

“TrackIT provides a revolutionary mobile positioning technology that calculates ones position more effectively than current solutions.”

Business Plan



**track it**  
accurate mobile positioning

Team:  
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Fredrik Tufvesson | Johan Karedal | Anders J Johansson

May 6th, 2011

Note: This business plan has been revised for publication purposes

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# TABLE OF CONTENTS



- I. Executive Summary.....p.3
- II. Our Story.....p.4
- Part 1 Business Idea.....p.5
- Part 2 Team.....p.10
- Part 3 Marketing Plan.....p.17
- Part 4 Business System & Organization.....p.25
- Part 5 Implementation.....p.30
- Part 6 Profitability & Financing.....p.32
- Part 7 Risk Analysis.....p.37
- Part 8 Appendices.....p.40
- III. References.....p.47

# I. EXECUTIVE SUMMARY



Throughout the last several years, mobile positioning has taken on an increased role in user function. However, current methods do not work well indoors, are power consuming and not as accurate as users desire. Our technology will change the way users get their mobile positions.

Scientists at Lund University have been researching in the field of mobile positioning systems in order to take interactive localization to the next level. Our research team has come up with an algorithm that relies on core components of most modern mobile phones (accelerometer, gyroscope, antenna, processor) to provide customers with enhanced mobile positioning possibilities by allowing mobile phones to efficiently calculate their positions both indoors and outdoors with estimated accuracy levels of 5-10 meters.

Through licensing agreements with chip manufacturers and strategic partnership with Original Equipment Manufacturers (OEMs - here: Mobile Phone Manufacturers) and Carrier Service Providers (CSPs), TrackIT will work towards having the algorithm embedded into mobile phones. We expect to break even by year four of operation. A patent for the technology was filed in May 2010 and is currently pending.

Our team consists of seven professionals whose skills complement each other to give TrackIT an attractive balance of business and science. The management team consists of four Masters in Entrepreneurship students and the research team is composed of three PhD Scientists from Lund University.

This business plan describes the commercialization process of this innovation, identifying several steps that need to be taken into consideration.

## II. OUR STORY

In early 2008, Lund University Associate Professor Fredrik Tufvesson and his team were conducting a research project about directional properties of radio channels when they thought about how nice it would be to use measurements from a person running with an antenna over a large area. This would result in a never been seen before resolution for directional estimation using a vast array of antennas and having hundreds of virtual antenna elements present. With these ideas in mind, TrackIT's technology was born.

After additional research and several rounds of discussion, Fredrik and his team discovered that with a single antenna element and accelerometer (used on aircrafts to calculate positioning), the idea could become feasible. Early investigations were done and the results, combined with previous knowledge from earlier projects, were promising enough for the team to move forward with the idea and implementation of this technique in positioning involving base station triangulation.

With the advent of the iPhone and other new highly functional Smartphones, the market for positioning services was and still is in its early stage, and promises to become the “New, New Thing”. Fredrik realized that if this technique really worked as theorized and also worked indoors, it could have tremendous commercialization potential because of the limitations of existing positioning techniques.

The project was offered to and accepted by a team of four Masters in Entrepreneurship students who currently form the management team. With the researchers technological ideas and the entrepreneurs commercialization dreams, the business of TrackIT has begun to take shape.



A glowing lightbulb is positioned above a person wearing a flat cap. The background is a soft, warm yellow. The text 'PART 1: BUSINESS IDEA' is overlaid on the left side of the image.

# PART 1: BUSINESS IDEA

# VALUE PROPOSITION

The value and customer savings of this technology cannot simply be put in monetary terms at this point, but several customer benefits can be identified:

TrackIT's technology will significantly improve the accuracy, especially indoors, of navigation and location based services in general, and thus adds value to a mobile phone by improving its functionality. Location Based Services (LBS) are those services that use the knowledge of the users' location to provide appropriate information like weather, nearby stores, etc. Specifically, our technology can increase the performance of: mapping and directions, advertisements, gaming, indoor tourism, parental control, rescue services, social networking etc.

Navigation and location-based services have been growing, catching attention and attracting more and more consumers, implying that consumers are willing to pay a premium for improved services of that kind. OEMs can therefore gain a competitive advantage by having our technology integrated in their mobile phones.

Additionally, the technology will make everyday use of mobile devices more convenient. The energy-consuming GPS chip built into mobile devices will not necessarily become obsolete, but will be used less. This means that the mobile device does not need to be charged as often, which adds to the convenience of the mobile phone user experience.

"TRACKIT PROVIDES AN INTERESTING SOLUTION FOR INDOOR POSITIONING THAT CAN BE READILY INTEGRATED IN THE CELL PHONES."  
(Mats Lindoff, former CTO of Sony Ericsson)



PART 2:  
TEAM

# TEAM

Eric Graf, Maximilian Hoene, Arra Khararjian and Manuel Noras are assigned by Lund University researchers Fredrik Tufvesson, Johan Kåredal and Anders J Johansson to carry on the commercialization of the technology. In addition, Lund University's technology transfer office LU-Innovation helps the team with business advice, patent applications and financing. At this point the ownership is held by the researchers. A letter of intent determining the parameters of the collaboration was signed by all three parties on March 1st, 2011.



LUND UNIVERSITY



# MANAGEMENT TEAM

Eric Graf

Growing up in a family of diplomats, Eric lived in many different countries and experienced their cultures. After completing high-school in New York, he spent a year in the army as a tank driver in an armored infantry battalion. The forms of hierarchies in the army inspired him to study organizational structures during his liberal arts degree in The Netherlands, approaching this topic from the fields of psychology and economics at the same time. Following his graduation, he worked in Corporate Human Resources at BOSCH and later joined a small project oriented consultancy in Berlin, focusing on the socio-technological implications of renewable energies, biogas in particular. Eric brings into the project an affinity to technology in general and team management skills in particular.



Maximilian Hoene

Maximilian holds a master degree in business from Freie Universität Berlin, Germany. He specialized in strategic management and marketing. He has worked in the international marketing and sales department at Volkswagen AG. His team successfully developed pricing strategies for Volkswagen cars in various international markets, such as Africa, the Middle East and Russia. His expertise will help find a suitable business model to carry the project into the future.



# MANAGEMENT TEAM

Arra Khararjian

Arra holds a degree from the University of California, Davis in Economics. He worked for two years as the Junior Financial Analyst at Lieff, Cabraser, Heimann, & Bernstein, a nationwide plaintiffs class action law firm where he worked extensively on major class action lawsuits and investigations. Arra also has interned at ETX Capital (formerly TradIndex) in London as a trader support intern where he worked on various projects including the marketing and promotion of TradIndex. Arra will assist with finance and legal issues.



Manuel Noras

Manuel has a bachelor degree in Business Administration and ten years working experience in the healthcare industry. At University Manuel achieved valuable knowledge in managing, developing and organizing businesses. He worked in product and trade show management as well as company organization, business communication and marketing strategies. Manuel explored various markets and business cultures. His practical and theoretical background helps the team to manage the young company and find smart commercialization strategies.



# RESEARCH TEAM

Fredrik Tufvesson, PhD

Fredrik Tufvesson received his M. Sc. degree in Electrical Engineering in 1994, the Licentiate Degree in 1998 and his Ph. D. in 2000, all from Lund University. After two years at a start-up company developing mesh network technologies, Fredrik is now working as associate professor in Radio Systems at the Department of Electrical and Information Technology at Lund University. His main research interests are channel measurements and modeling for wireless communication, including channels for both MIMO and UWB systems. Fredrik is a previous Venture Cup winner and is co-founder of ResQU AB, a start-up company providing equipment for cell phone based search and rescue operations.



Johan Kåredal, PhD

Johan Kåredal received his M. Sc. degree in Engineering Physics from Lund University in 2002, and his Ph. D. in Radio Systems in 2009. Currently he is a postdoctoral fellow of the Communications group at the Department of Electrical and Information Technology. His research interests includes channel measurements and modeling for multi-antenna (MIMO) systems and ultra-wideband systems (UWB).



Anders J Johansson, PhD

Anders J Johansson received his M. Sc. (1993), Licentiate (2000) and Ph. D. (2004) degrees in Electrical Engineering from Lund University. From 1994 to 1997 he was with Ericsson Mobile Communications AB developing transceivers and antennas for mobile phones. Since 2005 he is an Associate Professor at the department of Electrosience at Lund University. His research interests include antennas and wave propagation for medical implants as well as antenna systems and propagation modelling for MIMO systems.



# BOARD OF DIRECTORS

Fredrik Tufvesson, PhD

Along with being the head of the research team Fredrik will also be part of TrackIT's Board of Directors.



Sven Olsson

Sven is Business Development Manager at LU Innovation and represents the technology transfer office at Lund University. The mission of LU Innovation is to facilitate the transfer of knowledge created at Lund University into commercially approachable innovations. Sven was also the CEO of Signal Control Sweden AB where he brings 15 years of working experience within the Professional Training & Coaching industry to the Board of Directors



Tomas Karlsson, PhD

Tomas has several years of international educational experience, as a PhD student at Stanford and the University of Alberta; and as a post-doctoral fellow at Wilfrid Laurier University and Queensland University of Technology. Since fall 2009, he has been employed as Associate Professor in Entrepreneurship at Lund University. He is currently responsible for the Master program in Entrepreneurship.



TBA

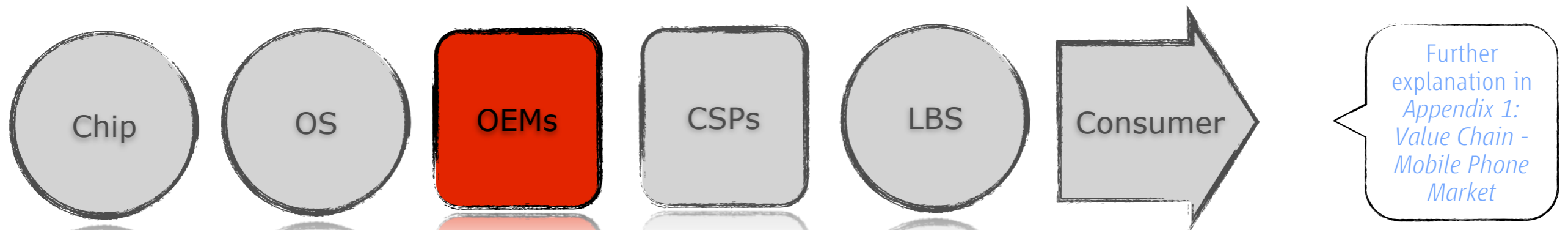
Currently we are working on the recruitment of a highly experienced person, both from a technical as well as a management side, from the cellular industry. At this point in time, no names are mentioned in order to avoid premature announcements and guarantee individual privacy until official appointment.





