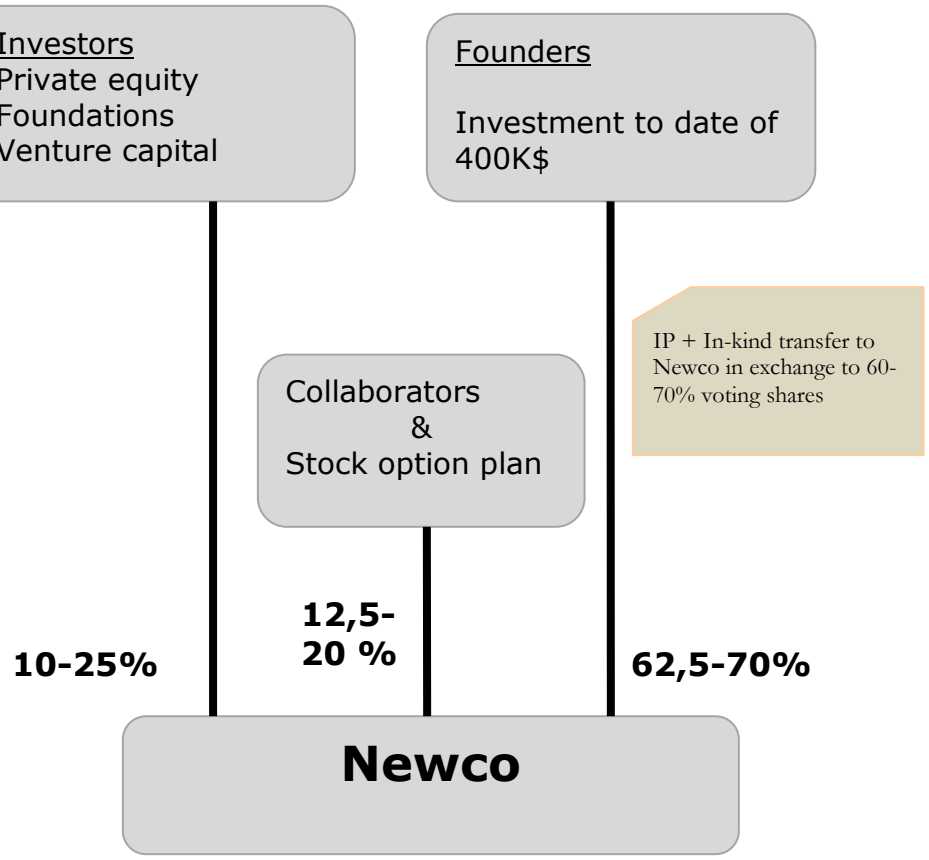
1.6 OWNERSHIP

The founders are the company shareholders listed below. All shareholders have agreed to a shareholders agreement which is held at the company lawyer's office.

The shares issued are ordinary voting and participating.

The proposed investment plan will modify ownership as investors are brought onboard. The expected participation is as follows;

Founders	62,5% - 70%voting participation
Collaborators	12,5% - 20% voting participation
Investors	10 - 25% voting participation



2.0 MANAGEMENT TEAM

2.1 ORGANIZATION

John Smith directs the company and provides the necessary leadership assisted by a team of engineers and scientist. Outside consultants provide expertise in finance, accounting, strategic management, IP and information technology.

The founders and the development team form a highly concentrated core competent team providing in-depth expertise needed to deliver the project. They are familiar with the numerous manufacturing sectors and technology market segments and have previously delivered successful products targeting high demand market opportunity.

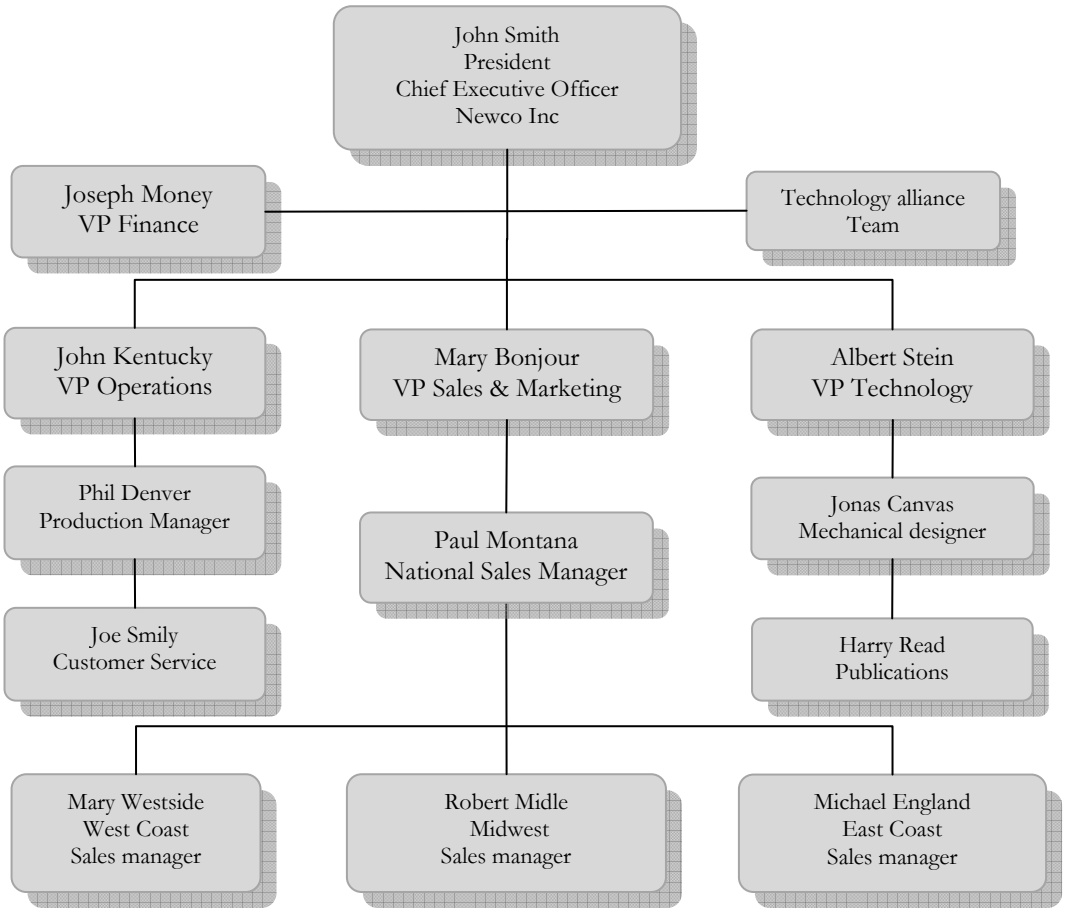


Figure 3, Organization chart

2.2 RESPONSIBILITIES

John Smith, President & CEO
John Smith will manage and lead the company to its objectives with a team of veteran he recruited during the project planning phase. John is a graduate from Harvard University in business administration and possesses a strong 30 + years of market, design and production experience. He was involved in previous business successes and contributed to lead businesses to their initial public offering. John is a result oriented person and a strong leader. His ability to integrate all aspects of business makes him a highly performing executive and trustworthy individual.

