

Master's thesis MBA

International Business Management

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2014

Taina Nyström

BUSINESS PLAN

– for FinEnviTech Global Ltd (partly confidential)



TURUN AMMATTIKORKEAKOULU
TURKU UNIVERSITY OF APPLIED SCIENCES

MASTER'S THESIS | ABSTRACT

TURKU UNIVERSITY OF APPLIED SCIENCES

International Business Management

2014 | 80 + 10

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BUSINESS PLAN

The purpose of this thesis was to create a business plan for FinEnviTech Global Ltd.

The company is producing and marketing products and services for Smart & Safe Living – Green Environment. The business plan was written to examine the profitability of the company. There are also intentions of presenting this business plan to the investors.

The business plan covers the market segmentation, products, marketing, financial and future plans. Special attention has been paid to keep the plan as realistic as possible. Some of the problems were encountered during the writing process. Most remarkable of there was how to get the investors to believe this business opportunity. It is highly recommended to perform market surveys before capitalizing the business plan presented in this thesis.

One of the main focuses of the project was an analysis of present market and the potential customers. The comparison made between company's product and those already on the market gives an understanding of what benefits these products and services can offer to the customers. The SWOT-analysis helps the company to create its strategy. The final part of the business plan focuses on the calculations of various expenses, such as starting costs, material costs and production costs.

KEYWORDS:

Business plan, business idea, green environment, safe & smart living

OPINNÄYTETYÖ (YAMK) | TIIVISTELMÄ

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LIIKETOIMINTASUUNNITELMA

Opinnäytetyön tarkoituksena oli kirjoittaa liiketoimintasuunnitelma FinEnviTech Global Oy:lle.

Yhtiö suunnittelee ja markkinoi tuotteita sekä palveluita ympäristön monitoroinnin tarpeisiin. Yhtiö on puhtaan ympäristön puolesta puhuja. Liiketoimintasuunnitelma on kirjoitettu yhdessä yrityksen omistajien kanssa. Liiketoimintasuunnitelman tutkinta-aihe oli kuinka markkinointia, sen segmentointia tulisi toteuttaa eri markkina-alueilla. Liiketoimintasuunnitelma tehtiin myös sijoittajia ajatellen.

Liiketoimintasuunnitelma kattaa markkinoinnin, markkinoiden segmentoinnin, tuotteet ja palvelut sekä taloushallinnon ja tulevaisuuden suunnitelmat. Erityistä huomiota on kiinnitetty suunnitelman pitäminen mahdollisimman realistisena. Merkittävin osa suunnitelmaan on miten sijoittajat saadaan uskomaan tähän erityislaatuiseen liiketoimintamahdollisuuteen.

Yksi tärkeimmistä painopisteistä työssä oli markkioiden ja potentiaalisten asiakkaita analysointi. Suunnitelmaan on myös tehty yhtiölle SWOT –analyysi, mikä auttaa yritystä luomaan ja suunnittelemaan strategiansa tulevaisuuden suhteen. Viimeinen osa liiketoimintasuunnitelmasta keskittyy laskelmiin eri kulujen suhteen.

ASIASANAT:

Liiketoimintasuunnitelma, liike-idea, vihreä ympäristö, turvallinen elinympäristö

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LIST OF ABBREVIATIONS

ALD	Atomic Layer Deposition
CAGR	Compound Annual Growth Rate
CDF	Cumulative Distribution Function
CERN	The European Organization for Nuclear Research
CMS	The Compact Muon Solenoid
ERM	Enterprise Risk Management
GEM	The Gas Electron Multiplier
HIP	Helsinki Institute of Physics
IPPF	Independent Power Producers Forum
LSM	Laser Scanning Microscope
PET	Positron emission tomography
SPECT	Single Photon Emission Computed Tomography
SPS	Suspension Plasma Spray -coating
STUK	Radiation and Nuclear Safety Authority
TOTEM	Total elastic and diffractive cross-section measurement
UH	University of Houston
WSN	Wireless Sensor Network

1 INTRODUCTION

People, Governments and Companies have to focus more and more for the clean and safe environment. Global economic suffers from climate change. Every new ton of release is a huge step to unknown and it is a huge risk. For this reason, the climate emissions as quickly as possible is a scientifically justifiable (Blog of Anni Sinnemäki).

FinEnviTech Global Ltd is a start-up company. It is owned and founded by Professor Risto Orava. Professor Risto Orava has a high experiment of sensors, sensor system's and X-Ray imaging. He has a background of high energy physics at UH, HIP and CERN. FinEnviTech's solution is based in real time monitoring system, which is unique. All of these are now used in rapidly growing markets of safe environment.

1.1 Objective

Purpose of my theses was to help company to build a business plan for investors. This means analyzing the business environment and channels which could be useful for the company. As FinEnviTech is a start-up company, it essential that potential investors and other stakeholders will have an outlook of a written plan, company's operations, goals, as well as the strategies and plans with targets. Business Plan can be used effectively to support company's development and activities.

1.2 Business Idea

The business idea should not only be examined by idea of products and services. It should also be examined from the perspective of the investor's. Company should point out which benefits of the idea are benefit for the customers and for the investors. The credibility of the idea should be tested by forming a preliminary understanding of the market opportunities. The feasibility value and the idea of the novelty has to be considered. This shows the problems which are to be solved by business plan (McKinsey & Company 2000, 30).

The idea of the Business Plan is to support business. There are three questions, which business plan should support:

1. What is the benefit and what will the customer get from the business idea?
2. What is the market? Where?
3. How money can be made?

A promising business idea should be unique and innovative. It should have a clear target, and it should be profitable in a long run.

1.3 Business Plan

All new companies should have a business plan. Doing a good business plan company should focus on the big picture, all the risks should be considered. Unexpected situations should be prepared. Budgets, financial plans and other plans should compose. In this situation the entrepreneur has a lot of decisions to make.

1. Who are the customers, customer segments?
2. How the products and services are priced ?
3. Where offices are placed?
4. Will the production be outsourcing?

Planning should also consider marketing. How widely it is done, and how?

A business plan is a document which can be detected how the business is planned to be carried out. One of its goals is to find and draw up strategy, how company will implement them. A good business plan is made at least for 3-5 years, since investors will look for their annual return in that timeframe. Business plan may be focused internally or externally. Externally focused plans target goals are for stakeholders, especially financial stakeholders and investor's. Internally focused business plans target intermediate goals required to reach

the external goals. Business plan is company's one of the a decision-making tools.

1.4 Structure of business plan

Business plan should answer to the following questions:

1. Were company is operation?
 - backgrounds, values
2. Why the company is established?
 - mission
3. What are the goals?
 - SWOT –analyses
 - visions for at least 3-5 years
 - short time plans
4. How will the goals be reached?
 - calculations
 - plans, indicators (Lipiäinen 2000, 20.)

Why companies should have business plan?

Business plan is a good multipurpose tool. It can be used widely. Main four uses are:

1. Collecting funding at start-up phase as the extension
2. Attract investors
3. Support for decision making
4. Performance employees with motivation and prevention problems (Lipiäinen 2000, 22.)

Business plan is mostly a spiritual journey for the entrepreneur. It shows if the business idea is good enough that it should be carried out (Viitala R.&Jylhä E. 2013, 51). Business plan has to be clear and understandable. It shows for the reader clearly all relevant issues from the company.

More understandable it is, more likely an investor will read the entire business plan. (McKinsey & Company 2000, 51.)

With a business plan company shows that its products and services have a business opportunity. (Viitala R.&Jylhä E. 2013, 51.)

Here are the principles for creating a business plan:

The business plan should be based on research data. It should be simple, relevant and information-rich. It should be distinctly readable, based on proven facts. (Lipiäinen 2000, 19.)