PART 3:  
MARKETING PLAN

# INDUSTRY ANALYSIS - MOBILE PHONES



"The mobile phone market has the wind behind its sails," said Kevin Restivo, senior research analyst with IDC's Worldwide Quarterly Mobile Phone Tracker. IDC believes the worldwide mobile phone market will be driven largely by smartphone growth through the end of 2014. "Feature phone users looking to do more with their devices will flock to smartphones in the years ahead," noted Restivo. "This trend will help to drive the smartphone sub-market to grow 43.7% year over year in 2011."

In fact, according to Gartner, Inc. an information technology research and advisory firm headquartered in Connecticut, USA, Smartphone sales already grew 96% in the Q3 2010 from Q3 2009, and smartphones accounted for 19.3% of overall mobile phone sales in the Q3 2010.

The most recent analysis of the mobile phone market is based on sales from Q4 2010. According to the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker the worldwide mobile phone market grew 17.9% in Q4 2010, a new quarterly high driven by smartphones. This growth accounts for the fourth consecutive double-digit increase in sales year-on-year. Mobile phone sales increased to 401.4 million units in the Q4 2010 compared to 340.5 million units in the Q4 2009. On a cumulative worldwide basis in 2010, a total of 1.39 billion units were sold, an increase of 18.5% from the 1.17 billion units sold in 2009.

# INDUSTRY ANALYSIS - MOBILE PHONES

The mobile phone market is dominated by two major players with Nokia (33% market share) and Samsung (25% market share) providing more than 50% of the mobile phones to the world based on data from Gartner Inc. in 2010. Several companies also hold strong positions in the market with relation to market share: LG Electronics holds 8%, Research In Motion (RIM) and ZTE both hold 4%, and Sony Ericsson holds 3%. Other OEMs combined make up the final 28% of the market. Although Sony Ericsson is one of the smaller players with respect to the market, their geographical proximity being headquartered in Lund and connections with Lund University, MHBC and other local organizations make it a prime potential customer for TrackIT (see *Part 2: Team: References*).

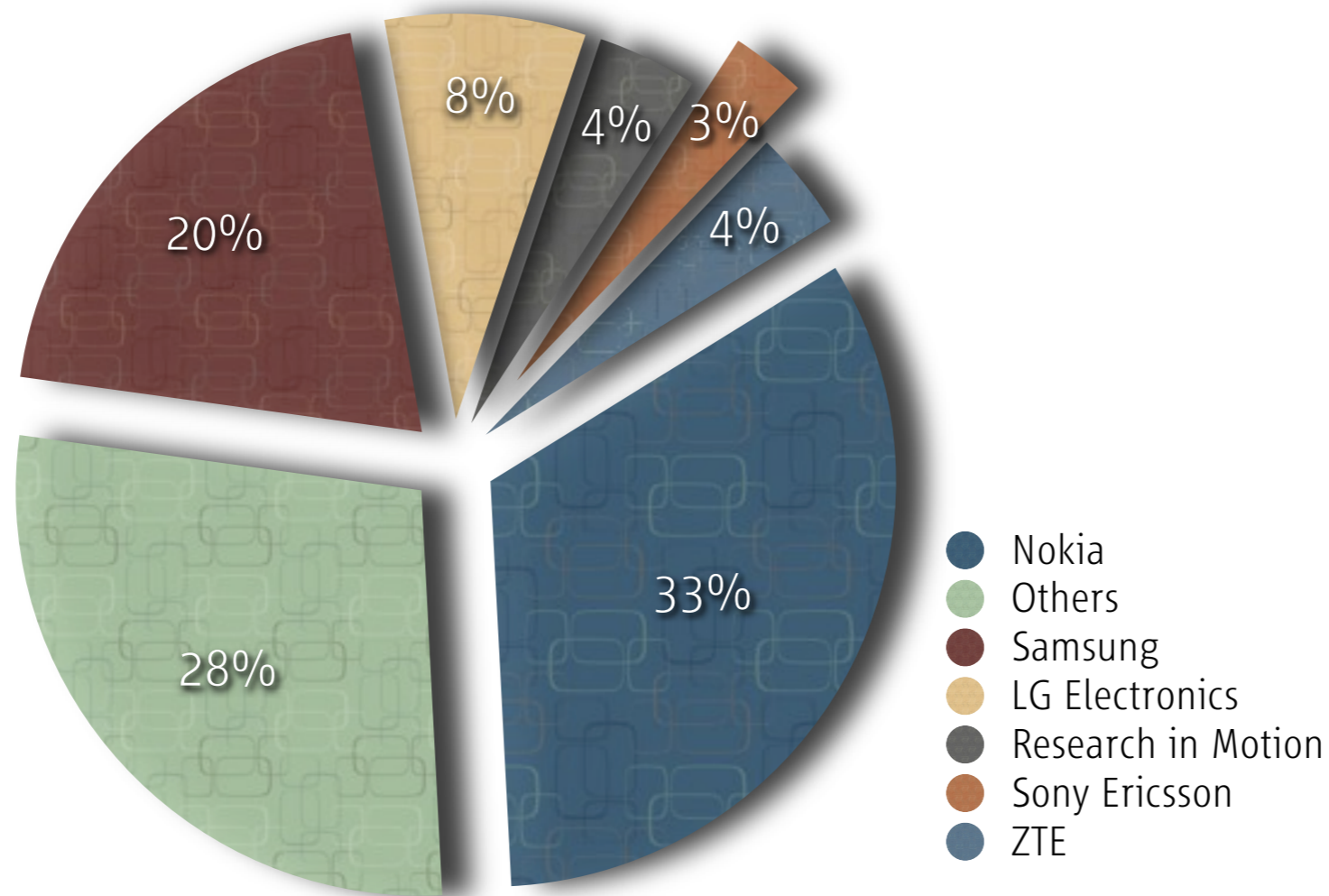
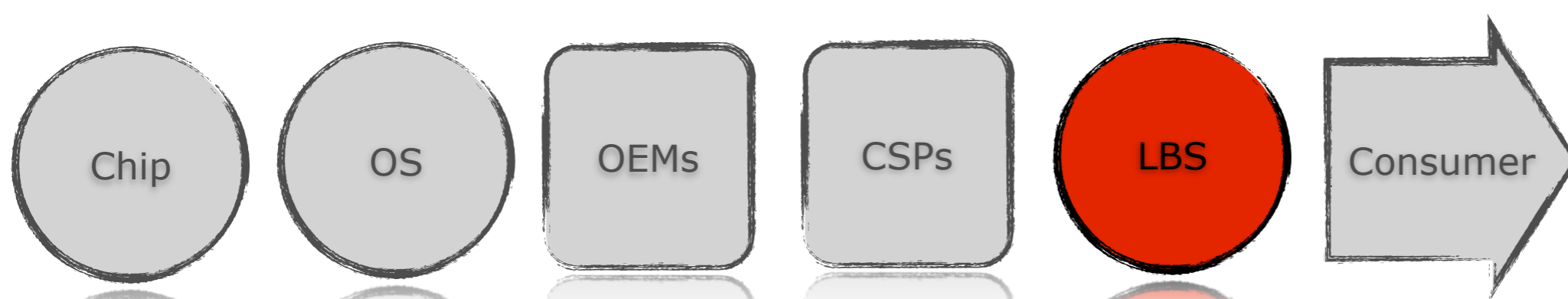


Figure 2: Mobile Phone Manufacturer Market Share (2010), according to data from IDC

# INDUSTRY ANALYSIS - INDOOR LBS



“INDOOR POSITIONING IS A PROBLEM THAT IS OF LARGE INTEREST FOR THE INDUSTRY WAITING TO BE SOLVED.” (Mats Lindoff)

Location based services (LBS) have arrived and are becoming an integral part in the everyday life of millions of consumers. In fact, Juniper Research predicts that location based services will result in revenues of over \$14 billion USD by 2014, with the greatest revenues coming from Western Europe. TrackIT has identified key areas where the technology can be used indoors and create sustainable customer benefits:

**Point-of-Sale Advertising:** “Location-based applications are extremely interesting for brands and retailers in that they allow those companies to direct consumers to outlets in their vicinity while simultaneously providing information about the products on offer.” - Gartner Inc.

**Office Management:** More accurate indoor positioning can help employers keep operations smooth by allowing employees in large buildings find an open meeting room or find a colleague. Employers can also track data patterns and behavior of employees to improve the working condition and optimize space.

**Airport Management:** Airline operators can give passenger notifications and manage crowds and staff during chaotic times. Passengers can receive advertisements for food and shopping depending on their location in the airport.

**Check-in Applications:** Companies like Foursquare, Gowalla and Facebook places can move from manual to automated check-ins. That is both more user-friendly and provides a new window of opportunity to expand on location-based targeting, servicing dynamic offers based on for instance which section you are in at Walmart.



# TECHNOLOGICAL DIFFERENTIATION

	Technological Infrastructures		
	GPS	Wifi	BSB
Accuracy			
Availability			
Battery life			



GPS modules embedded in every smartphone today consume a fair amount of battery power. When turned on, the GPS module on any given mobile phone drains the battery power on an average of five hours, even if no other function of the phone is being used such as calling, texting or playing music. GPS requires line-of-sight to satellites and thus does not work indoors.

A current alternative to GPS is the traditional network based positioning by base station based (BSB) triangulation. BSB triangulation is a matter of intersection of three signals and uses signal strength as a distance measure, which has proved to be inaccurate.

A third infrastructure for mobile based positioning is Wifi. Due to the uncertainty of Wifi-station locations, accuracy and availability levels are worse than GPS, however the accuracy levels are better than BSB technologies. Battery life using Wifi based positioning is better than GPS but worse than BSB.

# COMPETITION

Currently there are several companies engaging in similar research, such as Skyhook (Boston, USA), arguably the most prominent player in the indoor positioning market. Skyhook's Core Engine is a software-only location system that quickly determines device location with 10 to 20 meter accuracy. To arrive at accurate location results, the Core Engine collects raw data from Wifi access points, GPS satellites and cell towers with advanced hybrid positioning algorithms. Skyhook has deployed drivers to survey streets, highways, and alleys in tens of thousands of cities and towns worldwide, scanning for Wifi access points and cell towers plotting their precise geographic locations. Skyhook's coverage area includes most major metro areas in North America, Europe, Asia, and Australia.