Joseph Money, Vice-president Finance
Newco's finance and administration responsibilities are handled by Joseph Money, a professional accountant with over 20 years experience as controller. Joseph will implement in-house cost controls and operations monitoring capabilities which will play a major role in ensuring that job costing improves furthermore with larger scale production. Joseph's expertise can lead NEWCO to advantageous product costs and increase net value.

Albert Stein, Vice-president Technology
Albert is an engineer, a member of engineers association and enjoys 30 years of experience in leading technology roles. He developed the Newtech technology and patented it. He also owns several other patents in related applications and will lead the technical team in the company's development challenges as well as beta site performance. The acceptance of the new technology by users is crucial and on high priority. Beta sites have been targeted and will play a major role in demonstrating the new technology performance.

John Kentucky, Vice-president operations
Newco's operations are handled by John Kentucky, a veteran of 30 years within the construction materials industry. John has joined NEWCO on day one, participated to the process development and the implementation of production operations capabilities. He is experienced in material requirement and production planning in multiple plant organizations which will be a strong asset in managing the future production operations at Newco. He is responsible for implementing the various aspects of the supply chain and most importantly the quality system audit and certification.

3.0 MARKET

3.1 MARKET OVERVIEW

Carbon nanotubes (CNTs) have recently emerged as one of the most important classes of nanomaterial's having enormous potential to spark off the next industrial revolution. CNTs' unique and extraordinary properties such as extremely high electrical and thermal conductivities, very small diameters (less than 5 nm), large aspect ratios (length/diameter ratios, greater than 1000), outstanding mechanical properties, a tip-surface area near the theoretical limit (the smaller the tip-surface area, the more concentrated the electric field, and the greater the field enhancement factor)[1] and an excellent price-performance ratio, make it an ideal candidate for electronic devices, chemical/electrochemical coatings, thin films, thick films and biosensors, transistors, electron field emitters, lithium-ion batteries, white light sources, hydrogen storage cells, cathode ray tubes (CRTs), electrostatic discharge (ESD) and electrical-shielding applications and composite materials of all sorts.

Presently 10 companies around the world today are manufacturing carbon nanotubes and this number is expected to increase to more than 30 within the next five years, while there are more than 300 large companies and institutions that are actively looking to enhance their products by creating relationships with CNT developers.

Currently, carbon nanotubes account for a 28% market share of overall nanomaterial's demand. In terms of production capacity, Asia-Pacific leads, followed by North America and the European Union. Table 1 shows CNTs-enabled applications grouped as present, near term and long term, and as categories related to large volume and limited volume segments and their key attributes.

	Large-volume applications	Limited-volume applications	Key attributes
Present	Sporting goods such as golf shafts, tennis rackets, baseball bats etc., battery electrode additives, plastics additives and masterbatches, fuel line systems	Battery electrodes, boat hulls & decks, wind turbine blades, prepregs, scanning probe tips, sensors, catheters, membrane filters, flat panel displays, textiles, printing & packaging	Excellent mechanical and electrical conductivity properties, compatibility, high surface area (~1000 m^2/g), excellent chemical stability in acidic environments, distinguished optoelectronic properties, insensitivity to electromigration, excellent thermal conductivities and semiconducting properties
Near term (less than five years)	Supercapacitor electrodes, transparent conducting films, field emission displays, LCDs and OLED-based displays, fuel cell electrodes, inks for printing, adhesives	Electromechanical memory device, hydrogen-storage electrodes, biosensors, multitip array X-ray sources, probe array test systems, brush contacts, thermal-management systems	
Long term (beyond five years)	Power transmission cables, structural composites applications for aerospace and automobile, photovoltaic devices	Field-Effect Transistors (FET), interconnects, flexible electronics, drug-delivery systems	

The global CNTs market is highly consolidated and concentrated in nature, dominated by a few large suppliers/producers operating in multiple industry segments. The global CNTs industry turned over around $6,68 billion in 2011, with multi-walled carbon nanotubes MWCNTs production and SWCNTs accounting for approximately 80% and 20% respectively, and is forecast to grow to $12.1 billion by 2016 at a Compound Annual Growth Rate (CAGR) of 11.5%.

Used across a wide range of industries including plastics and composites, electrical and electronics, and energy as well as a range of industrial sectors, CNTs have become an essential ingredient or reinforcement material for these industries, with its usage growing broadly in line with the global economy.

Asia-Pacific has the largest installed capacity of CNTs mainly due to the significant presence of electrical & electronics market, which is dominated by Japan, South Korea, Taiwan, China and Singapore. In 2010, the US captured the first largest share of the CNTs market while Japan ranked second, ahead of China and Germany. Japan is the prominent leader in the production of carbon nanotubes including MWCNTs and SWCNTs, but China and South Korea are expeditiously catching up. Among the European Union, France is expected to take the lead in CNTs production. A number of developing nations, most notably China and India, will become increasingly important, as high-end plastics & composites and electronics production shifts to these regions. Leading producers are listed below;

	Manufacturers	Annual production capacity (Metric tonnes)	Processing routes	Country
SWCNTs	Unidym, Inc. (acquired by Wisepower Co.), http://www.unidym.com	1.5	High-pressure carbon monoxide (HiPco)	USA
	Toray Industries, Inc. http://www.toray.com	1.5	CCVD	Japan
	Mitsubishi Rayon Co. Ltd. http://www.mrc.co.jp/english/index.html	1.2	CVD	Japan
	SouthWest NanoTechnologies Inc. http://www.swentnano.com	1.0	Cobaltmolybdenum catalyst (CoMoCAT)®	USA
	Kleancarbon Inc. http://www.kleancarbon.com	1.0	CVD	Canada

In the next five years, the proposed production capacities for CNTs are bound to take a big leap forward. MWCNTs production capacities will reach hundreds of metric tons by 2016, mainly driven by polymers and composites applications in automotive components, aerospace structural parts, lithium-ion battery, Electrostatic Discharge (ESD) and other markets, while SWCNT's growth will be steady but not as high as in the

case of MWCNTs, due to higher prices and limited end-user adaptability such as electrical & electronics market.