Business plan diagram

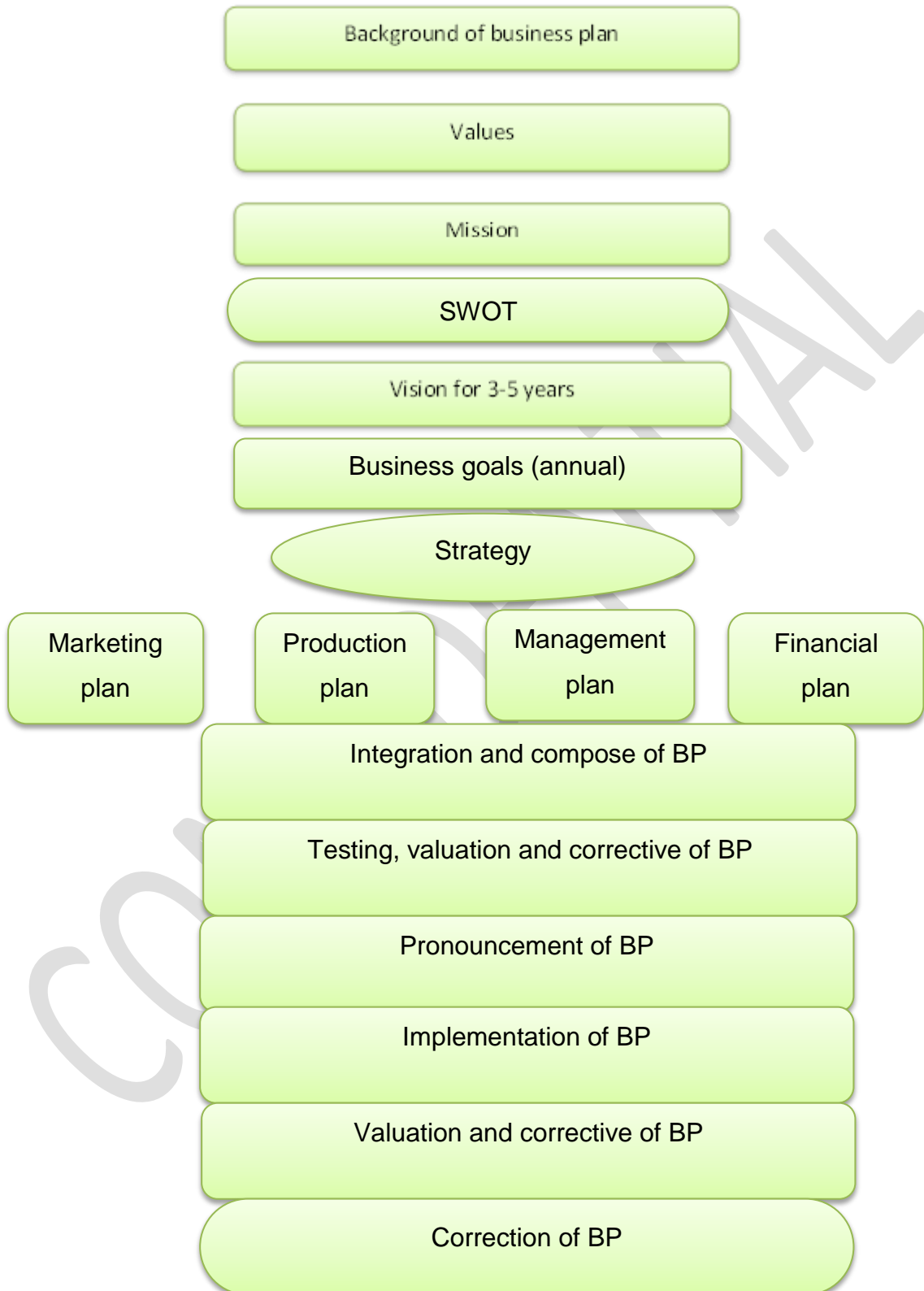


Figure 1. Business Plan diagram.

2 DATA COLLECTION AND ANALYZING METHOD

The aim was to make a business plan for a start-up company - FinEnviTech Global Ltd. I tried to make the thesis as accurately as possible. I figured out how Business Plan would serve to best the company, since it will find funding for the future.

Research problems and the study of the structure.

The study seeks answers to the following questions:

- what is the current situation of the company?
- where company wants to be after 5 years?
- how to achieve the objectives?
- how investors can be proved to this business idea?

The study progresses in stages, starting with the FinEnviTech as a principal. The base of the study is on an operating business idea. Therefore, it is important to know the company and the industry where it is working. In the beginning, I will tell the industry in general, the way it works today, and how it is expected to grow in the future. I'll tell also the brief history of the company, the company's founder. I also assess how the company will be able to take advantage of the business plan in everyday action and concerning investors. The theory is based on the literature, studies, brochures, interviews, as well as the owners own experience. The study also took into account the internationalization of markets, especially in Asia.

The research and implementation

I studied special industry literature, as well as an electronic material. I studied also digital materials, what I got from the owner. Some of the articles are special articles in this industry. I took advantage of the concrete industry and government sites, such as IPPF, World Nuclear Radiation and Associations for the

market-analysis and special customers. Some of the writing is my own experience in the business world.

The empirical part was carried out between January and April 2014. To have more information about the company's current situation, we organized number of meetings. We also had numerous e-mail discussions with the owners of the company. The company's owners gave me enough information on the current situation, business idea, products, and services. I tried to keep interview questions as simple as possible, I did not want to go too deep in this research company's product details. The aim was to have an understandable overview of business operations. The questionnaire is given in Appendix 1.

The study was conducted mostly together with the owner and founder Professor Risto Orava. He has a very strong experience in this field, he strongly believes that this is a fast-growing industry in the future. He has also number of new product ideas for the future.

Another interviewee is PhD. Ari T. Hirvonen. He is not employed full-time in the company, but very closely involved. He has extensive expertise and experience in business development and trade especially in Asia.

The third person was Mr. Jari Vepsäläinen. He is one of the owners. His main responsibility is Asia market, especially China where he has over 25 years of experience in trade.

I also got material from a company called Sensorsoft Oy. Sensorsoft is FinEnviTech's subsidiary. The material came from Engineer Jamilya Shestovskaya, and it was mainly technical data. This data has been added to empirical part of the products and services. At one meeting I met Mervi Wallenius. She is a Consultant at MIF – Management Institute of Finland. She is consulting mainly in marketing.

I got a great deal of material from the interviews. I did not experience that as a face-to-face and e-mail accessible material were shortage. Sometimes entrepreneurs are busy, so that the answers may be insufficient. For me it was easy

to focus more my questions during the interviews. I did not experienced superficial information.

I also made SWOT –analysis for the company. A SWOT -analysis is a structured planning method used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture. These four elements aggregates company´s and its operational environment most important operators. Strengths and weaknesses are usually the company's internal factors, opportunities and threats are external environment for future macro-and micro-environments of factors. From the analysis company can analysis were improvement should be considered and in what environment they could be more efficient.

I used The Business Model Canvas as a tool. The Business Model Canvas consists different blocks like: Key Partners were company describes the network of suppliers and partners. Key Activities block describes what are the most important things a company must do to make its business model work. Customer segment block defines the groups of people, partners and customers which company aims to reach and serve. Customers Relationships block describes the types of relationships. Value Propositions block is promise to the different customer segments of company´s value. Channels block describes how company will communicate and raises its awareness. With Revenue Stream block company sees how the cash is moving. This is a heart of a business model. Key Recourses block describes the most important assets required business to work. Finally Cost Structure block, this block describes what are the main costs (The Business Model Canvas).

Interview summary

The study revealed that the owners believes very much to this business idea. For now they have self-funded all the company's operations. Since the future plans are high, more funding must come from elsewhere. Personal interviews also revealed that the staff is currently very technical. Technical know-how is the top quality, but the marketing and sales have not yet been sufficiently in-

vested. The interviews also revealed products and services current state. Some of the products are already “selling order”, so to speak, but the lack of time has taken sales. The company has already received a number of request for quotation, but there has not been enough time to respond for those. Interviewed persons believed, however, that products and services will have a demand in the market.

Conclusion of the study

The study shows that the company should take the following things into consideration:

- human resource
- production
- material costs
- quality
- suppliers
- investments

The current personnel is adequate for some time, but I think the marketing and sales should be invested in Q3/2014 at the latest. Product design has been studied well, and new ones are already in development, but they have not yet been implemented. Now it is time to answer urgently for the request of quotations and take them forward. By doing request of quotations more attention should be taken into account cost of goods in different areas. Many of the costs may come as a surprise if they are not prepared for. The company must also pay attention to the quality. The quality criteria should meet and be presented to the offer. The company should also consider the wider suppliers, how quickly they are able to operate, how Audits will be carried out, how the operations are performed, who is responsible for insurance and so on. Considering Investors it would be good to show that the company has already considerable buyers and partners.