The logo for Skyhook, featuring the word "SKYHOOK" in a bold, blue, sans-serif font with a registered trademark symbol.

















GloPos, a spin-off of 4TS Corporation with offices in Dubai and the USA, promises to show the precise position of any cell phone outdoors, indoors, even underground as long as the phone is on the network through a data connection. GloPos independent tests claim accuracy of 7.7 to 12.5 meters indoors or in urban settings and 10-40 meters in suburban geographies. It is based on the cell phone collecting signal information from multiple base stations, then forwarding that information to the GloPos server.

The logo for GloPos, featuring the word "GloPos" in a green, sans-serif font with a registered trademark symbol, and a graphic of green dots forming a curved path to the right.

Qubulus (Sweden) and Ekahau (USA) use radio based finger printing technology. With fingerprinting the mobile device listens to radio signals from surrounding networks. The measured signal strength patterns are then used to identify a specific spot indoors. Building up a grid of those spots linking it to a map creates the positioning. Accuracy is supposed to be at least 5-15 meters.

The logos for Qubulus and Ekahau. Qubulus is represented by the word "qubulus" in a black, lowercase, sans-serif font with a green and yellow swoosh to the right. Ekahau is represented by the word "ekahau" in a black, lowercase, sans-serif font with a blue and white graphic of dots and lines to the left.

# COMPETITION VS. TRACK IT

				
Accuracy	5-15m	7.7 - 12.5m	10-40m	5-10m
Indoor positioning				
Server & Mapping independency				
Maintenance costs				

TrackIT's technology has strong advantages compared to its competitors. Companies like Skyhook and Qubulus offer applications for the end consumer that rely on external servers for operation. This can lead to unreliable service should those servers fail. However, TrackIT will aim to integrate its technology into the processor chip of the mobile phone, giving OEMs more control over the final product/service. Moreover, the expected accuracy level of 5-10m outdoors and indoors is the most accurate non GPS based technology on the market. Since our technology is built upon a triangulation positioning algorithm that only requires two available base station signals, TrackIT does not require any server or database for information on Wifi station location, GPS signals or wireless base station signals to operate. This server independency allows for no maintenance costs after the algorithm is embedded in the chip and makes it easier to integrate for potential customers. In order to get an overview of the full competitive landscape please see *Appendix 2: Full Competition Comparison*.

PART 4:  
BUSINESS SYSTEM &  
ORGANIZATION



# POTENTIAL COLLABORATION PARTNERS

We aim to become part of MHBC and the Teknopol network. Through MHBC we have access to various consultants with many years of industry experience. Also, with this collaboration we will be able to introduce our technology to big players in the industry such as Sony Ericsson and ST Ericsson. TrackIT also has full support from Lund University, LU Innovation, and the Entrepreneurship program.



TEKNOPOL



LUND UNIVERSITY



# ORGANIZATION

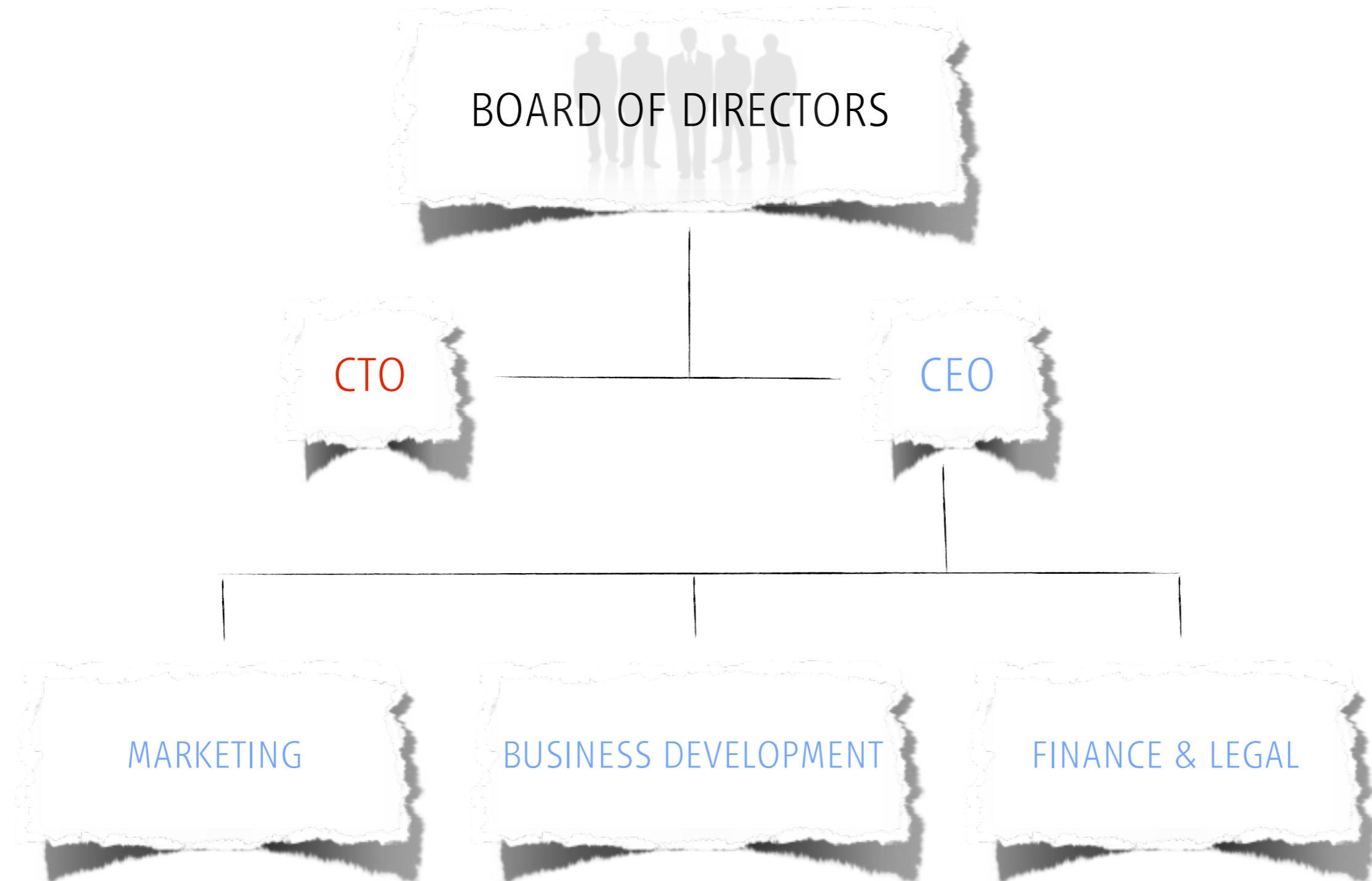
For our organizational structure we choose a traditional approach. The management team and research team will work hand in hand on this joint effort. Each with their competencies at the core of their respective competence within the organization. The board will meet on a regular basis with the management team to assume its supervisory and advisory role. Keeping an eye on the future, all board members as well as those of the research team are expected to be stationary in Lund for the next 2-5 years, at least.

As for the management team: At the time it was composed, the possibility of one or more members leaving by the end of June '11 was taken into account. It was agreed upon, that in any case, Eric Graf and Maximilian Hoene will remain in Lund as the core of the management team beyond the conclusion of their masters degree in Entrepreneurship if the feasibility of the business continues to remain high and adequate funding is secured.

The composition of the board is in accord with the rules and regulations of LU Innovation. One representative from the University and LU Innovation each will be in it, as well as Fredrik Tufvesson himself. The fourth member, as required by LU Innovation, will be an external business adviser, a highly experienced person, both from a technical as well as a management side, from the cellular industry.

We believe that this set-up will guarantee a flexible yet highly sustainable internal structure which reduces the stress on the need for external funding due to the minimization of labour costs.

# ORGANIZATIONAL STRUCTURE



→ The individual roles will be determined after the first board meeting.



# PART 5: IMPLEMENTATION





PART 6:  
PROFITABILITY &  
FINANCING



PART 7:  
RISK ANALYSIS

# FROM RISK TO OPPORTUNITY

The evaluation of weaknesses and the resulting assessment of associated risks is a task which requires honesty on the most fundamental level, honesty towards yourself, your business idea and most importantly stakeholders. The results of the SWOT - analysis (see *Appendix 6: SWOT - analysis*) show that there are certain risks present within the organization and the competitive environment, which need to be taken into account when considering the feasibility of the proposed business model. Nevertheless, we believe that with high risk, comes great opportunities with high rewards.



## INTERNAL RISKS

The core of the technology has been developed and its patent is still pending. Also, presentable real-life test results are still very limited. This reduces bargaining power on our side when it comes to engaging mobile phone manufacturers. With the current conduction of further tests and the realistic assumption to be able to run the technology on a TEMS phone by ASCOM\* in the upcoming weeks, we are confident to increase the strength of our case subsequently.

The issue of initial funding exists; however, researchers as well as the management team are either financed by the university or by other sources at least until the end of the current academic year. As office space is the only resource required in early stages, the financial pressure and therefore risk of financial shortcomings is minimized.

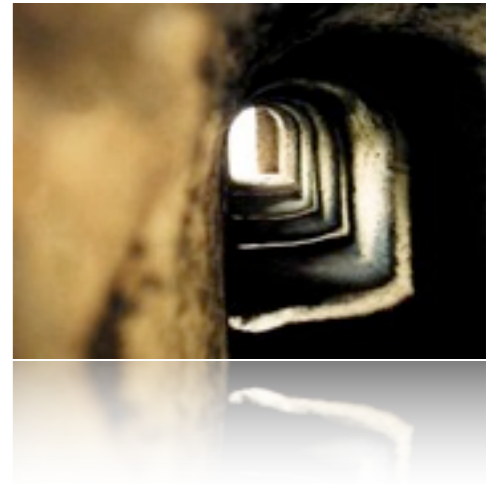
\*Ascom is an international provider of communication solutions. Its TEMS Portfolio is a complete set of trusted solutions for drive testing, benchmarking, monitoring, and analyzing network performance.