Demand is growing for CNTs used in the production of technology-intensive products. The expanding range of applications includes electronic packaging, touch panels, automotive parts, industrial components, medical devices, fuel cell components, lithium battery additives, plastics additives, sensors, semiconductors and composites. Carbon nanotubes encompass a wide range of markets across plastics& composites, electrical and electronics, energy and others.

Market Drivers

CNT's demand is influenced by a number of diverse factors. While the economy plays a most important role in influencing the size and growth of the market, there are a number of other market drivers which can be seen as having a direct influence on CNTs demand or, at any rate, the nature of this demand, irrespective of the performance of the economy. These include:

- Need to replace the brittle and expensive Indium tin oxide (ITO) coated films currently used in such products as LCD displays, solar cells, touch screens, and organic light emitting diode (OLED) lighting with flexible and mechanically robust CNT-based films.
- Alternative materials to carbon black for electrostatic discharge applications in the automotive market. Any automotive components that come in contact with fuel must have electrostatic discharge properties and the Society of Automotive Engineers (SAE) recommends a maximum specific volume resistance of 106 ohm/ cm for materials used for parts with fuel contact.
- As an additive or reinforcement material for plastics (automotives & structural components) and composites (aerospace/defense) industries in conductive and thermal applications. The higher aspect ratio of CNTs in plastic parts enables to achieve reasonable conductivity at modest loadings.
- Due to the unique conducting and semiconducting properties of CNTs, market demand for CNTs has increased for CNT-FETs memory devices, interconnects etc. as a replacement for state-of-the art silicon devices.
- The increased demand for longer wind turbine blades (> 60 m), better performance and quality are pushing the use of CNTs. Longer blades are subjected to higher mechanical stresses during operation (due to the unsteady nature of the wind). Weight reduction is also a key factor because weight increases faster with blade length than energy throughput. Carbon nanotubes are an ideal choice because of their high impact strength and tubular structures, which enable to withstand high mechanical stresses as well as provide strength, and their light weight maximizes the lifetime and efficiency. Burgeoning demand for advanced and sophisticated medical and healthcare devices.

Next generation products will be adopting CNTs in nano electromechanical systems (NEMS), supercapacitor electrodes, power transmission cables, structural composites applications for aerospace and automobile sectors, photovoltaic devices, transparent conducting films, field-effect transistors, interconnects, flexible electronics, and drug-delivery systems, which will yield greatly increased revenues for the CNTs players over the next 5-10 years. International industrial giants such as IBM, Intel, Hexcel, Samsung, NEC Corp., are developing a variety of current and future CNTs-enabled applications for various industries.

The most widely used techniques for CNT synthesis are: Chemical Vapor Deposition (CVD), Catalytic Chemical Vapor Deposition (CCVD), arc discharge and laser ablation. In 2010, CVD and CCVD techniques together captured approximately 83% of the global carbon nanotubes market share, followed by arc discharge (12%) processing method and laser ablation (5%), primarily due to its high degree of control, easy scalability, large-scale production output, high purity and yield compared to other available technologies.

3.2 TARGET MARKET SEGMENTS

3.2.1 FORMULATIONS

Newco offers unique conductive and semi-conductive compounds and coatings that possess enhanced structural, electrical and electronic qualities. Thin and thick films, composites, sensors and detectors are among the fastest growing areas of technology where Newco is seeking to develop applications. The technology is based on formulations of single wall carbon nanotubes as the primary element and metal oxides such as antimony tin oxide, tin oxide, silver, titanium dioxide, zinc oxyde as the secondary elements. Formulations are obtained by mixing selected materials and chemicals using sol-gel processing techniques mostly. Depending on the target application and its characteristics, the coatings will be sprayed, spin coated, dip coated or printed. The end products can be grouped as inks, paints, coatings and compounds where numerous application patents are in the process of filing.

Newco has undertaken specific research and development activities to prove the feasibility of its inks, paints and coatings. Among the most promising applications are;

- Sensors & detectors, medical devices & implants
- Resistive & conductive coatings, composites
- Smart materials, inks, compounds and paints

We expect that 20-30% of the company revenue will come from formulations and compounds adapted to customer applications. To that effect we have developed a toolbox as shown below to guide our customers and technicians in the proper choices of materials, processes and methods when applying Newco's CNT formulations.

DEVELOPMENT TOOLBOX

TECHNOLOGY

Polymers, Silicone, HDP, resins

Mixtures of CNT and polymers as well as other dielectric materials become conductive when reaching the percolation threshold which can vary from ≈ 2% to 3% CNT content.

Core material CNT, Graphite, Graphene

Primary materials used by NEWCO, refined to achieve superior particle size and dispersion. Combinations of the three states of carbon are done to achieve specific blends.

Indium tin oxide, Tin oxide, Silver, Titanium dioxide, Silicone

Minerals formulations used in conjunction with carbon core materials into sol-gel processes to form conductive and semiconductive thin film coatings.

PROCESSES

Compounds

Gels of conductive formulations and resin components to form liquid viscous composites ideal for thick film coatings.

Sol-Gel

Liquid mixtures of carbon and conductive metal oxydes to form solutions that can be condensed (gel) to form conductive thin film films.

APPLICATION METHOD

Inkjet printing

Printed electronics is a new sector growing rapidly and gaining interest.

Injection molding

Conductive, semiconductive and magnetostrictive components injected like thermosetting polymers and composites.

Dip / Spin / spray coating

Techniques and processes allowing the deposition of nanometric conductive thin films.

TARGET

Customer supplied target component

Conductive, piezoelectric, thermoelectric and other smart materials formed into components to customer drawings and processes.

Glass, ceramic, polymers, composites

Laser trimming, micro machining and photolithography processes used to adjust deposited components, commonly, solar cells, sensors, electronic circuits, components,

3.2.2 EQUIPMENT APPLICATIONS

Newco has identified numerous types of equipment that can benefit from the integration of our materials and coatings. Each technology leads to numerous industrial applications. The company strategy is to attract paid development contract from industrial partners where Newco concepts and technology formulations will be adapted to solve the customer's application challenge. Revenues will include paid development programs, production of materials to satisfy OEM partners demand, licenses and royalties.