SWOT –analysis shows current strength is, FinEnviTech has a strong technical background and already patents. This is a prove of quality products. But what comes to weakness, it shows that FinEnviTech is a new company, they don't have yet investor's. One of the weakness is also marketing. The resources are of course at this time limited, but in the future they have to invest to these weaknesses.

For me, this was a great opportunity to not only write a business plan , but also to explore interesting people, and this unique business idea. I also learned something from sensor technology.

The data has been collected from wide range of literature and other relevant studies and publications. I added to this is my own business experience as well as the study interviews. From the interviews and other materials I combined a short study, which I hope will help the FinEnviTech in the future. In the empirical part of the work calculations are estimated. The financial plan is done in cooperation with the company. Calculations, we agreed with the company that they will change them if necessary.

My thesis aim was to make a business plan for FinEnviTech. The study was to initially keep simple and easy to understand concerning investors. I hope that I managed to do this study in the empirical part in the way FinEnviTech hoped.

3 MARKET AND MARKET NEEDS

Business market has different types of challenges and opportunities than normal consumer markets. The concepts of value, relationship and buyers decision making are different (Vitale R., Giglierano J., Pfoertsch W., 2011, Business-to-Business Marketing. Analysis and Practice. Pearson Education). The differences between consumer market and B2B market are not very different but companies have to understand what are the marketing differences. Marketing should be based on underlying needs. Companies has to make for each market segment own strategy, explanation of the market needs. In this way company can prove that products and services are profitable.

Is there really a need for this kind products on the markets? Is there already other products and services which are on the market, and are they already filling the needs? It is highly recommend that company will make a market research. It doesn't have to be big, it can be simple and practical.

First look for existing, similar businesses. This is a very good first step. At this field Finland is a small area. You have to look markets globally. By studying other similar businesses, you not only get information but may also have good partners and business relationships. Maybe even buying the existing company might help in the future.

What is Green Marketing?

Consumers often associate terms like Phosphate Free, Recyclable, Refillable, Ozone Friendly, and Environment Friendly with green marketing. Green Marketing is much more than those terms. Polonsky has described Green Marketing as the following:

- Green or Environment Marketing consist of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment.

- To enhance this definition should “environmentally friendly” be changed to “less environmentally harmful”? With this change, Green Marketing should look at minimizing environmental harm, not necessarily eliminating it (<http://www.marketingeye.com.au/>).

Governments are now actively “protecting” consumers and society. Governmental regulations relating to environment are making stricter. Average people want to know more about their environment, they are actively following changes. People want to live in Safe and clean environment. Governments establish regulations to control the amount of pollution, waste, radio-activity produced by firms and traffic. Monitoring has to be done quickly, we cannot wait anymore two to three weeks for the results from monitoring. This is why FinEnviTech has a strong opportunity here, they have real-time monitoring system which can also assist ordinary people.

As with all marketing related activities, there are several industry fields who can benefit with this green environment system. Nuclear power industry is global. Although it is not anymore generally approved with citizens, it is still a growing market. At this field monitoring is very important. Radiation is not only Nuclear plant “problem”. Radiation is energy travelling through space (<http://www.world-nuclear.org/>). Sources of Radiation are different, we need to understand that although we cannot “see” it, smell it, we still can monitor it. Here again market need is great. Like Radon and other particles, radiation has to be monitored at real-time.

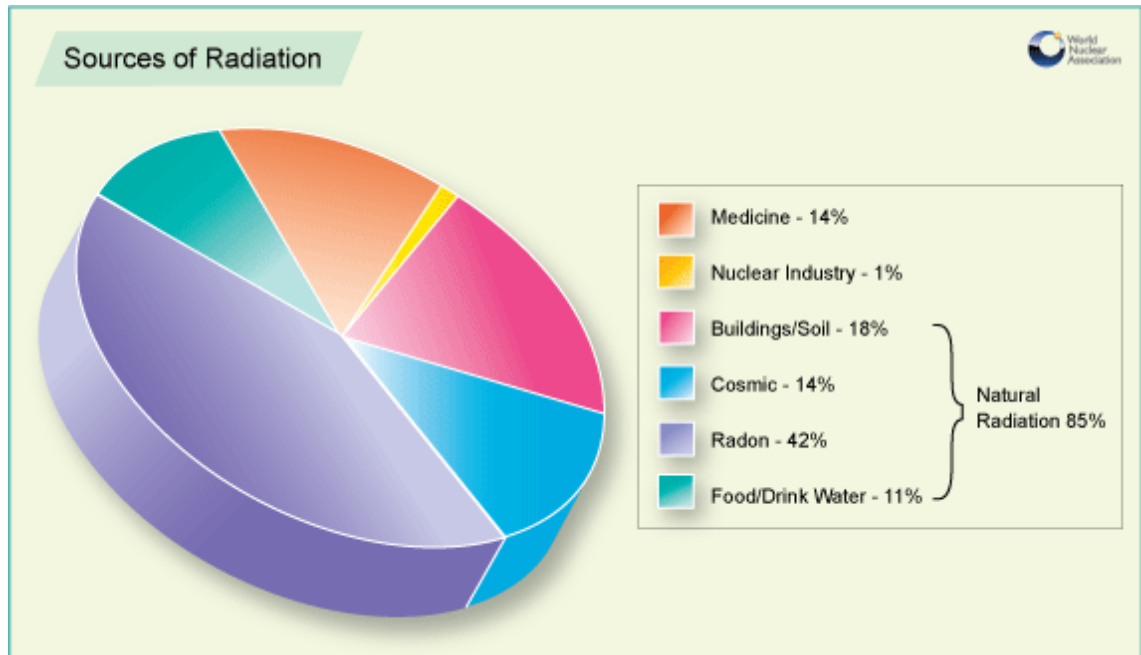


Figure 2. Sources of Radiation

Figure 2. shows that 85% of radiation is natural background Radiation. It is the main source of exposure for most people. Figure provides small perspective on radiation exposure from nuclear energy (<http://www.world-nuclear.org/>).

There is a need for sensors across all market sector needs. The future will see a move to more ubiquitous sensing as man's need to better manage resources and optimize processes increases. Mega cities will be in the future fully sensed. Infrastructure, services and people will benefit from sensing technology (Report funded by Microelectronics iNet, Nov. 2011, Making Sense of Sensors).

"If you cannot measure it, you cannot improve it" - Lord Kelvin -

4 EXECUTIVE SUMMARY OF FOUNDER

Professor Risto Orava is the founder and Chairman of the Board of Directors of FinEnviTech Global Ltd.

Professor (Chair) of Experimental High Energy Physics, University of Helsinki, Finland, Helsinki Institute of Physics, and CERN, Geneva, Switzerland.

Dec 99 - on Instrumentation for frontier experiments in high energy physics at CERN (DELPHI: 20,000 radiation detectors developed and delivered to CERN in 1987-1989, CMS, and TOTEM experiments: 54 GEM detectors developed and delivered to CERN in 2007-2009), Fermilab and NASA (AMS spectrometer) Development of radiation sensors, electronics, slow control systems for physics, X-ray imaging and other applications.

Founder of the Detector Laboratory, The SEFT Detector Laboratory in Finland Organizer of applied research technology transfer activities: Over 880 publications on nuclear physics, research and development (Physical Review D, Physical Review Letters, Nuclear Physics, Physics Letters, etc.), on instrumentation and sensor technology, technology transfer and management of large international R&D organizations (Nuclear Instruments and Methods A, IEEE transactions in nuclear science, etc. leading journals).

Professor Risto Orava has 16 patents on sensors, sensor systems, and X-ray imaging.

1) CERN-DELPHI-LEP: responsible for the 20 000 LSM detectors, signal processing electronics, HV controls and data acquisition system delivered to CERN; covered 6 000 square meters and of the order of 100 000 measurement channels; participation in design, construction and running of the precision detector system based on silicon sensors for the DELPHI microvertex detector system

2) Fermilab-CDF-Tevatron: responsible for participation in design, construction and running of the CDF precision vertex detector system

3) NASA-AMS: responsible for the participation in the design and prototyping of the large scale silicon precision detector systems for the AMS-1 spectrometer for the Space Station.