# EXTERNAL RISKS

When looking at the relevant, existing market, a handful of competitors have been identified. Companies like Nokia and Google are making efforts in areas close to our target market. However, it is not just those big players that pose risks to our endeavor. As identified above, Skyhook and GloPos contribute to external threats.

The bottom line is that the technology developed by the research team at Lund University is not the only one of its kind. However, none of the competitors have successfully entered the market we aim at on a large scale because the proposed solutions are still in development and require many resources and have high costs. The risk of a competitor entering the market before us is off-set by the opportunity of creating strategic partnerships with these companies.

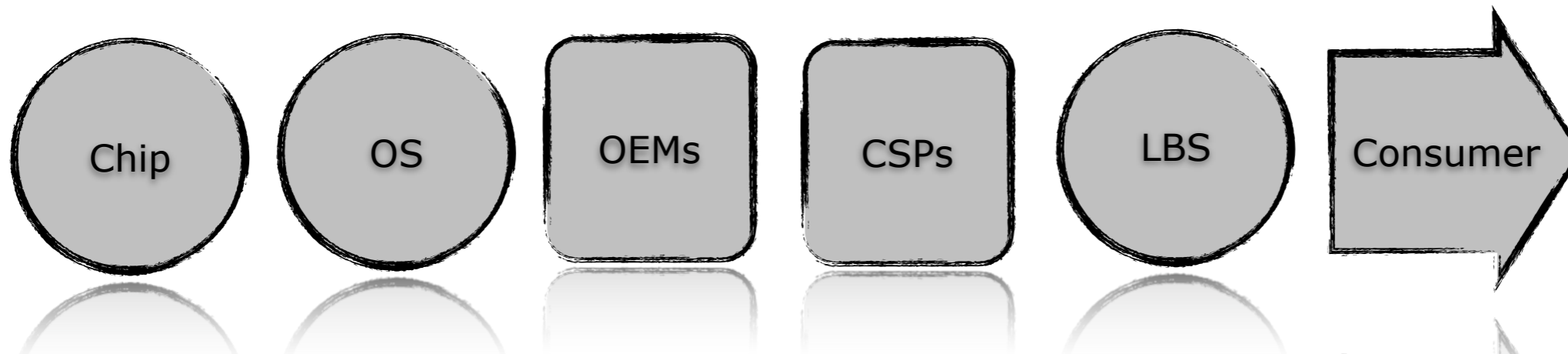
Another external risk associated with this technology is the short life-cycle of software in general. New developments in technology could change the market beyond our ability to adapt and a large competitor could wipe out our market position through just a small change in their focus. Additionally, we are aware of the fact that the cellphone manufacturing industry is prone to be subject to complicated and time extensive product development cycles, which also translate into relatively slow-moving bureaucratic organizational structures.





# PART 8: APPENDICES

# APPENDIX 1: VALUE CHAIN - MOBILE PHONE MARKET



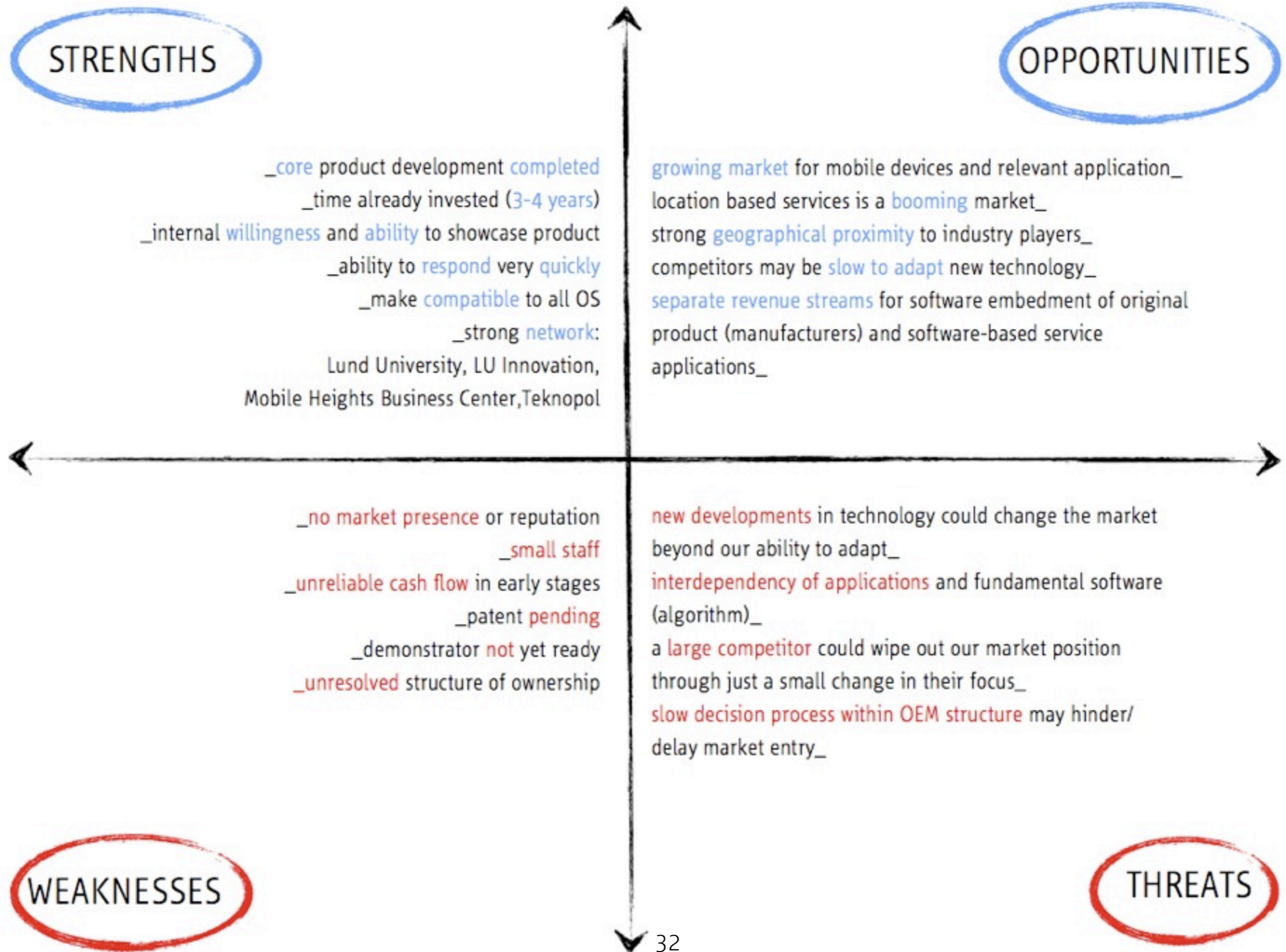
Chip	Chip manufacturers, e. g. ST Ericsson, produce the processing unit that is embedded in a mobile phone.
OS	Operating Systems (OS), e. g. Android, consist of programs and data that act as intermediaries between application programs and computer hardware.
OEMs	Original Equipment Manufacturers (OEMs), e. g. Sony Ericsson, produce mobile devices for the end consumer.
CSP	Carrier Service Providers (CSPs), e. g. Telia, are telephone companies that provide services for mobile phone subscribers. Together with the OEMs they have the most control over the mobile phone market.
LBS	Location based services (LBS) like Android or iPhone applications, provide services for the end-user.
Consumer	Mobile phone users are the end of the value chain.

# APPENDIX 2: FULL COMPETITION COMPARISON

	Infrastructures			Applications			
	GPS	Wifi	BSB	SKYHOOK°	GloPos	qubulus ekahau	track it accurate mobile positioning
Accuracy	u: 5-100m	u: 20-50m	u: 100-500m	7.7 - 12.5m	10-40m	5-15m	5-10m
	su: 1-30m	su: 20-50m	su: 300-1000m				
Indoor positioning							
Mapping independency							
Server independency							
Availability							
Battery life							

high      u: urban areas  
 medium      su: suburban areas  
 low

# APPENDIX 3: SWOT - ANALYSIS





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SCHOOL OF ECONOMICS AND MANAGEMENT  
BUSP01 DEGREE PROJECT – ENTREPRENEURIAL PROJECT – MASTER LEVEL  
LECTURER: TOMAS KARLSSON

# Theoretical Reflections

## Entrepreneurial Characteristics and Friendship within Entrepreneurial Teams

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In Partial Fulfillment of the Requirements for the Degree of Master in Entrepreneurship

Maximilian Hoene  
(age10mho@student.lu.se)

**May 30, 2011**

# Table of Content

<b>Table of Content</b> .....	I
<b>Table of Figures</b> .....	II
<b>1. Introduction</b> .....	1
<b>2. Theory</b> .....	2
<b>2.1. Six Schools of Thought (Cunningham and Lischeron, 1991)</b> .....	2
<b>2.2. Entrepreneurial Orientation (Lumpkin and Dess, 1996)</b> .....	3
<b>2.3. Learning Styles (Kolb, 1981, 1984 &amp; Honey and Mumford, 1982, 1983, 1992)</b> .....	4
<b>2.4. “The 10Ds” (Bygrave, 2004)</b> .....	5
<b>2.5. Friendship within Entrepreneurial Teams (Francis and Sandberg, 2000)</b> .....	6
<b>3. Autoethnography</b> .....	7
<b>4. Data</b> .....	8
<b>4.1. Motivation</b> .....	8
<b>4.2. TrackIT’s development</b> .....	8
<b>4.3. TrackIT’s members</b> .....	11
<b>5. Analysis</b> .....	12
<b>5.1. Six Schools of Thought (Cunningham and Lischeron, 1991)</b> .....	12
<b>5.2. Entrepreneurial Orientation (Lumpkin and Dess, 1996)</b> .....	13
<b>5.3. Learning Styles (Kolb, 1981, 1984 &amp; Honey and Mumford, 1982, 1983, 1992)</b> .....	13
<b>5.4. “The 10Ds” (Bygrave, 2004)</b> .....	14
<b>5.5. Friendship within Entrepreneurial Teams (Francis and Sandberg, 2000)</b> .....	15
<b>6. Conclusion</b> .....	16
<b>Appendix</b> .....	17
<b>References</b> .....	21

## **Table of Figures**

<b>Figure 1: Kolb's Learning Cycle.....</b>	<b>4</b>
<b>Figure 2: Honey's and Mumford's learning styles grid.....</b>	<b>14</b>

## **Abstract**

The purpose of this paper is to personally reflect on my experiences over the course of the Master in Entrepreneurship programme at Lund University 2010 – 2011. This paper explores character traits of entrepreneurs as well as friendship within entrepreneurial teams. Various research articles and theories on entrepreneurship in general, entrepreneurs' character traits and friendship are presented. The research articles and theories are then linked to data. The data is derived from an auto-ethnographic observation of my experiences during my studies.