Our past experience and technical studies indicate key areas of immediate potential that we have called Phase 1 applications. Longer term potential has been classed as Phase 2 applications. Section 1 describes these in detail.

We estimate that 60-80% of our sales will come from joint development programs with key leading manufacturers. We have classified our target customers as follows;

Coatings, paints & compounds

Carrier, GE, Heatcraft, UTC, Tyler, Hussmann, Manitowoc, Vestas, Ref plus, Dectron, York, Lennox, Copeland, Danfoss, Mitsubishi, Hitachi, Sanyo, Rotor source, Nortek, 3M

Electronics, sensors & smart materials

Honeywell, Intel, TI, ABB, Emerson, Invensys, National Instruments, Ametek, Abbott Labs, Siemens, Medtronic, Tyco, Boston scientific, Philips,

Composites, Paints

Boeing, Bombardier, GE, ABB, Honeywell, TI, Analog Devices, Rockwell, Nortrop, Hewlett Packard, Benetti, Ferretti, Voss, Enercon, Sulzer, Siemens

3.3 MARKET CHALLENGES

The factors that may influence the market and the projected results of Newco are related to efficiency and the discovery or development of competitive technologies. New competing technologies will emerge in a far future estimated to 24 to 48 months leaving NEWCO a comfortable market lead. New technologies are likely to explore new materials and processes, modifications of the NEWCO system as explored by competitors in their 5 year plans.

Other factors affecting the industry globally are:

1. The much needed support of governments to encourage industry research could lead to new processing technologies and enhance competitiveness.

2. Government incentives and programs to promote valuable resources for projects that propose immediate solutions.

3. The facilitation of the intellectual property filing and protection and implementation of controls in developing countries like China.

4. The availability of venture capital and private equity from early stage to application success and implementation phases.

5. The implementation of new economic incentives to accelerate industry and consumers confidence.

6. The implementation of new tax incentives to stimulate investment in small & medium size businesses.

Other factors affecting the industry globally that rest with government policies, budgets and initiatives to restore the economy and our ability to secure some of the incentives. Some of these are;

1. The support of governments needed to encourage industry research could lead to new processing technologies and enhance competitiveness.
2. Government incentives and programs to promote valuable resources for projects that propose immediate solutions.
3. The availability of venture capital and private equity from early stage to beta and implementation phases.

3.4 COMPETITORS

The key leading competitors in this market are, Dow Corning and Allied Chemicals. However, the company's immediate competition is composed of smaller private businesses that we have described below and analyze further through a comparative process.

Applied Nanotech
Applied Nanotech Holdings, Inc. (ANHI) is engaged in nanotechnology research and development. The Company's research efforts are primarily focused on the areas of nanocomposites, nanoelectronics, nanosensors, and thermal management technology. The Company's nanotechnology research involves performing contract research and development (R&D) services for others to develop products and materials for new applications.

Southwest Nano Technologies
SouthWest NanoTechnologies (SWeNT) produces carbon nanotubes using the patented catalytic method in fluidized bed reactors. This results in selective synthesis of single-wall carbon nanotubes and remarkable control of diameter, chirality and purity.

Intricon
IntriCon Corporation (IntriCon) is an international company engaged in designing, developing, engineering and manufacturing body-worn devices. IntriCon serves the body-worn device market by designing, developing, engineering and manufacturing micro-miniature products, microelectronics, micro-mechanical assemblies and complete assemblies, primarily for bio-telemetry devices, hearing instruments and professional audio communication devices. The Company operates in one operating segment, the body-worn device segment.

Hyperion Catalysis
Founded in 1982 to develop novel forms and morphologies of carbon, Hyperion Catalysis' flagship technology is a conductive, vapor grown, multi-walled carbon nanotube. These tubes are trade named FIBRIL™ nanotubes. Since the original synthesis of carbon nanotubes in 1983, Hyperion Catalysis has devoted substantial resources to improving the technology of their manufacture and developing their use in a variety of applications. Hyperion Catalysis now supplies FIBRIL nanotubes, pre-mixed, in a range of plastics.

Klean Carbon
Klean Carbon is a wholly-owned by Klean Industries Inc. and is engaged in the production, sale and purchase of greener more sustainable commodities. Klean Carbon is engaged in the manufacture, distribution, import and export of sustainable high grade commodities and chemical raw materials. With an aim for high standards we maintain consistency in product quality and efficacy, and fulfill higher specifications of the changing and advanced world of raw materials by meeting and exceeding the requirements of the chemical raw material institutions and industry.

3.5 COMPARATIVE ANALYSIS

With the growing interest for innovative materials in areas where technology can be enhanced, energy saved and performance improved, carbon nanotube mixes or compounds will play a major role. Although 15-20 small to mid-size tech businesses are currently pursuing the development of CNT based smart materials, none are actually competing with or against another player on any given application. There simply are too many applications that demand CNTs that most producers of CNTs actually produce for their own application development and do not sell CNTs on the market. However, there are low quality CNTs available in ASIA and INDIA that is more Carbon black than CNTs. Carbon black is a low grade carbon with poor dispersion characteristics.