4) CERN-TOTEM-LHC: responsible for the construction, testing and delivery of 50 Gas Electron Multiplier (GEM) detector systems for the TOTEM T2 spectrometer.

CERN – Conseil Européen pour la Recherche Nucléaire. At CERN, physicists and engineers are probing the fundamental structure of the universe. They use the world's largest and most complex scientific instruments to study the basic constituents of matter – the fundamental particles. The particles are made to collide together at close to the speed of light. The process gives the physicists clues about how the particles interact, and provides insights into the fundamental laws of nature. The instruments used at CERN are purpose-built particle accelerators and detectors.

More about Professor R. Orava: <http://hep-exp.physics.helsinki.fi/risto-orava/>

More about CERN: home.web.cern.ch.

5 COMPANY

A short story of company in the beginning of Business Plan will tell to the investors what kind of company it is.

FinEnviTech Ltd responds to the acute market needs in environmental monitoring of radiation, gas and microbes. The Company offers a series of customized leading technology solutions for automatic wireless real time measurement and identification of all forms of radiation (α -, β -, γ -, n-radiation) and gases (CO₂, CO, NO_x, VOC etc.) in challenging environments. FinEnviTech IPR covers the entire system including the measurement unit (iAirSS), nodes of the wireless system (iNODE) and the network system (iWSS). Robust real time semiconductor sensors of winning technology are used as the sensing elements. The modular iWSS allows easy integration, assembly and maintenance into existing and novel monitoring environments (CEO 2014).

The iWSS provides a solution for the rapidly growing markets in Smart and Safe City applications, such as environmental monitoring of underground parking facilities, monitoring and regulation of air conditioning systems in buildings, safety monitoring of air quality steel recycling plants and mines.

FinEnviTech Ltd is a start-up company founded in Fall 2012 by a group of experts in radiation sensors, wireless sensor systems.

FinEnviTech uses winning technologies in its real time monitoring systems for the rapidly growing markets of safe and smart cities. The iWSS will create new applications in areas where conventional technologies cannot be used.

5.1 Company Ownership

- Prof. Risto Orava, founder & owner CEO

Strong background in advanced sensors (16 patents on sensor technology) and instrumentation (responsible for large scale instrumentation projects in accel-

erator and space applications (up to 20 000 individual radiation detectors). Professor of high energy physics at UH, HIP and CERN, owner and founder of FinEnviTech, Finphys, Finsensor, extensive network in radiation research.

- Prof. Arto Toppinen, CTO in wireless

Experienced in wireless technologies, past experience in Honeywell. Currently principal teacher at Savonia University of Applied Science.

- Dr. Matti Kalliokoski, CTO in radiation sensors

R&D on radiation sensors, imaging and RF-technologies, quality assurance. 10 years of experience in instrumentation at CERN.

- Phd Ari T. Hirvonen, owner

Strong international knowledge of IPR business. Specialties in Nanoindentation, coatings (CVD, plasma, thermal spray, ALD), sintering (SPS, hot press, HIP), thin films mechanical testing, R&D skills for new materials, strong international relationships between Europe-Japan-Korea-USA.

- Jari Vepsäläinen, owner

CEO of the Fintrade-Mercer Group. He is a China trained attorney who has worked with Western companies located in China since mid-1980's. Mr. Vepsäläinen is specialized in Merger and Acquisition / Joint Venture Companies contracts / Wholly Foreign Owned Enterprises, technology capitalization and forms of direct investment and restructuring operation and has many Board of Directors assignments in China and Hong Kong.

5.2 Management Team

Management team is very ambitious, energetic and initiative. Desire to achieve honest, motivated management is the key issue to have a good working environment.

Table 1. Management Team.

Name	Function / work contract	Short Bio
Risto Orava	Scientific advisor CEO	strong background in advanced sensors (16 patents on sensor technology) and instrumentation (responsible for large scale instrumentation projects (up to 20 000 individual radiation detectors). Professor in High energy physics at UH and CERN, owner and founder of Finenvitech, Finphys, Finsensor, extensive network in radiation research.
Arto Toppinen	CTO	Background in wireless , RF, worked as deputy managing director for APL systems and application architect at Honeywell. Now principal teacher at vocational school Savonia.§
Ari T. Hirvonen	Business manager	
Jarno Ruutinen	Project manager	
Matti Kalliokoski	Technician	

Plan for personnel is to have a growth from 9 to 18 person by the end of the year 2018.

Company need sales and marketing people. When markets grow company needs to have personnel for technical support. Also assistant for daily routine are required. We will offer also traineeship for University students.

5.3 Organizational chart/structure

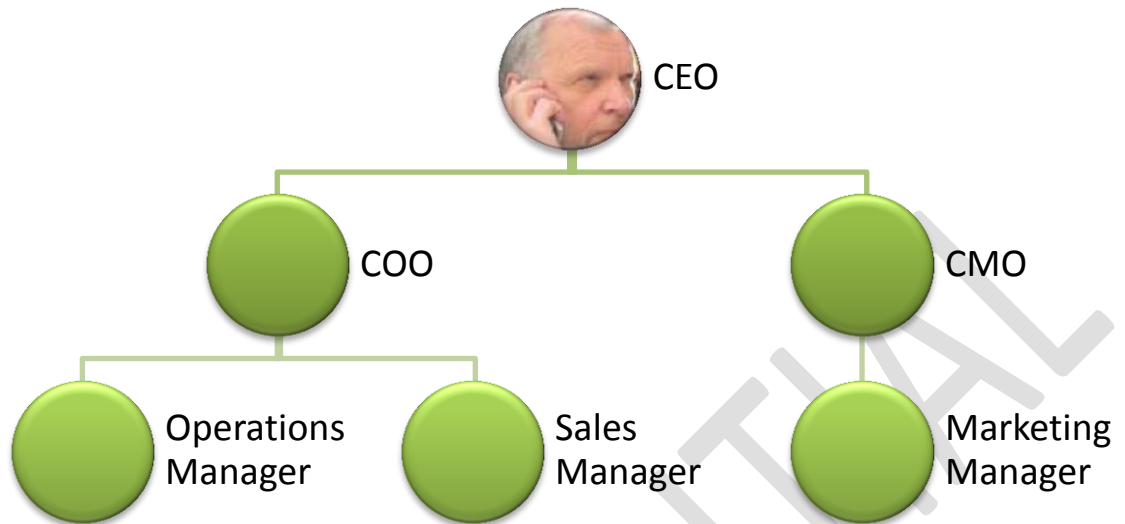


Figure 3. Organizational chart.

Board of Directors

Risto Orava

Jari Vepsäläinen

Ari T. Hirvonen

Ownership and Registered Address

Owner: Risto Orava, CEO

Owner: Jari Vepsäläinen

Owner: Ari T. Hirvonen



Picture 1. Innopoli 2.
(www.innopoli.fi)

Located at Otaniemi Espoo Tekniikantie 12,

Innopoli – High-Tech Innovation Cluster.

6 VISION AND MISSION

What are company's Mission, Values and future plan.

Vision goal has to be planned at least for 3-5 years. Company has to build annual growing plans. Vision is not only a word for investors, it has to be a ground for company's business development. It gives a clear guidance for business idea, it gives values to employees and motivates people. It also gives a clear goals to stakeholders, customers and employees (Lipiäinen 2000, 55-59.)

6.1 Mission Statement

The mission of FinEnviTech is to provide sustainable monitoring solutions for promoting Smart City and Safe Environment.

FinEnviTech will execute its mission by: developing reliable and sustainable technological solutions for monitoring air radiation and other air pollutants; providing a versatile sensing technology platform delivering real time data and that will be used by most cities and industries for monitoring air quality indoors and outdoors; employing top individuals and partners. We let our customers to decide what our products and service will move on.

7 MARKET, SEGMENTATION AND CUSTOMERS

Pages 29 – 70 are partly confidential.