*TrackIT* is a project group that consists of four Master in Entrepreneurship students from diverse academic backgrounds that came together to work on a mobile positioning project. Those four students have complementary skills; while one is more of a theorist, another one is more of an activist. Their friendship created an efficient working environment. None of *TrackIT*'s members is pursuing the project beyond June 2011, which might indicate that they are not risk takers after all.

## **1. Introduction**

*“In today’s world of change and uncertainty we need the talents of entrepreneurs more than ever. We need them to start new businesses; we need them to champion the change agenda in established corporations and the public sector.” (Thompson, 2004, p. 243)*

Studying entrepreneurship is still not an obvious choice for graduate students nowadays, since it has not yet been made widely recognized as a study field. Business in general and entrepreneurship in particular are fairly young research fields compared to natural sciences e. g. As elaborated on by Landström and Benner (2010), early contributions to entrepreneurship research date back to the eighteenth century and since have been going through three eras with different characteristics: The economics era (1870 – 1940), the social sciences era (1940 – 1970), and the management studies era (1970 –). Initially entrepreneurship was not considered a research field per se, but rather part of broader mainstream disciplines. Only few individual researchers would conduct research but would not extensively cooperate nor look into creating a network. It took until the 1980s for entrepreneurship to finally evolve as a research field “in its own right”.

This late evolution seems surprising considering the wide public belief and proven facts that small and thus often young businesses benefit society by driving innovation and creating working opportunities. American small businesses (< 100 employees) managed to generate between seven and eight million new jobs from 1990 to 1994, while their large counterparts eliminated 3.6 millions jobs. Additionally a large portion of high tech workers (39%) are employed by small businesses and

far more patents per employee are filed, based on data from the 1990s (Bygrave, 1994). The USA seems to take the lead in entrepreneurship education. As Kuratko (2003) notes in his study, the number of colleges and universities that offer entrepreneurship courses has grown from a handful in 1970s to more than 1,600 in 2003.

But what are those people like that are important drivers of major world economies? Why do some people put their own financial means on the line and dedicate their heart and soul to one project? In the following theoretical reflections it will be elaborated on entrepreneurial characteristics, entrepreneurial orientation and the effects of friendship on an entrepreneurial venture.

The analysis is based on entrepreneurship theory and personal observations over the last approximately 8.5 months (September 2010 – May 2011). The focus in particular is on me – a master student in Entrepreneurship at Lund University 2010 – 2011 – and my project group *TrackIT*<sup>1</sup> since I have most inside knowledge about this group. In particular the team members' entrepreneurial characteristics and friendship will be unfolded. The observations are highly subjective and no questionnaire was sent out to the research group.

The rest of the paper proceeds as follows: The next section describes the theoretical framework and states different schools of thought about the characteristics of entrepreneurs. Thereafter follows the method section describing the auto-ethnographic method before the actual data – own experiences – is presented. In the analysis section the data is related to theory before final conclusions are drawn.

## 2. Theory

### 2.1. Six Schools of Thought (Cunningham and Lischeron, 1991)

Despite the emergence of entrepreneurship as a research and study field and governments' increasing interest in the support of small businesses, understanding and defining entrepreneurs and entrepreneurial orientation is still a great challenge. Cunningham and Lischeron (1991) identify six different schools of thought in entrepreneurship research. "Each of these schools can be categorized according to its interest in studying personal characteristics, opportunities, management, or the need for adapting an existing venture (Cunningham and Lischeron, p. 46)." The categories and schools are as follows:

#### *Assessing Personal Qualities*

1. The "Great Person" School of Entrepreneurship: The entrepreneur has an intuitive ability – a sixth sense – that he or she is born with.

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<sup>1</sup> In the context of this paper, *TrackIT* refers to four students working on a mobile positioning project.

2. The Psychological Characteristics School of Entrepreneurship: Entrepreneurs have unique values, attitudes, and needs which drive them.

#### *Recognizing Opportunities*

3. The Classical School of Entrepreneurship: The central characteristic of entrepreneurial behaviour is innovation.

#### *Acting and Managing*

4. The Management School of Entrepreneurship: Entrepreneurs are organizers of an economic venture; they are people who organize, own, manage and assume the risk.
5. The Leadership School of Entrepreneurship: Entrepreneurs are leaders of people; they have the ability to adapt their style to the needs of people.

#### *Reassessing and Adapting*

6. The Intrapreneurship School of Entrepreneurship: Entrepreneurial skills can be useful in complex organizations; intrapreneurship is the development of independent units to create, market, and expand services.

## **2.2. Entrepreneurial Orientation (Lumpkin and Dess, 1996)**

Lumpkin and Dess (1996) describe an entrepreneurial orientation (EO) construct. “The key dimensions that characterize an EO include a propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities (Lumpkin and Dess, 1996, p. 137).” EO is different than entrepreneurship itself and refers to how entrepreneurship is undertaken – the entrepreneurial process: The methods, practices, and decision-making styles used to act entrepreneurially.

“Autonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion (Lumpkin and Dess, 1996, p. 140).” Its dimension is a crucial part of EO and prominent throughout the history of entrepreneurship, which is filled with ideas of independent spirits. The promotion of intrapreneurship in organizations is supposed to foster autonomy, but it was soon realized that organizational autonomy requires more than just a design change.

“Innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes (Lumpkin and Dess, 1996, p. 142).” Innovation has always been considered a main driver of entrepreneurship and successful ventures. Innovativeness in firms comes in different forms, distinctions and measurements. It is distinct between product-market and technological innovations e. g.

When it comes to describing entrepreneurs and entrepreneurship, the willingness to take risks is likely one of the most recognized characteristics. According to some scholars, the range of risk-taking behaviour extends along a continuum from “safe” risks to highly risky actions.

“Proactiveness may be crucial to an entrepreneurial orientation because it suggests a forward-looking perspective that is accompanied by innovative or new-venturing activity (Lumpkin and Dess, 1996, p. 146).” Managerial proactiveness likely results in the exploitation of first-mover advantages.

There has been a tendency in the entrepreneurship research to equate proactiveness with competitive aggressiveness. Lumpkin and Dess feel it is important to point out the difference, which is that proactiveness refers to how a firm relates to market opportunities, while competitive aggressiveness refers to how firms relate to competitors. “Competitive aggressiveness refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace (Lumpkin and Dess, 1996, p. 148).”

### 2.3. Learning Styles (Kolb, 1981, 1984 & Honey and Mumford, 1982, 1983, 1992)

David A. Kolb (1981) developed learning styles that enjoy worldwide recognition. Learning is based on experiences and a proceeding process (Kolb, 1984). The process follows four cycles: In phase one *concrete experiences* are being made. It is crucial for the learner to be open to new things without any prejudice. Phase two is about reflection; the subject must be observed from different angles (*observation & reflection*). This leads to an explanatory approach, a rule or theory in phase three. The subject becomes somewhat tangible (*formation of abstract concepts & generalisation*). This theory or approach will finally be tested practically in phase four. The results will generate new findings and experiences and the closed loop starts all over again.

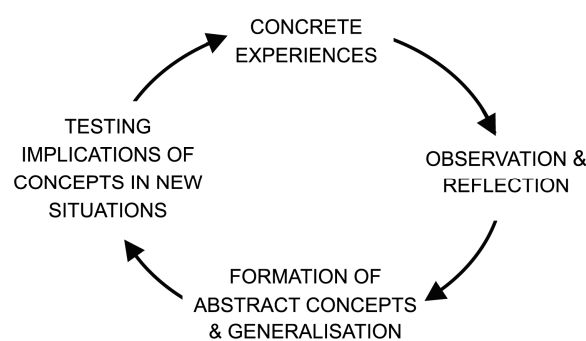


Figure 1: Kolb's Learning Cycle.<sup>2</sup>

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<sup>2</sup> Figure based on Kolb (1981).



People combine those four phases in different ways depending upon their individual learning style. Kolb found four different learning styles: (1) *Convergers*, (2) *Divergers*, (3) *Assimilators* and (4) *Accommodators*.

Peter Honey and Alan Mumford (1982, 1983) developed a learning styles system as a variation on the Kolb model while working on a project for management development in a big UK corporation in the 1970s. It is based on a four-stage learning process. According to Honey and Mumford the stages are: (1) *Having an experience*, (2) *Reviewing the experience*, (3) *Concluding the experience* and (4) *Planning the next steps*. Learning is a cycle with integrated consecutive and logical steps and every cycle creates a new one. Every end is a new beginning and the learning process is kind of a spiral. Individuals differ in their preferences and developments regarding the stages of the learning cycle. Honey's and Mumford's model (1992) features four different learning styles as well: (1) *Activist*, (2) *Reflector*, (3) *Theorist* and (4) *Pragmatist*. They also developed the *Honey & Mumford Learning Styles Questionnaire*<sup>3</sup>, a self-development tool which differs from Kolb's model by inviting professionals or students to complete a checklist of work-related behaviours without directly asking how they learn. The similarities with Kolb's model are far greater than the differences though. The purpose is to identify the stage(s) at which one's learning is most effective, i. e. the preferred learning style. An *activist* prefers doing and experiencing things. A *reflector* likes to observe and reflect. A *theorist* wants to understand underlying reasons, concepts and relationships, while a *pragmatist* likes "to have a go" and to try things to see if they work out.

#### **2.4. "The 10Ds" (Bygrave, 2004)**

Various researchers have been analyzing the character traits of entrepreneurs. Bygrave (2004, p. 5) states: "We know that there is no neat set of behavioural attributes that allow us to separate entrepreneurs from non-entrepreneurs." Meanwhile, he emphasizes that "it does appear that entrepreneurs have a higher locus of control than non-entrepreneurs, which means that they have a higher desire to be in control of their own fate" (Bygrave, 2004, p. 6). Bygrave uses a set of everyday words, instead of using psychological terms, to describe the entrepreneur's characteristics, which he names "The 10 Ds":

Dream: Entrepreneurs have a vision of what the future could be like for them and their businesses. And, more important, they have the ability to implement their dreams.