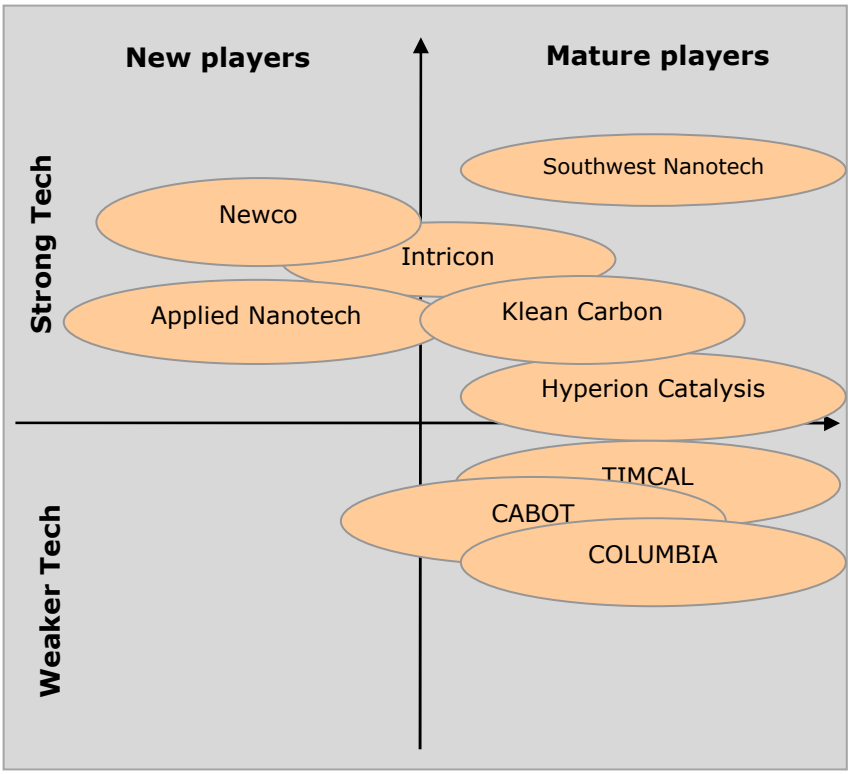


Figure 4, Comparative analysis

The comparative analysis was performed using 10 comparative factors related to quality, perception, performance, innovation, cost, ease of installation, durability, service and delivery. The resulting score gave a positioning rating that is shown by the above graphic.

3.6 SWOT ANALYSIS

The SWOT analysis tells us that NEWCO masters the technology and has a very good understanding and strategy to capture the opportunity. It also shows a weakness in finance and capital availability to fuel its strategies and action plans. As a result it must attract new investors. Since the company identified a very unique opportunity derived from a patented technology, it should look for investors in the technology field. Moreover, it should develop a funding strategy where it will attract its customers and chip in some capital.

STRENGTH	WEAKNESSES
• Patent protection • Patent strategy • Technological competencies • Core competencies • Product advantages • Proven innovation process	• Start-up • Limited capital availability
OPPORTUNITIES	**THREATS**
• Upcoming high demand • Market trends • Potential licensing	• Financial market

Figure 5, SWOT analysis

4.0 STRATEGIC PLAN

4.1 SALES OBJECTIVES

The company's objectives are to secure constantly growing revenue from its multiple license strategy while contributing to the protection of the environment.

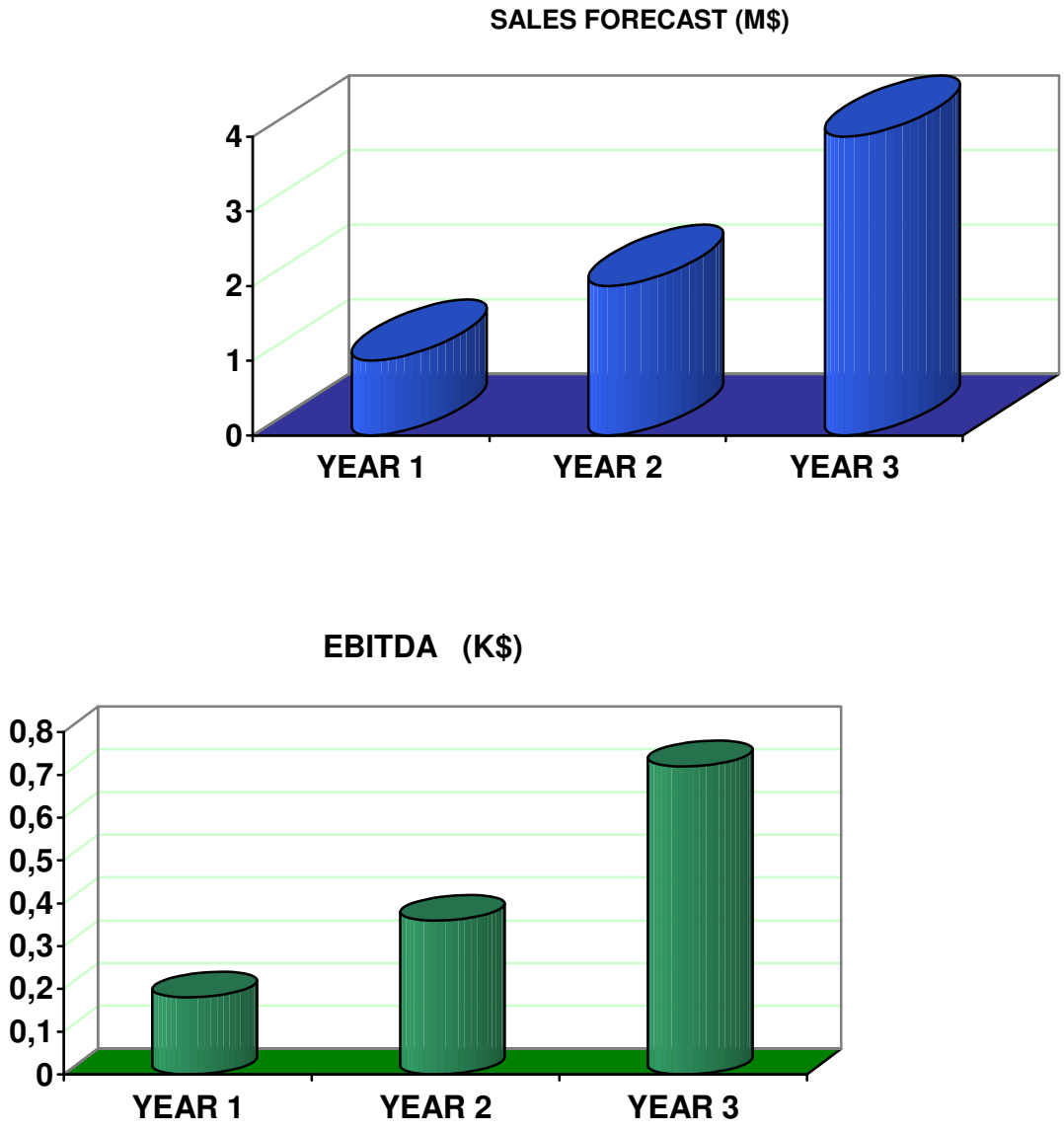


Figure 6, Financial objectives

4.2 VALUE PROPOSITION

A strong value proposition will be developed that demonstrate key elements of performance within each targeted sectors and customers. The value proposition will be specific to the target customer and take the application into consideration.

The key part of the value proposition strategy will be;

1. Demonstrate using customer parameters.
2. Propose achievable goals.
3. Develop a payback approach.

In each proposition, we will;

1. Evaluate and analyze the customer's needs and application.
2. Identify clearly feasible achievements (demonstrate the technology)
3. Propose a development plan and funding if needed.