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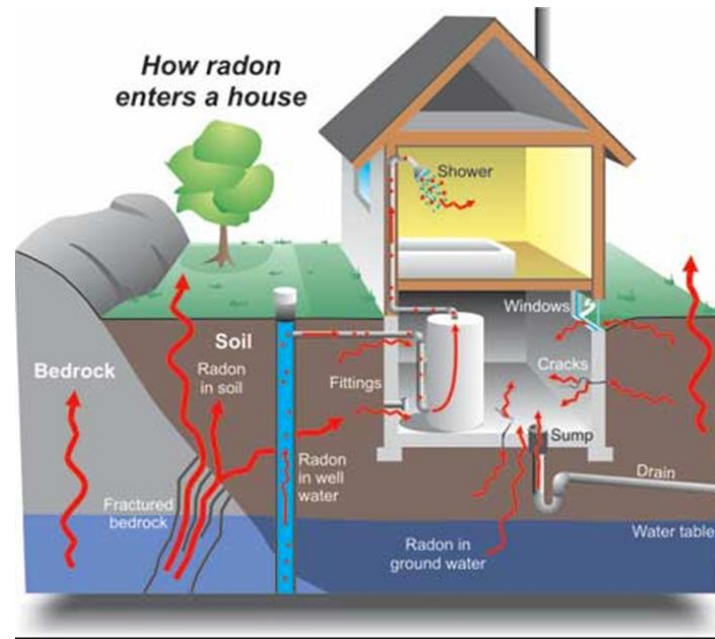
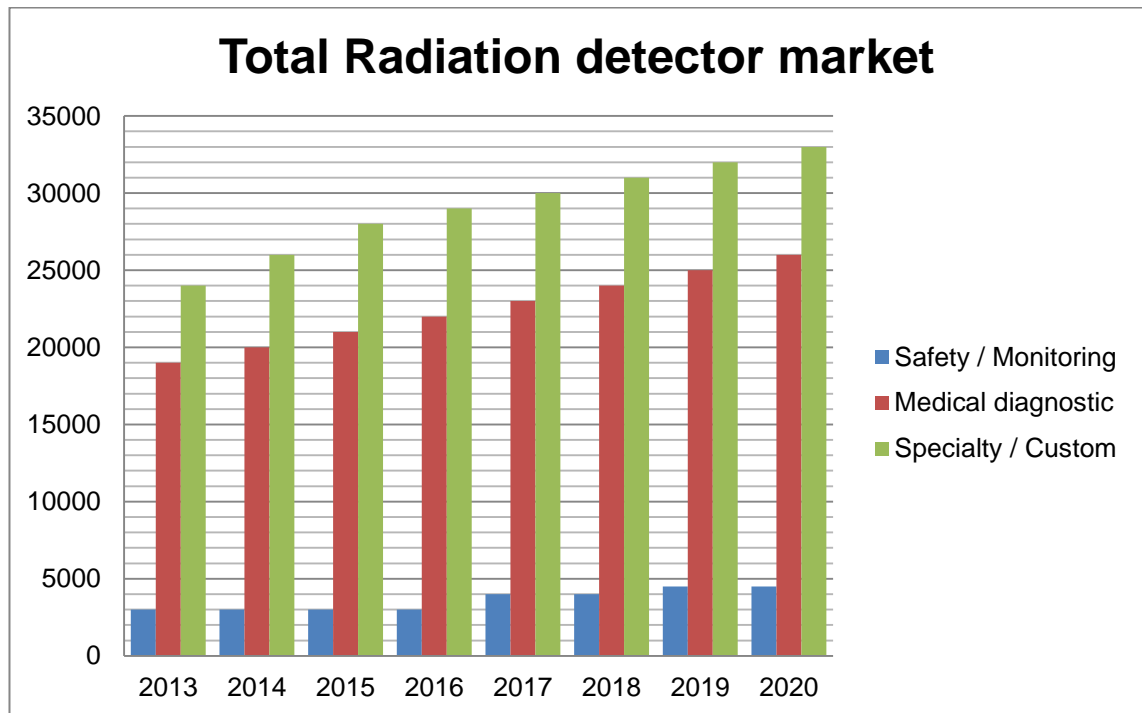


Figure 4. Radon gas emissions pose a major health risk globally and is accounted for about 50% of the lung cancer cases. (Orava R., 2013, Real Time Radon Gas Detection System).

CONFIDENTIAL

Table 2. Total Global Market for Radiation Detectors 2013-2020.



Different kind of detector types can be used in many different segmentations.

Table 3. Potential Example Segmentations of the Radiation Detector Market.

Market Segments	Product Types	Applications	Detector Types
Medical	Dosimeters	Dirty Bomb Detection	Geiger Counters
Homeland Security/Defense	Radioisotope Identification Device	Cardio Stress Testing	Ionization Chambers
Nuclear Energy	Personal Radiation Device	Dark Matter Detection	Scintillation Counters
Occupational Safety	Portal Monitors	Effluent Waste Monitors	Semiconductor Detectors
Industrial Component Inspection	Oil Logging Meters	Whole Body Contamination Scanners	Cryogenic Detectors
Oil and Resource Exploration	PET Devices	Oncology Treatment Monitoring	

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7.2 Market segmentation

Effective market segmenting

The following criteria is generally accepted to help identify valid and reliable segments. For a market segment to be favorable it should fill the following criteria.

All segments should be:

- **measurable** The segments size, characteristics and purchasing power can be measured
- **accessible** The segment can be reached effectively and it can be served
- **substantial** The segment is large enough for a separate marketing program to be created that will bring return on investment
- **actionable** The segment can be reached by the formulation of effective programs
- **compatible** The segment should fit in with expected market conditions and the company's current business strategy

(Fill & Fill 2005, 63-64; Kotler & Keller, 2009, 268).

Nowadays it is seldom possible to satisfy an entire market with one product. This is why FinEnviTech should also consider wider product portfolio. Competition, too broad market and vast market areas require companies to divide a market into smaller segments. "Segmentation is a technique for dividing mass markets into identifiable subunits, in order that the individual needs of buyers and potential buyers can be more easily satisfied." (Fill & Fill 2005,50).

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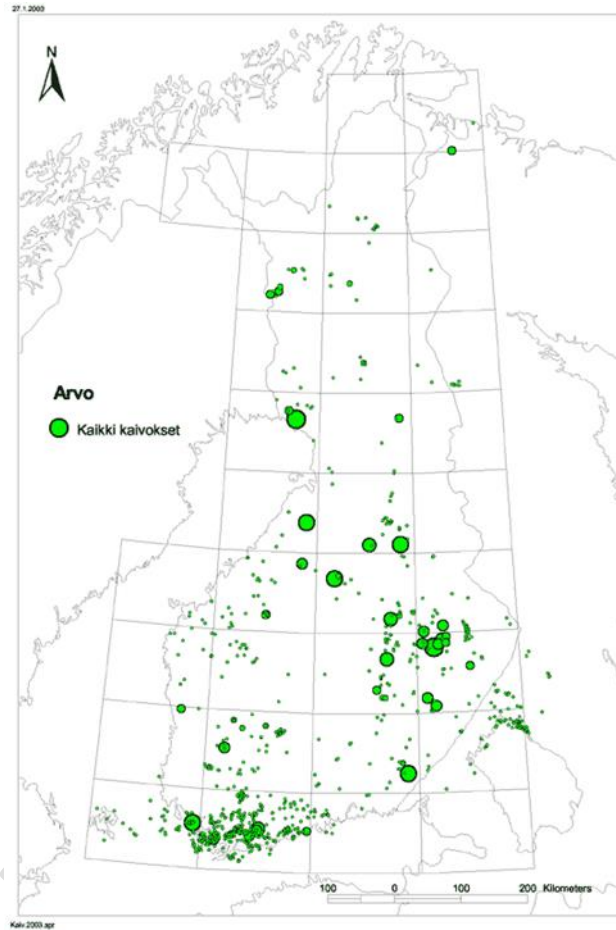


Figure 5. Mining Industry in Finland. (weppi.gtk.fi)

Nuclear power

Nuclear power has an important role in China, especially in the coastal areas remote from the coalfields and where the economy is developing rapidly. Mainland China has 20 nuclear power reactors in operation, 28 under construction, and more about to start construction.

China's policy is for closed fuel cycle.



Figure 6. Nuclear power reactors in mainland China. (<http://www.world-nuclear.org/>)

China has become largely self-sufficient in reactor design and construction, as well as other aspects of the fuel cycle, but is making full use of western technology while adapting and improving it.

China's policy is to 'go global' with exporting nuclear technology including heavy components in the supply chain.