Decisiveness: They do not procrastinate. They make decisions swiftly. Their swiftness is a key factor in their success.

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<sup>3</sup> See Appendix for the complete questionnaire.

Doers: Once they decide on a course of action, they implement it as quickly as possible

Determination: They implement their venture with total commitment. They seldom give up, even when confronted by obstacles that seem insurmountable.

Dedication: They are totally dedicated to their business, sometimes at considerable cost to their relationships with friends and families. They work tirelessly. Twelve-hour days and seven-day work weeks are not uncommon when an entrepreneur is striving to get a business off the ground.

Devotion: Entrepreneurs love what they do. It is that love that sustains them when the going gets tough. And it is love of their product or service that makes them so effective at selling it.

Details: It is said the devil resides in the details. That is never truer than when starting and growing a business. The entrepreneur must be on top of the critical details.

Destiny: They want to be in charge of their own destiny rather than dependent on an employer.

Dollars: Getting rich is not the prime motivator of entrepreneurs. Money is more a measure of their success. They assume that if they are successful they will be rewarded.

Distribute: Entrepreneurs distribute the ownership of their businesses with key employees who are critical to the success of the business.

According to Bygrave (p. 7) role models are of particular importance for entrepreneurs “because knowing successful entrepreneurs makes the act of becoming one yourself seem much more credible”.

## **2.5. Friendship within Entrepreneurial Teams (Francis and Sandberg, 2000)**

In their article “Friendship within Entrepreneurial Teams and its Association with Team and Venture Performance” Francis and Sandberg (2000) explore friendship within the entrepreneurial team. The authors claim that there has been a slight shift in the research attention from the individual to the entrepreneurial team. Friendship, in their eyes, may affect a group’s dynamics. “Friendships ... may hold teams together and stimulate heroic efforts during difficult times (Francis and Sandberg, 2000, p. 6).” Francis and Sandberg state 13 propositions (pp. 12 ff.), of which those will be chosen for a detailed analysis that are most reasonable to relate to my personal experiences:

Proposition 1: Venture teams achieve completeness more rapidly to the degree that their formation is based on friendships that predate the venture.

Proposition 2: Higher levels of friendship lead a founding team to rely more on implicit agreements and less on explicit, written contracts in establishing their venture.

Proposition 3: Higher levels of friendship within a venture team at the outset of a strategic decision will promote a more effective decision-making process, thus resulting in a higher quality decision,

greater commitment to it, greater understanding of it, and greater affective acceptance of fellow team members and the team's processes.

Proposition 4: Higher levels of friendship within a venture team at the outset of a strategic decision will result in greater participation by individual team members in that decision.

Proposition 5: Venture teams characterized by higher levels of friendship at the outset of a strategic decision will experience more cognitive conflict and less affective conflict during the process than will other teams.

Proposition 6: Higher levels of friendship during the formation of a venture team will be positively related to the subsequent performance of the venture.

The above mentioned theories and schools of thought by Cunningham and Lischeron (1991), Lumpkin and Dess (1996), Kolb (1981), Honey and Mumford (1982, 1983, 1992), Bygrave (2004) and Francis and Sandberg (2000) give a good overview over the current state of research on entrepreneurial characteristics and friendship. In the following section the observation method that is being used for data generation – auto-ethnographic method – will briefly be described before the actual data is presented.

### **3. Autoethnography**

#### **Bochner and Ellis, 2006; Anderson, 2006 & Atkinson et al., 2003**

Put in terms of day-to-day life autoethnography shows “people in the process of figuring out what to do, how to live, and the meaning of their struggles”, as described by Arthur Bochner and Carolyn Ellis (Bochner and Ellis, 2006, p. 111). Bochner and Ellis are perhaps the most prominent researchers in this particular field and have been encouraging their students and colleagues to work within it. It has only recently – since the early 1990s – become a popular form of qualitative research. It is also referred to as “narrative research” and has since been coined by various scholars, in particular in the social sciences and humanities.

Anderson (2006) proposes five key features of analytical autoethnography: (1) complete member researcher (CMR) status, (2) analytic reflexivity, (3) narrative visibility of the researcher’s self, (4) dialogue with informants beyond the self, and (5) commitment to theoretical analysis.

For the purpose of the subsequent analysis I consider myself having CMR, since I have acquired familiarity of my project group and the entrepreneurship class through my own membership. Regarding analytic reflexivity Atkinson et al. (2003, p. 62) observe, “[auto]ethnographers-as-authors frame their accounts with personal reflexive views of the self. Their ethnographic data are situated within their personal experience and sense making. They themselves form part of the

representational processes in which they are engaging and are part of the story they are telling.” Autoethnography demands textual visibility of the researcher himself to live up to the role of both being under study and researching as well. Traditional ethnographers are commonly criticized for being largely invisible. Ethnography by definition calls for dialogue with the “data” and is understood as a relational activity (Anderson, 2006). Atkinson et al. (2003, p. 57) state that “we must not lose sight of the ethnographic imperative that we are seeking to understand and make sense of complex social worlds of which we are only part (but a part nevertheless)”. Analytic autoethnography is more than simply documenting own experiences, it also demands commitment to an analytic agenda. It is not supposed to evoke emotional resonance with the reader but it is rather the analysis of a set of social phenomena that cannot be provided by data only (Anderson, 2006).

In the upcoming section Anderson’s requirements in autoethnographical analysis are followed as thoroughly as possible.

#### **4. Data**

In this section I will first briefly recap my initial motivation to apply for this programme before I will walk the reader through the development of *TrackIT* between January – May 2011 and describe who *TrackIT* is composed of.

##### **4.1. Motivation**

The reasoning behind my application for the Master programme in Entrepreneurship at Lund University has not changed; the motivation to start my own venture is still tangible. I am convinced that pursuing an entrepreneurial career best matches my aptitude and beliefs and that establishing a business enables me to live out my creativity and autonomy. I would love to create a working environment myself that suits me and possible employees. I do not want to rely on labour market demand and politics, but I rather want to take action into my own hands.

##### **4.2. TrackIT’s development**

In order to better portray the process of my project group *TrackIT* and the characteristics of its members I will use the Electronic Learning Journals composed during the last 5 – 6 months as a guideline and provide a chronological walk through *TrackIT*’s developments between January – May 2011.

I was approached by a classmate just a week before Christmas break and asked if I wanted to be part of *TrackIT*. After intense discussions about what each one of us and possibly other people could “bring to the table” and about our team and individual goals, we found a common denominator and agreed to work together. Two more classmates were then approached and soon recruited for our promising team.

*TrackIT* finally started operations in January 2011 and soon met with the founders of *Nocturnal Vision*. *Nocturnal Vision*'s technology and project resembles *TrackIT*'s in many ways. The three founders of *Nocturnal Vision* graduated from the Master programme in Entrepreneurship in 2010. The core of their technology is a mathematical algorithm and for that reason deals will have to be made with organisations very deeply embedded in the respective industries. They were able to give us great advice on how to plan the next steps.

Our lead researcher met with the newly formed group for the first time that same week. He gave us an update on the development stage of the technology and informed us about his next steps. We also managed to meet with a business advisor from the Mobile Heights Business Center (MHBC) – a mobile communications cluster initiative in Southern Sweden. That meeting was supposed to push forward our application process to become part of the MHBC (Electronic Learning Journal (ELJ) week 03/2011).

Soon after the first business plan draft was due. From the beginning on *TrackIT* had been investing a considerable amount of time into developing a thorough and detailed business plan. Again we had the chance to meet with representatives of MHBC, this time with another business advisor and also MHBC's CTO. Very tough but helpful questions were asked and issues addressed, such as: “How much of the students' input is actually needed in the contact with OEMs (original equipment manufacturers)?” It showed us that there was a fairly bumpy road ahead of us and that there were a number of issues to take care of before OEMs could actually be addressed (ELJ week 04/2011).

Shortly after we put our focus on the business plan again in order to have a competitive submission for the second round of Venture Cup Syd, a business plan competition in Southern Sweden. Of particular complexity was the chapter covering financials. Projecting sales and costs cannot easily be done for a new technology. We put a lot of thought into this and believe we came up with a reasonable approach. Another meeting was held with our lead researcher regarding the history of the project and even more importantly the intellectual property and current patent situation (ELJ week 05/2011).

*TrackIT* then prepared for and participated in “Dragons at the University”, an unofficial spin-off of the TV show “Dragons' Den” held at Lund University. We qualified for the final and in preparation for that we incorporated the experts' feedback from the semi-final and put particular emphasis in getting our financials straight. We ranked second in the grand final!

Our researchers gave us an update on the development of the demonstrator, which was looking as positive as anticipated. *TrackIT* decided to have a more detailed look at external financing from government institutions. Additionally we started preparing for Startup Weekend in Copenhagen, a 54-hour idea-pitching, -sharing and essentially venture-launching event (ELJ weeks 06 and 07/2011).

Several government institutions – such as ALMI, Vinnova, KK Stiftelsen and Innovationsbron – were contacted in order to get more information on potential external funding. Vinnova was the first one to reply stating that they would not be supporting start-ups. *TrackIT* started its eternal wait for the demonstrator results (ELJ week 08/2011).

The week after *TrackIT* arranged a meeting with its lead researcher and a representative from LU Innovation to finally sign the Letter of Intent that would define *TrackIT*'s cooperation with LU Innovation and the researchers. It was a lengthy meeting in which we presented our recent achievements and our lead researcher gave us an update on the demonstrator and his latest findings. We were explained what funding from LU Innovation could look like and started discussing the composition of *TrackIt*'s board. We continued on working our way through the thicket of relationships between chip manufacturers and OEMs etc. in the mobile phone industry (ELJ week 09/2011).

In meetings with Innovationsbron and ALMI it was pointed out to us that our technology was at too early of a stage to make us eligible for their funding. By that time we still had not received an answer regarding lead researcher's important meetings with the former CTO of Sony Ericsson and a patent lawyer. Also, the final board member had not been decided yet (ELJ week 10/2011).

*TrackIT* attended Venture Cup's expert evening in Malmö. We arranged meetings with MINC, Venture Cup, Teknopol and PricewaterhouseCoopers (PwC). The meetings were only 10 minutes each, but we still received some valuable feedback. A representative of Venture Cup explained to us what to put our focus on in particular regarding the third Venture Cup Syd submission. Remarkable were the comments of two representatives of PwC, stating that "putting a price tag" on our technology "was too difficult" and that they would not have anyone in their office that could help us with that matter. We knew beforehand of course that valuing our technology was a very complex matter, but we still expected PwC to at least give us some advice or hints how to go about it.

