

# Entrepreneurial ID «venture leaders» 2013



**Name:** Marie-Christine Fluet  
**Contact:** fluet@rehaptix.com, +41 44 632 9188  
**Project/ Company name:** ReHaptix GmbH

**Short description:** We have developed an assessment test to rapidly and objectively evaluate arm and hand motor functions after a stroke. Quantitative data reflecting diverse impairments are measured using a robotic device equipped with position and force sensors, and a diagnostic is performed with a precision and repeatability that humans and current tests cannot achieve.

**Web site:** www.rehaptix.com (in construction)

**Industry:** Medtech

## The Start-up

**The one-liner: what's your big idea?** Provide advanced technological tools for rehabilitation treatment and diagnostic.

**Status :** *project, business plan, company created (date of creation) ?*

Up to now, three prototypes have been developed and tested in clinical trials in major hospitals and rehabilitation centers in Zurich (Zentrum für Ambulante Rehabilitation, Universitätsspital Zurich, Uniklinik Balgrist) and abroad (Rehabilitation and MS Center Overpelt in Belgium, École de réadaptation in Jonquière, Quebec, Canada). Data has been collected with 120 healthy subjects of different age groups and about 65 neurologically disabled subjects to evaluate the prototype and establish a database. We are currently building more prototypes that will be installed and evaluated by five pilot customers in 2013. We are also further developing the user interface and redesigning the instrumented handle. This should result in a robust and attractive product that can be used in the clinic by therapists without the support of the current investigator. We have developed a business plan and the first sales should start in 2014. The incorporation of the company is in progress.

**Company / team size:** *nb of people*

The core team is composed of Marie-Christine Fluet (CEO, co-founder) and Lesley Spiegel (Manager of Strategic Business Development, co-founder). Marie-Christine Fluet studied electrical engineering and did a PhD in neurosciences. She has been working for three years on the VPIT carrying out experiments with patients, performing the analysis of the movement data and statistical comparison of the data with conventional clinical scales. Lesley Spiegel brings over 10 years of experience in building high-tech start-ups with focus on medical technology. She is CTI Start-up coach at the Commission for Technology and Innovation, Federal Department of Economic Affairs, lecturer at the Department of Management, Technology & Economics, D-MTEC at ETH Zurich and Board member of various institutions in the Swiss start-up environment.

With the funding from the Gebert Ruf foundation, we are also hiring a graphical designer, a product designer, a user interface designer and a software engineer for development of the image of the company and the product. We also have a collaboration for the development of a database to store patients' data. ReHaptix can also count on the valuable advices from its academic partner (Prof. Dr. Roger Gassert and Dr. Olivier Lambercy, RElab, ETH Zurich), its business advisor (Pierre Comte, CTI coach) and its clinical partners (Prof. Dr. med. Andreas Luft, Neurological clinic, Universitätsspital Zurich).

**Problem / Solution:** *What is the problem you are addressing / what's your solution ? (keep it simple !)*

We have developed the Virtual Peg Insertion Test (VPIT), an innovative tool for the rapid and objective assessment of upper limb sensorimotor functions, which combines a commercial low-cost robotic device with force feedback (PHANTOM Omni, SensAble Technologies), an instrumented handle, a virtual reality environment and data analysis software. The ability to simultaneously and precisely measure position, grasping force and collision force and derive velocity and acceleration during a fine manipulation task is a unique feature of the VPIT and provides clinicians with a fast and precise quantification of impairments affecting arm and hand function of their patients. Through the use of the robotic device, a realistic reconstruction of the interaction with a real environment is provided. The feature extraction algorithms provide an immediate evaluation of arm and hand sensorimotor function after the completion of the test.