Mega Cities

Here is a huge potential for the future for air monitoring. Air pollution in Mega Cities is a significant environmental threat which contributes to an estimated 6% of annual deaths. Improving our city's air quality is a difficult task because there are many types of air pollutants that can come from millions of sources, inside and outside city boundaries.



Picture 2. Green safe environment.

8 OPERATIONAL PLAN

Business idea, philosophy

Business idea specifies company's own way to do business and profit. It also shows prosperity. Business idea is very wise to write down precisely, so that it can be evaluate by others. With exact description it is easy to improve in the future (Viitala R.&Jylhä E. 2013, 42.)

At the business idea company specifies its customers, products and services with the competitive advantage. Business idea should be based to the customer needs.

FinEnviTech answered to these 3 questions:

- To whom we want to sell?
- What are we going to sell?
- How is our operation done?

Business idea is to develop wireless sensor solution platform, services and products for environmental monitoring needs.

Keys to Success

Cutting edge technologies required for the acute market needs, top level partner network, economic and political requirements for finding break through solutions for environmental monitoring needs. FinEnviTech will focus on value creation. Company will establish long-term relationships with the right communications partners. Starting point is technical results considering customers and stakeholders expectations.

Selling products to the most sophisticated and demanding customers.

- To look for the demand of sophisticated and demanding customer's needs. That way R&D can be developed.
- To place the most difficult standards, so that company will grow up one of the leading suppliers.
- To provide international partners, who will improve and upgrade company.
- To found and focus to the outstanding competitors.
- To treat employees with permanent status.

“Be as simple as possible, but not simplistic.” Albert Einstein.

Value Chain Analysis is a useful tool for working out how company can create the greatest possible value for the customers. With the Value Chain company will achieve excellence in the things that really matters.

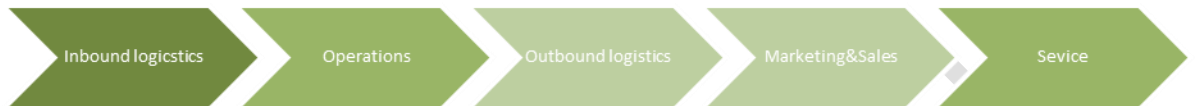


Figure 7. Value Chain.

Key Partnerships

With the liability suppliers and contractors business cannot be done effectively. Company has to have strategic alliances between competitors. Company has already made few agreements, but still is looking for new partners.

Table 4. Suppliers and Subcontractors. (continue)

Distribution Channel include now distributors, partnership and expertise. This chain is very important in the future. Company needs to improve this channel and also choose the suitable way for doing it. Channel has to be flexible, effective and consistent with the declared policies and marketing programmers of the company.

Table 5. Existing Distributor channel.

Suppliers, Subcontractors and Partners

Another important factor influencing the choice of distribution channel is the nature of the target market. Company has to choose the most efficient and effective suppliers, partners and distributors. Those partners has to know targeted markets and customers. This is a decision which is very important for a business to sustain long term profitability.

Figure 8. Existing value chain.

8.1 Technology, business solutions, services

Technology

The core technology of FinEnviTech is based on its proprietary technology platform for building ambient intelligence based on Wireless Sensor Network (WSN).

It includes:

1. Intelligent Wireless Sensor Networks (iWSS), patent application pending.
2. Intelligent Airborne Sensor Systems (iAirSS), patent application pending: it is a sampling device for data acquisition, which contains an air vacuum to take in air pollutants towards the sensors.
3. Intelligent Wireless Sensor Node (iNode), a lighter version of the iWSS which acts as a gateway.

Business solutions

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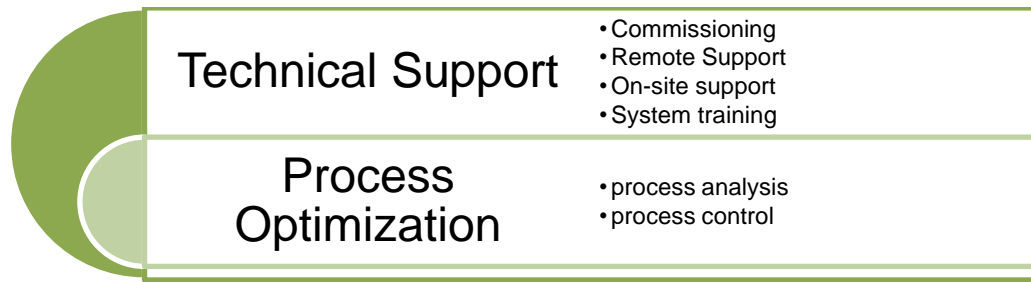


Figure 11. Service value chain.

FinEnviTech will provide post-purchase customer support.

Our technical solutions with the figures:

Figure 12. Example of set up using Gateways and Nodes.

Figure 13. Real time monitoring network operation.

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Brand Management

Our first focus in branding is Business to Business (B2B). Proposition is mining and metal industry, nuclear power plants (mainly in China), infrastructure and security. The foundation of our business model is the initiation and growth of strategic partnerships and alliances with key business partners. We have a unique offering with numerous benefits for our partners, their customers and the community. Company has conducted extensive research and analysis of China's culture, business and financial markets to design a business model that will successfully facilitate an expedited entry into China. This is done together with Fintrade-Mercer Group, who has over 25 years of experience doing business in China.

Our CEO is main brand ambassador.

FinEnviTech products have aspects of customization and modification where necessary. FinEnviTech has a long-term commitment for strategic decisions. We will build a positive perception of the brand. We have a constant monitoring for our environment and customers. Our brand is not a goal in itself, it is one of the foundation for doing successfully environment marketing.

Brand audit is the first step to build our brand process. In Asia FinEnviTech will cooperate with Fintrade-Mercer Group. That will involve company analyses, customer analysis, competitor analysis. With the help of Fintrade-Mercer group FinEnviTech will have a better understanding of customer's needs, preferences and priorities in the Asia market.

FinEnviTech will empower staff to become brand ambassadors. In the future we will effectively train our employees into brand strategy (including vision, values and personality), we will make sure that everyone fully understands what the corporation aims at becoming in the mind of its customers and stakeholders.

Our brand will be the face of a successful business strategy and we promise for all stakeholders that they can expect this from the corporation. Our brand will add value when these expectations are consistently met. Our group of expertise

will ensure that customers are handled with great care, according to internal specifications and outside expectations.

Our management team understands that branding is a long-term activity, the results of which might not be immediate. Our mindset is: high technology products, sales- and brand orientated.

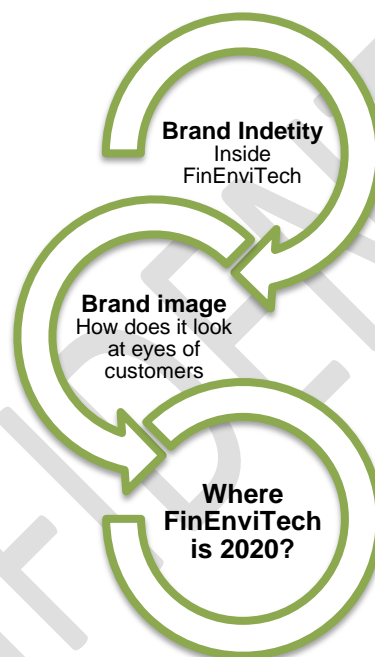


Figure 18. Brand value (Nyström 2014).

- *Vision without action is a daydream. Action without vision is a nightmare -
Japanese proverb*

Website

A well-designed and constantly updated website and intranet is currently under redevelopment.

www.finenvitech.com provides details about:

- The company, brand and operations
- Products and services
- Visual images and streaming videos
- Downloadable brochures and flyers
- FAQ section
- Celebrity endorsement
- Influential business partners section

A rapidly increasing communication channel like blog is also under considering. In the future (especially B2C segment) blog allows FinEnviTech executive to monitor feedback and reactions in real time.



Picture 3. Website green environment.

Website: We provide solutions to sensing problems. We have unique proprietary technologies at hand.

9 FINANCIAL PLAN

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Table 10. Income.

Table 11. Profit yearly

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Table 12. Cross margin yearly.

Financing Requirements

Exit Strategy

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10 SWOT -ANALYSES, COMPETITIVE EDGE

A SWOT -analysis is a structured planning method used to evaluate the strengths, weaknesses, opportunities, and threats involved in a project or in a business venture. The idea of SWOT is great a review of found to the plans and decisions.