Finally, once we reach a good level of confidence in the customer's application success, we will sell a shared development approach bringing additional confidence in the project outcome.

The selling process will follow the steps below;

1. Identify target customers on the basis of technology potential outcome.
2. Meet customers and obtain information on application.
3. Present analysis while underlining the customer's expectations and analyzed benefits.
4. Expose the advantages and potential benefits of implementing the technology solution with respect to cost and payback.
5. Demonstrate the process by which the solution will be implemented.
6. Present a realistic milestone schedule.
7. Obtain customer commitment.

4.3 MARKET DEVELOPMENT STRATEGIES

A licensing strategy will be used to market the formulations and joint development programs, allowing licensees to acquire the rights to apply the newly developed innovations in their market and products. Management will create alliances with large OEM and large contractors, technology project financing firms, VCs and engineering firms to best position its technology solution.

4.3.1 POSITIONING

The market development plan is based on joint development programs, materials sales and licensing technology agreements at a cost allowing the licensee to recuperate his initial license investment within a reasonable payback period. The licensees will be able to use the material for their use in their market without worrying that we will offer the same innovation to their competitors.

Below is the number of joint projects that we plan to undertake in the first years of the project.

Number of projects	YR1	YR2	YR3	YR4	YR5
United states	2	2	3	3	3
Canada	1	1	1	1	1
Europe				1	1

Figure 7, Joint development programs projected

4.3.2 PRICING

The pricing strategy has been established as follows:

Joint programs will be negotiated as non-recurring engineering and include a license cost to be negotiated in accordance with the project scope. Customers may elect not to secure their material technology application.

- Joint development non-recurring engineering will be billed on a monthly basis.
- The amount negotiated as the license fee will be determined considering the market potential, the customer's market share, etc….
- Formulations, compound materials or components will be shipped from our operations and billed on a per gram/kg/liter or square meter approach.

4.3.3 PROMOTION

The company's promotional plan consists in focusing publicity, promotion, brochures and publications toward its local market in order to raise the impact and efficiency.

Among the actions that are planned are:

1. A major update of the web site.
2. The placement of adds in the technology magazines.
3. The placement of adds in the Northeast magazines.
4. The preparation of an innovation brochure showing tangible results as a function of customer applications, location and technology.
5. Brochure mailings
6. Participation to trade shows within the local community in order to leverage market development effort rather than industry association.

The costs of the promotional campaign are outlined in section 4.4.

4.3.4 PRODUCT

The product strategy consists in enhancing the customer product by offering solutions performance and materials technology that optimize the customer product efficiency, performance and allows it to maintain or gain competitive lead.

The performance savings strategy is supported by proven analysis. The industry requirement calling for higher level efficiencies require that we deploy all the potential of the Newco technology solution which is superior to all competitive products.

The company will produce a material performance newsletter which it will distribute to customers, representatives and service technicians. When people think of material efficiency they will think of Newco.

In addition, the product strategy calls for renewed research and development initiatives in order to maintain our lead and to include new attractive features that help serve customers better by adding ease of application.

Newco's investment in R&D will amount to approximately 2% of sales and is eligible to investment tax credits amounting to approximately 60% of eligible expenses. As part of its strategy, NEWCO will develop an alliance with a leading university.

4.4 WEB STRATEGY

A web strategy will be implemented to achieve multiple simultaneous goals:

1. Display a corporate and business image.
2. Deliver product information.
3. Attract new customers using a downloadable gift strategy.

The later will consist in a whitepaper gift highlighting the innovations of the technology and made available on the company website as well as associations, universities and trade event web sites. The whitepaper will be prepared by a recognized scholar who will increase its interest. The goal of the white paper will be to demonstrate the technological edge of Newco's technology.

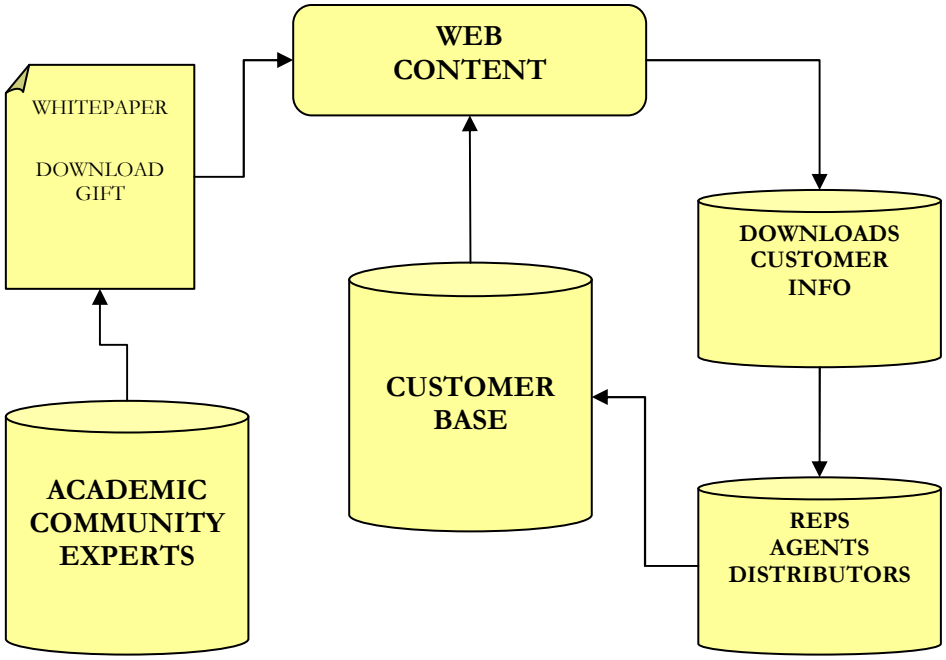


Figure 8, Web strategy

The university scholar was identified and the whitepaper preparation is being prepared in conjunction with Newco's technical staff.

In addition, a series of monthly newsletters will be prepared and sent to the customers registered into the database. Newsletters are an excellent and proactive way of informing customers as well as potential customers.