Again *TrackIT* invested a fair amount of time into the optimization of its business plan and for that reason consulted Nocturnal Vision again. We found out through our lead researcher that his patent lawyer confirmed our patent situation to be strong on our behalf (ELJ week 11/2011).

*TrackIT*'s phone conference with two USA based industry experts generated valuable feedback and made our case even stronger. In particular they highlighted the influential role of the carriers in the mobile phone industry. Our lead researcher gave us an update of his recent talks with Sony

Ericsson: It was positive news and was likely going to save some phone modification issues in the end (ELJ week 12/2011).

Shortly after an agreement about our final board member was reached, we were suddenly informed that he did not want to be a part of *TrackIT*'s board anymore. That incident triggered confusion among us, since we felt like we were not given a legitimate reason for his renouncement. Without a complete board we could not access LU Innovation's ready funding. Additionally we could not qualify for any other external grants (but ALMI's) due to the fact that the demonstrator results were still far from a presentation stage. Generally communication with our lead researcher started becoming fairly inconsistent. ALMI was the only institution that was likely going to grant us small funding, but we did not go through with it since that money would not cover business development, but rather market research, something we felt like we did not need additional funds for at that point (ELJ weeks 13 - 17/2011).

*TrackIT*'s development very well resembled a bumpy road. We did initiate the necessary steps in the beginning to make a winner out of the project and also fulfilled the academic requirements successfully. *TrackIT* might not have handled the setbacks as well as the group anticipated. We did not want to make detailed plans about the next steps without getting the researchers' affirmation. Sometimes *TrackIT* should have initiated actions themselves more actively perhaps. Additionally we did not hear anything about the status of the demonstrator in the last 8-9 weeks, which made it difficult to approach competitors and/or potential partners. Our e-mails regarding that matter were left unanswered and the promises made on the phone broken. While motivation and dedication were extremely high in the beginning, it started to decline with time. In the following the reader will find out more about *TrackIT*'s members and be able to understand why the group acted the way it did.

#### **4.3. TrackIT's members**

*TrackIT*'s members are characterized by various different competencies since it is composed of students from diverse academic backgrounds. As the competencies differ so has the motivation from the start to see this as a mid- or long-term project. While two students were fairly sure from the start of this project that they would be returning to their respective home countries after the end of this programme, two were planning to stay preconditioned that the future of the technology and the project would look promising.

None of the group members has a sound technological background. This was not seen to be necessary by the researchers in order to make the project a success. The group rather has other competencies and backgrounds that were considered to be of more significance. While everyone has profound analytical skills and study and work experience, one is more of a creative mind who

enjoys designing papers and presentations. He has working experience in business development and organization as well as trade show management and consequently took care of *TrackIT*'s presentations as well as commercialization strategies. Another one has experience in finance and legal issues and a degree in economics. He was part of *TrackIT*'s finance, competitor research and market analysis team. A third one stands out due to his eloquence and communication skills. He has profound interest in organizational structures and psychology and basically served as *TrackIT*'s communication director and spokesman. A fourth one has a business degree and working experience in banking and marketing. He has been taking special care of the financial analysis, as well as the revenue model and commercialization strategies. The areas of operations have of course been overlapping though and significant decisions were carried by every group member. The level of input by every single group member was very well balanced.

Due to the fact that *TrackIT* is composed of fairly self-confident people with strong will and “take charge-attitude” – some might say alpha-males – everyday working life has not always been uncontroversial. The goal-driven characteristics, the competitiveness and the will to achieve something together had always been bounding the team members together though.

In the following section an analysis of *TrackIT* and its members is presented based on the above mentioned theories.

## **5. Analysis**

### **5.1. Six Schools of Thought (Cunningham and Lischeron, 1991)**

Judging the characteristics of *TrackIT*'s members is not a simple challenge based on Cunningham's and Lischeron's (1991) six schools of thought. Their breakdown into six schools was likely not done to serve the purpose of my analysis, but I will still analyze *TrackIT*'s members based on those: Does *TrackIT* fit into *The “Great Person” School of Entrepreneurship*? Honestly, I do not think so. Hard to judge, but I do not believe that one of the four members was born with intuitive entrepreneurial ability – a sixth sense. What I do believe in is their unique values and attitudes, stressed by *The Psychological Characteristics School of Entrepreneurship*. It is this competitiveness, self-confidence and will to achieve that they have in common and that differentiates them from friends from outside the programme. Even though *TrackIT* has been working on a unique and innovative technology, innovation per se is not the driver of the members' entrepreneurial behaviour. Consequently, *TrackIT* does not match the prerequisites to fit *The Classical School of Entrepreneurship*. Traits that can very well be seen are characteristics of *The Management School of Entrepreneurship*. They enjoy organizing and managing their venture. Risk



assumption in a way already had to be done before entering this programme and then again upon agreement to pursue the project. I would like to assume that *TrackIT* is a group of leaders based on *The Leadership School of Entrepreneurship*, but none of them has distinguished himself as a real leader. Again hard to judge, but maybe *TrackIT* is not the kind of group that is in need of a leader? Or its members might sometimes be difficult to lead in particular so that no one managed to become a leader in this short period of time. *TrackIT* cannot be judged based upon the thoughts behind *The Intrapreneurship School of Entrepreneurship*, since none of its members was to be observed in that kind of environment.

### **5.2. Entrepreneurial Orientation (Lumpkin and Dess, 1996)**

*TrackIT* definitely has the propensity to act autonomously, one of the key dimensions of Lumpkin's and Dess' (1996) entrepreneurial orientation (EO) construct. If it was not for business autonomy none of the group members would have to come to Sweden to study entrepreneurship in the first place and *TrackIT* would not have been born in the same way. But contrary to Lumpkin's and Dess' view on autonomy, *TrackIT* is not carrying this project through to completion. The willingness to innovate was given from the beginning by the nature of the technology, but it would have been unlikely for *TrackIT's* members to drop their respective initial projects for an idea with a smaller degree of innovation and less potential. Obviously the researchers from the beginning and the group of four students have shown the "tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes (Lumpkin and Dess, 1996, p, 142)". *TrackIT* is likely to be at too early of a stage to display a tendency of aggressiveness toward competitors, but generally even more thorough competitor research and as a consequence the establishment of first contacts with more than one competitor should have been done. In the last few weeks, since some major setbacks, *TrackIT* has not shown a high degree of managerial proactiveness. In the early stages of the involvement of the four students, motivation and proactiveness were very high. But on a bumpy road *TrackIT* might have simply lost focus too early, since it became clear that this project was unlikely to be pursued by one of its members beyond June 2011.

### **5.3. Learning Styles (Kolb, 1981, 1984 & Honey and Mumford, 1982, 1983, 1992)**

Kolb's (1981) learning styles and in particular the variation of Honey and Mumford (1982, 1983, 1992) can very well be applied to the members of *TrackIT*. Well aware that the *Honey & Mumford Learning Styles Questionnaire* is a self-assessment tool, I did it an assessment of myself, including answering all the questions, but assessed my three team members based on subjective observations:

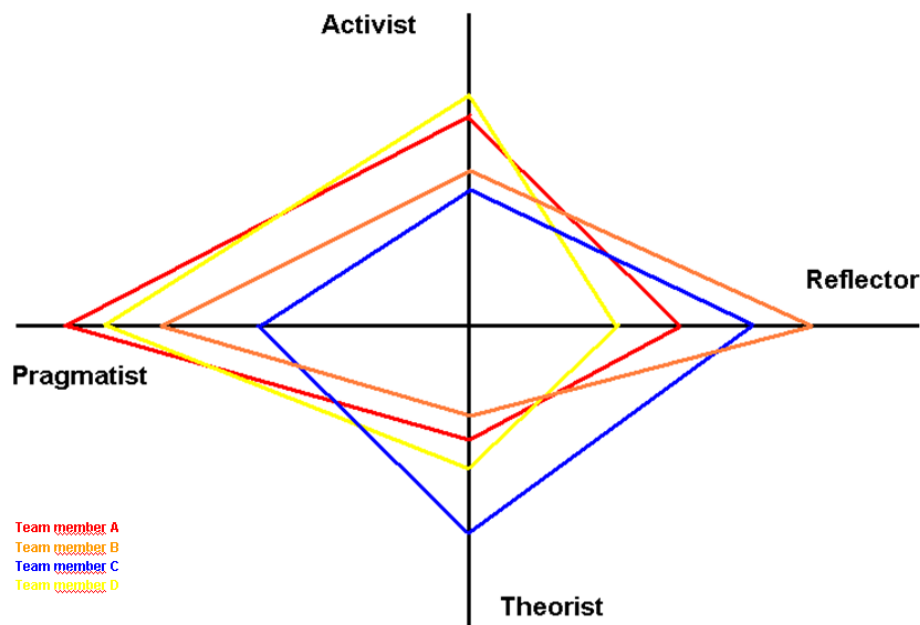


Figure 2: Honey's and Mumford's learning styles grid.<sup>4</sup>

Interestingly the assessment of me looks slightly different now than it did at the start of the entrepreneurship programme. While still being an *activist* and not much of a *theorist* I realized that I am more of a *pragmatist* than I used to be. Also I seem to be reflecting more now. Honey and Mumford already pointed out in their work (1992) that learning styles are not stable over time, but rather change during the career and life path of individuals. My tendency to observe and reflect has increased as well as the propensity “to have a go”.

One of my fellow team members is considered a *theorist* and less of an *activist* or *pragmatist*. He prefers to understand underlying reasons, concepts and relationships instead of instantly doing things. Another one shows strongest characteristics as a *reflector* and littlest as a *theorist*. The fourth one is a distinct *pragmatist* and *activist*.

#### 5.4. “The 10Ds” (Bygrave, 2004)

Dream: Due to the volatility of the telecom industry and unknown demonstrator results, *TrackIT* did not really have a vision of what the future could be like for them and their businesses. One of the reasons why the project was dropped by the four students was that the future could not be visualized. Something that is not generally dramatic but problematic considering that none of the four members is a Swedish native and thus the decision whether or not to return to the respective home countries had to be made at one point.

Decisiveness: Routine decisions were generally being made swiftly but procrastination also became an issue at times.