At SWOT company estimates its resources and operational environment's improvement and features (Viitala R.&Jylhä E. 2013, 49).

SWOT analysis has four elements in a 2x2 matrix:



Figure 19. SWOT analysis matrix.

Own strengths shows to the company where they are good and should focus on its development. By that companies can compensate for their own weaknesses and strengths of the head to obtain information about threats on the background of the future impact of the elimination purposes. Weaknesses can be eliminated by emphasizing the strengths. External opportunities can be obtained from the company's use of research and development activities, teaming with trusted partners and outsourcing some activities.

External threats can be prevented by identifying the real threats backgrounds. Also changing company's own attitudes from the threats to opportunities (Lipiäinen 2001, 46-49).



Figure 20. FinEnviTech's SWOT.

Industrial Analysis

In order to succeed in competition companies need to be aware who are the main market players, how they work and what are the their strengths and weaknesses. Competitors must know precisely, but even more important is to know how own company's profile is for the competitors (McKinsey & Company 2000, 71).

Table 13. Sensor Markets.

Sensor market segment	Market share	Attractiveness	Barriers to entry	Growth rate trends 2012	Growth rate trends 2016
Mining and Metals	1,4%	medium/low	high	low/medium	stable
Environment	1,8%	medium/high	low	high	increasing
Security	2,7%	medium/high	medium	high/medium	increasing
Infrastructure	2,8%	medium/high	low	medium/high	increasing

Company knows its products and main customers, but doing effectively marketing and selling it is important to know competitors. Competitive analysis has to be made so that marketing, pricing, managing and other strategic planning could be done effectively. Although major competitive edge is the unique industrial solutions, competitors should be written down.

Table 14. Competitive edge (continue)

Company	Basic info	Products	Strengths	Weaknesses
<u>Radiation detection</u>				
Environics Oy	www.environics.fi , founded 1986, #empl. 75, Turnover, 6,4MEur	CBRN Security and Industrial solutions: air and gas monitoring, radiation and chemical monitors	Established company	don't develop own technology, bulky system

AMPTEK Inc. 14 De Angelo Drive, Bedford, MA. 01730 U.S.A	www.amptek.com , founded 1977,	Radiation detectors, X-ray generator, MCA, CdTe x-gamma ray detector	Established company
Mirion Technologies Inc. (US)	www.mirion.com	Radiation monitoring systems, dosimeters	In business too narrow product line
Lord Microstrain	www.microstrain.com Part of LORD Corporation, founded 1927	Wireless sensor network SensoriCloud Energy Harvesting Inertial Sensors	In business globally
Roadside pollution sensors	Vaisala www.vaisala.com	Wireless sensor network	

Lord Microstrain is a global provider. At their webpage they say: “Sensors are literally changing our world; we're inspired to work with our customers to introduce advanced sensing technology that will enable the next generation of smarter and safer machines, civil structures, and implanted devices.” (www.microstrain.com).

11 IMPLEMENTATION PLAN AND PLAN FOR GROWTH

Industry trends

According to Frost and Sullivan report (Global sensor outlook 2013), the sensor market is categorized as growth market. The total sensor market in 2012 was worth 64,8B\$ where wireless sensor will experience the biggest growth rate of CAGR of 36,4% in 2012 to 57,5% in 2016. Currently, the markets have concentrated in US and Europe but India and China will be growing markets.

The global radiation detection, monitoring and safety market for nuclear power plants, homeland security defense and the manufacturing industry were valued at \$312 million, \$131.5 million and \$83.6 million, respectively, in the year 2012 (RnR market report, Jun 2013).

Quality Control

Organizations always need some kind of quality of its operations management. Quality Management is a performance and processes for ongoing maintenance and improvement of the stakeholders requirements. Produced, therefore, the product or service features that are the customers' expectations and needs. In addition, the quality of management, the quality of file documentation, document management and reporting, it is important that it can be shown to external and self-management of the quality of state of the company. Without evidence of and documentation, it is difficult to demonstrate the quality of the production and operation of the service behind it. The quality of thinking evolve, managers and employees need to feel their quality criteria. (www.fkl.fi).



Figure 21. Quality thinking (www.fkl.fi).

The quality of the environment is important. The value of environment care has risen. FinEnviTech's environmental policy will be in written form and it will provide direction goals and objectives. "Most of the companies are bound to comply with statutory requirements; most recently, the ROHS Directive are met. Senior management is responsible for determining the company's environmental policy which must be in written form and provide direction objectives and goals." (FK/Finanssialan Keskusliitto, ISO 9001:2008 LAATUKÄSIKIRJAN LAATIMISMALLI).

ISO 9001 quality management standard is divided into eight basic principles:



Figure 22. ISO 9001 eight basic principles (www.fkl.fi).

- **Customer orientation:** A Company that knows its customers' needs and manages the customer relationship well, will be able to surpass them.
- **The Responsibility of management:** Management's role is to express common goals and to determine their achievement strategy and operations as well as to create a function environment with conditions to achieve agreed objectives. Management's responsibility is to adhere to the principle of legality, reliability, honesty and integrity. Management is working to professionalism, corporate accountability and transparency.
- **Employee engagement:** Employee commitment is together with the condition for success, brings out the competence and encourages to take responsibility.
- **Process-based approach:** Process-based company is effective. Best to achieve the objectives, the organization functions of a customer-oriented processes are understood.

- **System oriented to management:** The company is run processes by understanding the dependencies between them, and making processes more efficient.
- **Continuous improvement:** Circle of continuous improvement: Plan, do, check, develop. The organization performance is a permanent objective of continuous improvement.
- **Facts of the decision making:** The organization is based on the customer's decision-making satisfaction, product conformity with the requirements and processes, the performance of the light analysis of the data.
- **Relations:** Good beneficial relations will increase the ability of both to make a profit and produce value (FK/Finanssialan Keskusliitto, ISO 9001:2008 LAATUKÄSIKIRJAN LAATIMISMALLI).

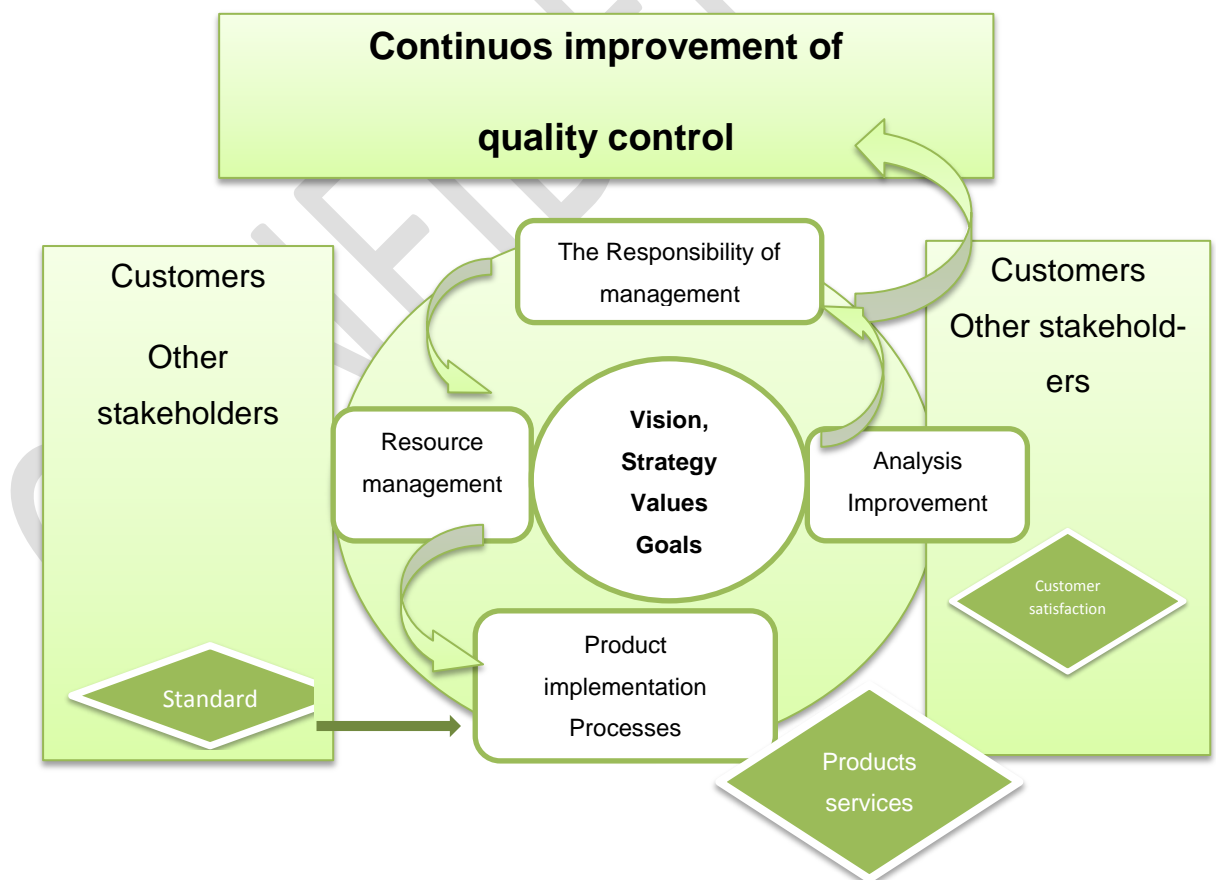


Figure 7. Figure shows how quality control is carried out.