4.5 ACTION PLAN

ACTIVITIES	COST		
	YEAR 1	YEAR 2	YEAR 3
Salaries & Commissions	20 000	40 000	60 000
• Recruit sales agents in North East USA			
• Set-up agreement with technology firms in North East			
• Install free hot line for technical support			
Publicity & promotion			
• Update corporate web site	15 000		
• Place US technology add	15 000	30 000	30 000
• Place Canadian technology add		20 000	20 000
• Issue press releases in major new paper			
• Produce sample data solutions as giveaways			
Brochures & publications			
• Prepare Innovation brochure	20 000		
• Brochure mailings	5 000	10 000	15 000
• Prepare efficiency application doc			
Representation			
• Develop customer visit, project bids & follow up plan	10 000	20 000	30 000
• Visit potential customers	10 000	20 000	30 000
• Hire field support technicians	Salaries		
• Visit potential licensees			
Trade shows	40 000	60 000	80 000
• Participate to local trade shows			
• Team up with agents and licensees for other trade shows			
Plan total	**135 000**	**200 000**	**265 000**

5.0 OPERATIONS PLAN

5.1 FACILITIES & EQUIPMENT

The NEWCO management will establish its Head Quarters, production facilities, marketing & sales operations within the state of New York. By the 4th quarter of YR1, the company will have selected its location.

The company will require an initial facility of 2,000 sq. ft which will be expanded to over 10,000 sq. ft. by year 3 of the project. The facility will be equipped with the latest laboratory technology equipment and management information systems.

Initial equipment in the amount of $ 300 thousand will be purchased or leased over the period of four years. Such equipment will be required to satisfy operations and development.

A material requirement planning system will be implemented in the first quarter 2013.

5.2 KEY PROCESSES

Newco's technology can be adapted to comply with all the company's processes and configurations of processes. NEWCO can adapt to most product manufacturing processes and supply its technology solutions and data at advantageous conditions.

Newco's own development, test, simulation, reproduction and implementation processes have been submitted to its own technology.

5.3 QUALITY SYSTEM

NEWCO will be deploying an industry standard quality management methodology such as Six Sigma or ISO 9000, or implementing a quality best practice to reduce costs, shorten cycle times and improve overall product and process quality. These standards will bring the organizational focus on customer satisfaction and continuous improvement and take a process-centric approach towards quality management and assurance. Most of NEWCO competitors comply with ISO9000 or operate other quality systems. NEWCO could gain credibility fairly rapidly by implementing its quality system from the start.

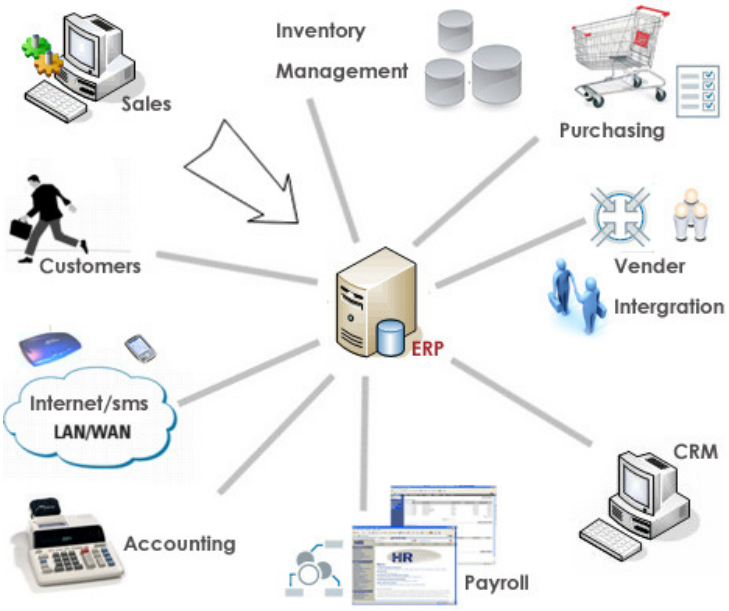
The goals are;

1. Quality policy plan 1Q / YR2
2. Procedure implementation 2Q / YR2
3. Audit and certification 3Q / YR2

5.4 SUPPLY CHAIN

NEWCO will implement the concept of supply chain management (SCM) to ensure our way of doing and procedures respect the best economic and quality standards for us and our customers. This implies that the company finds the quality resources it needs to make its solutions deliverable to its customers.

The following are the four basic components of our SCM policy.



1. **Plan**—The company will implement a strategy for managing all the resources that go toward meeting customer demand. A big piece of SCM planning will be to develop a set of metrics that monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

2. **Source**—Next, the company will choose suppliers to deliver its needed materials according to set specifications. Therefore, the operations manager will develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And then, the operations manager will put together processes for managing the materials inventory, including receiving and verifying shipments, transferring them to the manufacturing floor and authorizing supplier payments.

3. **Make**—The operations manager will schedule the activities necessary for production, testing, packaging and preparation for delivery. This will be the most metric-intensive portion of the supply chain—one where the company is able to measure quality, production output and productivity.

4. **Deliver**—The operations manager will coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

6.0 FINANCIAL PLAN

6.1 PROJECTED RESULTS SUMMARY

Projected Profit & loss	Yr 1	Yr 2	Yr 3
Revenue	1 000 000	2 000 000	4 000 000
Total revenue	1 000 000$	2 000 000$	4 000 000
Operations expenses			
Direct labor			
Operations salaries	45,000	90,000	300,000
Fringe benefits	10 000	10 000	10 000
Sub contracts	1 000	1 000	1 000
Equipment rental	50 000	50 000	50 000
Delivery expenses	10 000	50 000	170 000
Packaging & handling	10 000	50 000	170 000
Operations overhead expenses	10 000	50 000	170 000
Total operations expenses	136 000	301 000	871 000
Gross margin	864 000	1 699 000	3 129 000

Administration expenses	Yr 1	Yr 2	Yr 3
Salaries	55 000	105,000	250,000
Fringe benefits	15 000		
Rent	60 000	120,000	120,000
Energy	6,000	6,000	6,000
Communication	4,200	4,200	6,000
Insurance	3,000	3,000	4,500
Maintenance	4,800	4,800	12,000
Office expenses	2,400	4,400	8,000
Office supplies	1,800	3,800	5,200
Mail & deliveries	20,000	100,000	204,000
Leasing expenses	60,000	60,000	120,000
Accounting fees	5,000	10,000	20,000
Professional expenses	15,000	15,000	25,000
Amortization	10,000	10,000	10,000
Development expenses	250,000	160,000	160,000
Total administration expenses	497,200	606,200	950,700
Sales & marketing expenses			
Salaries & Commissions	120,000	300,000	500,000
Publicity & promotion	120,000	200,000	200,000
Travel expenses	120,000	200,000	200,000
Representation	100,000	180,000	200,000
Trade shows	150,000	225,000	225,000
Total sales & marketing expenses	610,000	1,205,000	1,325,000
Total expenses	1 107 000	1 811 200	2 275 700
EBITDA	0	0	853 300
Income tax			127 500
Depreciation	35 000	33 000	31 000
Net profit /(loss)	(278 000)	(144 800)	694 800