<sup>4</sup> Figure created on the basis of Honey and Mumford (1992).

Doers: Deciding on a general course of action in the first place had not always been easy. Actions were then being conducted but not necessarily “as quickly as possible”.

Determination: *TrackIT* was committed from the beginning. That the project was being dropped had nothing to do with a “give-up-mentality”.

Dedication: *TrackIT*'s members showed a considerable amount of dedication. It did not result in tireless seven-day work weeks though and relationships with friends and families did not have to suffer.

Devotion: Saying that *TrackIT* would “love what they do” is likely a little far-fetched. But the potential benefits of the technology were intriguing enough to start in the first place.

Details: Due to the nature of *TrackIT*'s technology as a Lund University research project, the actual product's details were the responsibility of the researchers. *TrackIT*'s members did take care of the business side as much as possible.

Destiny: Being in charge of one's own destiny made most students in class come to Lund, including *TrackIT*'s members.

Dollars: Money had not been the prime motivator to start an entrepreneurial project.

Distribute: *TrackIT* was at too early of a stage to even think about distributing any ownership, not to mention that *TrackIT*'s student members did not own a share of the technology at all.

### **5.5. Friendship within Entrepreneurial Teams (Francis and Sandberg, 2000)**

In the eyes of Francis and Sandberg (2000) friendship may affect a group's dynamics. In the following *TrackIT* will be analyzed based on six propositions made by Francis and Sandberg mentioned above. *TrackIT*'s members have a relationship that goes beyond a working relationship and consider themselves friends; two members had already known each other and been friends before the start of this programme:

Proposition 1 (Agree): *TrackIT* reached completeness rather rapidly, not just formally but also in a way that operations could be conducted.

Proposition 2 (Undecided): I personally agree with the proposition that friendship leads a founding team to rely more on implicit agreements and less on explicit. A very interesting thought and therefore in this listing, but *TrackIT* did never get to the stage where this would have become relevant. A formal agreement was only made with LU Innovation.

Proposition 3 (Agree): *TrackIT*'s (routine) decision-making had always been efficient, as acceptance of team members in particular and thus trust had always been prevailing. This resulted in greater commitment to, better understanding and higher quality of decisions.

Proposition 4 (Agree): The level of friendship within *TrackIT* led to greater participation by all team members in decisions.

Proposition 5 (Undecided): Often times the heaviest arguments are among family and friends. While *TrackIT* did have cognitive conflicts, affective conflicts could not be avoided either. Friends tend to be most brutally honest with each other.

Proposition 6 (Undecided): *TrackIT's* members did work efficiently and added value, but the project did not get to a stage where a performance in numbers could be measured.

## **6. Conclusion**

The purpose of the paper at hand was to personally reflect on my experiences over the course of the Master in Entrepreneurship programme at Lund University 2010 - 2011. While I could have reflected on various topics I chose entrepreneurial characteristics and friendship within entrepreneurial teams, since it is something I have a considerable amount of interest in personally. Whether working together professionally with good friends could actually work had always been a concern to me, since it is wide belief that money could potentially break friendship. *TrackIT* did not get to a stage where money and “serious business” was at stake, but working together with people that I consider my friends made me realize a range of things: In my opinion *TrackIT's* group composition was beneficial to the project. I do not see myself ever working on a venture with people I would not want to meet during my leisure time. The working environment was fairly efficient and enjoyable since we had built a level of trust. One downside might have been that we sometimes distracted each other with non-work related issues, likely a consequence of a decline in intrinsic motivation due to the project kind of hanging at poise in the end. We did try to get the project back on track, but we might have simply lost our focus too early.

The fact that none of us is pursuing the project beyond June 2011 might indicate that we are not risk takers after all, one of characteristics entrepreneurs are assumed to have. I still consider myself having the propensity to act entrepreneurially as I do not enjoy to be put into constraints by an employer, but I will probably going to postpone the founding of my next venture. It is crucial, at least to me, to first build up an extensive business network in the city or country one decides to run a business.

The sometimes chaotic organization of the entrepreneurship programme might be due to its young age but also shows that even its organizers seem to be featuring the sometimes offhanded characteristics of entrepreneurs. Nevertheless has the hands-on approach of programme been a good experience and beneficial to all students.

## Appendix

### Appendix I: *Honey & Mumford Learning Styles Questionnaire*<sup>5</sup>

There is no time limit to this questionnaire. It will probably take 10-15 minutes. The accuracy of the results depends on how honest you can be. There are no right or wrong answers. If you agree more than you disagree with a statement put a tick. If you disagree more than you agree put a cross by it. Be sure to mark each item with either a tick or cross. When you have completed the questionnaire, continue this task by responding to the points that follow.

- 1. I have strong beliefs about what is right and wrong, good and bad.
- 2. I often act without considering the possible consequences.
- 3. I tend to solve problems using a step-by-step approach.
- 4. I believe that formal procedures and policies restrict people.
- 5. I have a reputation for saying what I think, simply and directly.
- 6. I often find that actions based on feelings are as sound as those based on careful thought and analysis.
- 7. I like the sort of work where I have time for thorough preparation and implementation.
- 8. I regularly question people about their basic assumptions.
- 9. What matters most is whether something works in practice.
- 10. I actively seek out new experiences.
- 11. When I hear about a new idea or approach I immediately start working out how to apply it in practice.
- 12. I am keen on self-discipline such as watching my diet, taking regular exercise, sticking to a fixed routine etc.
- 13. I take pride in doing a thorough job.
- 14. I get on best with logical, analytical people and less well with spontaneous, "irrational" people.
- 15. I take care over the interpretation of data available to me and avoid jumping to conclusions.
- 16. I like to reach a decision carefully after weighing up many alternatives.
- 17. I'm attracted more to novel, unusual ideas than to practical ones.
- 18. I don't like disorganised things and prefer to fit things into a coherent pattern.
- 19. I accept and stick to laid down procedures and policies so long as I regard them as an efficient way of getting the job done.
- 20. I like to relate my actions to a general principle.
- 21. In discussions I like to get straight to the point.
- 22. I tend to have distant, rather formal relationships with people at work.
- 23. I thrive on the challenge of tackling something new and different.
- 24. I enjoy fun-loving, spontaneous people.

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<sup>5</sup> Honey and Mumford (1992)

- 25. I pay meticulous attention to detail before coming to a conclusion.
- 26. I find it difficult to produce ideas on impulse.
- 27. I believe in coming to the point immediately.
- 28. I am careful not to jump to conclusions too quickly.
- 29. I prefer to have as many sources of information as possible -the more data to mull over the better.
- 30. Flippant people who don't take things seriously enough usually irritate me.
- 31. I listen to other people's point of view before putting my own forward.
- 32. I tend to be open about how I'm feeling.
- 33. In discussions I enjoy watching the manoeuvrings of the other participants.
- 34. I prefer to respond to events on a spontaneous, flexible basis rather than plan things out in advance.
- 35. I tend to be attracted to techniques such as network analysis, flow charts, branching programmes, contingency planning, etc.
- 36. It worries me if I have to rush out a piece of work to meet a tight deadline.
- 37. I tend to judge people's ideas on their practical merits.
- 38. Quiet, thoughtful people tend to make me feel uneasy.
- 39. I often get irritated by people who want to rush things.
- 40. It is more important to enjoy the present moment than to think about the past or future.
- 41. I think that decisions based on a thorough analysis of all the information are sounder than those based on intuition.
- 42. I tend to be a perfectionist.
- 43. In discussions I usually produce lots of spontaneous ideas.
- 44. In meetings I put forward practical realistic ideas.
- 45. More often than not, rules are there to be broken.
- 46. I prefer to stand back from a situation and consider all the perspectives.
- 47. I can often see inconsistencies and weaknesses in other people's arguments.
- 48. On balance I talk more than I listen.
- 49. I can often see better, more practical ways to get things done.
- 50. I think written reports should be short and to the point.
- 51. I believe that rational, logical thinking should win the day.
- 52. I tend to discuss specific things with people rather than engaging in social discussion.
- 53. I like people who approach things realistically rather than theoretically.
- 54. In discussions I get impatient with irrelevancies and digressions.
- 55. If I have a report to write I tend to produce lots of drafts before settling on the final version.

- 56. I am keen to try things out to see if they work in practice.
- 57. I am keen to reach answers via a logical approach.
- 58. I enjoy being the one that talks a lot.
- 59. In discussions I often find I am the realist, keeping people to the point and avoiding wild speculations.
- 60. I like to ponder many alternatives before making up my mind.
- 61. In discussions with people I often find I am the most dispassionate and objective.
- 62. In discussions I'm more likely to adopt a "low profile" than to take the lead and do most of the talking.
- 63. I like to be able to relate current actions to a longer-term bigger picture.
- 64. When things go wrong I am happy to shrug it off and "put it down to experience".
- 65. I tend to reject wild, spontaneous ideas as being impractical.
- 66. It's best to think carefully before taking action.
- 67. On balance I do the listening rather than the talking.
- 68. I tend to be tough on people who find it difficult to adopt a logical approach.
- 69. Most times I believe the end justifies the means.
- 70. I don't mind hurting people's feelings so long as the job gets done.
- 71. I find the formality of having specific objectives and plans stifling.
- 72. I'm usually one of the people who puts life into a party.
- 73. I do whatever is expedient to get the job done.
- 74. I quickly get bored with methodical, detailed work.
- 75. I am keen on exploring the basic assumptions, principles and theories underpinning things and events.
- 76. I'm always interested to find out what people think.
- 77. I like meetings to be run on methodical lines, sticking to laid down agenda, etc.
- 78. I steer clear of subjective or ambiguous topics.
- 79. I enjoy the drama and excitement of a crisis situation.
- 80. People often find me insensitive to their feelings.

## Scoring

You score one point for each item you ticked. There are no points for crossed items. Circle the questions you ticked on the list below:

	2	7	1	5
	4	13	3	9
	6	15	8	11
	10	16	12	19
	17	25	14	21
	23	28	18	27
	24	29	20	35
	32	31	22	37
	34	33	26	44
	38	36	30	49
	40	39	42	50
	43	41	47	53
	45	46	51	54
	48	52	57	56
	58	55	61	59
	64	60	63	65
	71	62	68	69
	72	66	75	70
	74	67	77	73
	79	76	78	80
Totals	<hr/>	<hr/>	<hr/>	<hr/>
	Activist	Reflector	Theorist	Pragmatist



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