Quality control is continuous improvement which keeps company viable.

R&D

Research and development activities (R & D) refers to the systematic practice of information in order to increase knowledge and use of it to find new applications. The criterion is that the aim of the operation is something essentially new (Statistics Finland, www.stat.fi).

FinEviTech has a strong technology based business operation and a trustworthy reputation for quality and excellence. Numerous amount of Patens are proof of that. Company will develop continuously new ideas and technologies.

Main Goals and Planning for growth

FinEviTech's mission is to respond to any requests aimed at solving problems in sensing, monitoring and protecting. The goal of the FinEnvTech is to become a preferred global solution provider for environmental sensing and monitoring problems. For FinEviTech, it is essential that its products are also sustainable, low energy consumption and of high quality that comply with the demands of the operating. Therefore, each product development stage will be done with care and following a quality assurance system throughout the process.

Table 15. Plan for growth.

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12 CONCLUSION 2

Every business idea has its risks. By adjusting all the possible risks to the business plan, it shows that the idea of business is precisely thought in advance. Risks should also show that the company is not thinking too optimistic way (McKinsey&Company 2000, 123).

Majority of the risks are company's way of doing business or how the environment of market is changing. Risks has to estimate ongoing. At the business plan it also good to write down how risks are limited (McKinsey&Company 2000, 124).

FinEnviTech uses ERM (enterprise risk management) for risk management. Focus is for whole organization. The purpose of ERM is to secure employees, property, knowledge, reputation and to protect environment at daily routines.

But why investors should invest to FinEnviTech? Having investment in Finland is very difficult. We do have business angles, but still companies has to prove their business ideas in a positively way that it is and will be profitable in the future. Positive thinking doesn't bring any money for the owners and to the investors. Business has to have profitable products and services. In general business cannot be built by doing it only in Finland. Focus has to be globally. Fortunately Finland has TEKES and government funding. They have an open minded attitude for new start-up companies who are willing to develop.

The answer for the question "Why investors should invest?" is: FinEnviTech business solutions are so unique, team is highly expertise so this company will not only be local, but instead it will manage to do it globally and also been owned internationally.

Current marketing activities of the company is the main weakness. Business is now only relying on management teams personal contacts. In the future this is not possible any more, company has to make other marketing activities. With the B2B marketing management teams face-to-face conversations are of

course effective. But marketing has to be done focusing first to the main customers with the help of management team.

In the future company will focus more on marketing for high technical solutions instead of only sensors. Main focus will be in Asia, where the challenges are high but still there is a strong economic growth and lots of potential customers. In the beginning Asia market has to be like a source of learning.

Every business model calls for a number of Key Activities (The Business Model Canvas). FinEnviTech has to now consider which are the most important actions. For the investors it is important to know how company will operate successfully, who are maintaining customers, who will take care of financial and revenues? What is the main Key Activity in the near future and for the next five years?

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Interview questions

1. What are the company's products and services?
2. Who are the owners nowadays?
3. Have you done Business Plan before?
4. Does company have now any investors?
5. How much money is needed for the next five years?
6. How the money is planned to be use in the next five years?
7. What are the future plan for growth?
8. What are the future plans for personal?
9. How important is marketing to your company?
10. Has the company's marketing strategy included the building of FinEnviTech's as a brand?
11. What are the marketing efforts in the future?
12. Marketing channels FinEnviTech has used so far?
13. Which customers do you want to reach through marketing?
14. What marketing channels do you think FinEnviTech should take advantage of?
15. What answers would you like to get from this research?

People who were interweaved

- Risto Orava, Professor, owner of FinEnviTech Global Ltd
- Ari T. Hirvonen, PhD, owner of Kitasakura/FinEnviTech
- Mr Jari Vepsäläinen, lawyer, founder of Fintrade-Mercer Group
- Mervi Wallenius, Consult MIF – Management Institute of Finland
- Jamilya Shestovskaya, engineer Sensorsoft Oy

Power Point presentation for investors



Investment Proposal

High Tech Solution provider

Mission

- Respond to any requests aimed at solving problems in sensing, monitoring and protecting
- Promote Smart & Safe Living style
- Creating true win-win means of working and advancing together.

Vision

- To be universally adopted first partner
- The benchmark as global solution provider for equipment and technology for demanding environment applications.

Huge worldwide market opportunity

Facts about FinEnviTech Ltd.

Founded: 2012

Ownership:
Privately owned,
venture capital
funded.

Products:
iWSS, iAiSS, iNODE,

Main office: Espoo

Sales offices: Hong Kong (2015)

Usa (2018)

Sales network: xx sales representatives

Strategy



- Smart&Safe environment business together with partners.
- The stage of identification is one of becoming aware of existing industry needs and opportunities
- Finally, the commercializing phase is about turning the new Safe&Smart Living style solutions into reality

Group of high level experts



Market needs

- Smart & Safe Living style needs pervasive sensors
- Unmet needs in Radiation sensing



Wireless sensor network market is expected to increase at a 43,1% compound annual growth rate (CAGR) and reach an estimated \$4,7 billion by 2016

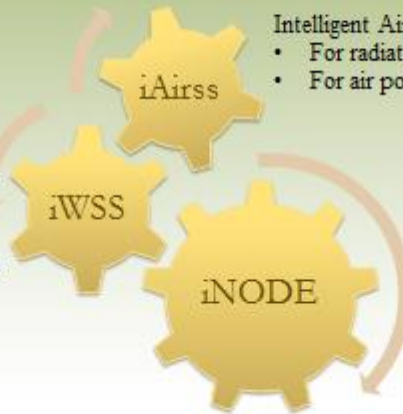
The opportunity is real

- Our solutions

- * more efficient
- * reliable
- * real-time
- * valuable

Intelligent Wireless
Sensing Platform

- For radiation
- For air pollution



Intelligent Air Sampling device.

- For radiation
- For air pollution

Keys to success

As an integral part of our business culture, we protect and defend our know-how, processes and products. This benefits not only ourselves, but also our customers. To date, our patent portfolio contains well over 70 patents

- Real-time direct conversion α/β , γ and neutron sensors
- Automated filtering
- High sensitivity with gamma rejection
- Real-time remote measurement and control

Data wirelessly sent to cloud via optimized routine
- Secure data transfer via VPN -

Go-to-market strategy

- General strategy: → • First to Finnish mining industry
- Target market: → • Homeland security, mining, nuclear power plant, waste management, medical imaging, infrastructure
- In practise: → • Presentations and speakers at special conferencies/symposiums
- Launch concepts currently under evaluation: → • IPPF: Nuclear committee

**Radiation detection market is worth US\$25 billion.
It will grow to \$33 billion over the next 8 years**

Marathon – we take it seriously



Critical success factors and risks



Investments to make it real

Our team of researchers represent the future of high technology services. We expect a high level of uptake of our services among consumers.

Existing investments

Additional investment needed

- Q1-Q2/2014
- Q3-Q4/2014
- 2015
- 2015
- 2016
- 2017

Already interested partners in Asia

Many of the things that seem
impossible now will become
realities tomorrow.

- Walt Disney