Projected Balance Sheet	Day 1	Yr 1	Yr 2	Yr 3
Current assets				
Cash	190 000	202 000	(343 000)	332 000
Accounts Receivable		250 000	450 000	470 000
Inventory	20 000	20 000	20 000	20 000
Other receivables				
Current Assets	**210 000**	**472 000**	**127 000**	**822 000**
Equipment assets	400,000	950 000	950 000	950 000
Building assets	0	0	0	0
Depreciation		ND	ND	ND
Long term assets	**400,000**	**950 000**	**950 000**	**950 000**
TOTAL ASSETS	**610 000**	**1 422 000**	**1 077 800**	**1 772 000**
	Day 1	**Yr 1**	**Yr 2**	**Yr 3**
Liabilities				
Accounts Payable	10,000	0	0	0
Accrued Liabilities		0	0	0
Current Liabilities	**10,000**	**0**	**0**	**0**
Financing	0	300 000	300 000	300 000
Mortgage	0	0	0	0
Government Grants/Loans	0	0	0	0
Long term liabilities	**0**	**300 000**	**300 000**	**300 000**
Equity external investors		1,200,000	1,000,000	1,000,000
Equity founders	600,000	200,000	200 000	200 000
Net (Income) / Loss cumulated		(278 000)	(422 800)	272 000
Shareholders equity	**600 000**	**1 122 000**	**777 800**	**1 472 000**
Total liabilities & equity	**610 000**	**1 422 000**	**1 077 800**	**1 772 000**

6.2 FUNDING REQUIREMENTS

Newco's management requires 1,4 M$ to put the project forward and lead the business to its objectives. The team is willing and able to inject 10% additional funds (200K$) which will be recorded as advances but prorogated for the entire startup phase.

The facilities preparation will be partly absorbed by the building owner and partly by equipment suppliers whom will guaranty installation and hookup.

The investment will be used to acquire assets described in section 1.5 (shown below) and includes equipment, patent filing and market development expenses needed to attract the customer base.

Use of funds

Equipment	300 000.
Development equipment[5]	250 000.
Beta projects	250 000.
Market Development	600 000.
Total cost	**1 400 000. $**

6.3 SENSITIVITY ANALYSIS

A sensitivity analysis was performed which demonstrate the criticality of meeting sales objectives at a minimum of 55% to meet cash flow budget goals.

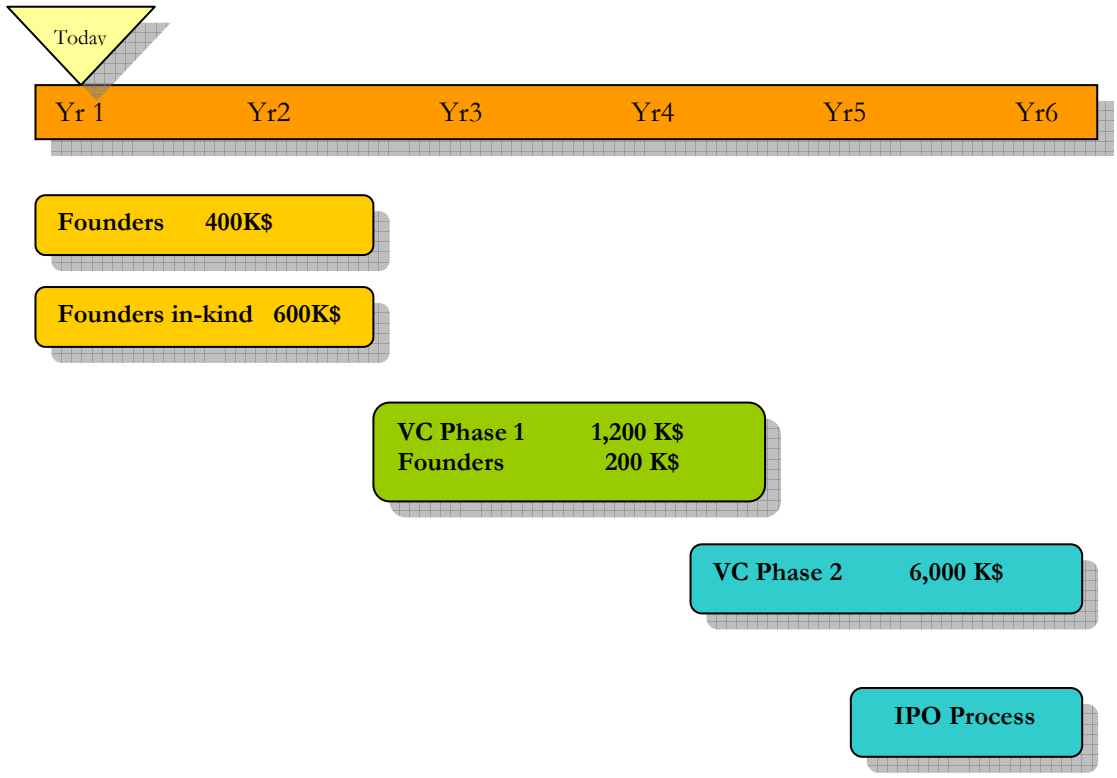
Projected results at year end (,000 $)	100%	75%	50%	25%
Cumulative revenue 2012-2014	7 000	5 250	3 500	1 750
Gross margin	5 692	4 269	2 846	1 423
Expenses	3 920	2 940	2 460	2 230
EBITDA	1 772	1 129	386	(807)
Net profit/(loss)[6]	1 572	956	(66)	(868)
Cash	202	(343)	840	(1 940)

[5] The development equipment is eligible to RS&DE investment tax credits.

[6] Assume un impôt combiné de 22%

6.4 INVESTMENT PLAN

Newco is seeking private equity or funding from an institutional organization involved with the new technology field for its phase 1 business development.



Newco's strategy is to pursue its investment process in two phases while the business reaches full maturity and becomes attractive for the public market through an initial public offering (IPO). That is, a phase 2 investment is foreseen at the end of year 3 and will range from 6-8M$. The initial investors will be repaid at that stage.

We believe that this structure reduces risks considerably with respect to return.

An IPO would be expected for year 6.

APPENDIX A

FINANCIAL PROJECTIONS