**Market Opportunity / Target customers:** *Which market are you addressing and what's the size / Who are your target customers ? Can you mention specific examples (company, ...) to illustrate*

The primary market segment for ReHaptix is hospitals and rehabilitation clinics in Europe, which represents a number of

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4500 facilities. This market will later be extended to the USA and Canada. The market for robots in rehabilitation and assessment has been estimated to about 350Mio USD in 2010 and is rapidly growing. There are clear benefits for hospitals and rehabilitation clinics from the use of the VPIT, which can decrease their operation costs. Also clinicians will benefit from a more precise and faster evaluation of their patients based on objective data analysis, and patients will potentially receive more adapted therapy programs leading to faster recovery.

**Competition and competitive advantage:** *Who are some of your competitors? What advantages on them will you build?*

Among the competition, there are the conventional assessment tests, such as the Fugl-Meyer, that are well established and low cost, but they only provide subjective measures and they are time consuming. ReHaptix is also in competition with few robotic devices developed primarily for therapy, such as the Armeo and InMotion. These devices do not provide the same transparency to movement as the VPIT, do not allow 3D movements, or do not combine dynamics and kinematics measurements, nor provide the evaluation of hand impairment proposed by the VPIT. Since these other solutions have up to now mainly focused on providing therapy, they do not have so much advance analysis software for the assessment.

**Financing:** *current financing and financing strategy (self financed, fund raising, ...)?*

*If fund raising, how much would you like to raise? from which type of investor?*

Based on preliminary sales predictions of VPIT platforms and cost estimation, the company will reach break even in the third year. An initial funding of 287'000 CHF from the Gebert Ruf Foundation will need to be completed by another 250'000 CHF. These funds will serve in the validation and standardization of the VPIT, development of the company and acquisition of the necessary hardware to provide VPIT platforms. A round of financing will be performed within a few years to increase the activities of ReHaptix and promote extension of the company to reach international markets and other market segments.

**Growth objectives:** *what are your objectives in terms of company growth in 5 year (revenues, employees, ...)?*

We plan on selling 20 VPIT systems in 2014 and increase to 150 VPIT systems in 2017, which represents revenues of 520'000 CHF increasing to 3'705'000 CHF. The company will grow from 3 employees in 2014 to 10 employees in 2017. ReHaptix has for objective to provide patients with better diagnostic and therapeutic devices in clinical and in-home environments. The company is therefore planning to start research and development of a new product in the course of 2015 and start the sales in 2017. Later on, the company is planning to launch a new product every 3 years.

**US objectives:** *What are 3 tangible results that you would like to achieve while in Boston (measure of your success)?*

*What kind of people could be helpful to you?*

One of my objectives is to get challenged about my ideas, which would help me to find more convincing arguments to attract investors, customers and collaborators. A second objective is to increase my basic business knowledge and understanding of different markets. This could significantly contribute to open my horizons and better prepare me to my future challenges in targeting the US market. Furthermore, I would like to build contacts for future collaboration, which can take several forms from mentors to future investors.

**Description:**

*In addition to the introduction, you can give a short description of your offering (you can add an illustration / picture / logo of your company / etc), your technology (IP, ...) business model, existing customers, what is the market potential, who are you competitors and what is your key differentiator (USP – positioning), etc.*

*Make it attractive ! (use images,.. )*

The VPIT is composed of 4 main components:

**A computer** that displays a visual feedback on a monitor in front of the user. The virtual environment shows the task to be performed during the assessment.

**A robotic device** that the user manipulates to perform the assessment of arm and hand function and provides force feedback during the interaction with the virtual objects. The robotic device is a commercial low-cost, general-purpose haptic device (PHANTOM Omni, SensAble Technologies).

**An instrumented handle** that comprises 3 force sensors and measures the grasping force applied by the subject during the task.

**An analysis software**, evaluating movement and force data collected by the robotic device using specific feature analysis algorithms. The VPIT software provides clinicians and patients with an intuitive assessment of arm and hand function.

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### **The team**

Please provide a brief biography. Outline the key elements of your entrepreneurial profile, this is a central piece of making your project credible! Additionally, you can mention key members of your team with a 1 sentence introduction.  
NB: it is first your profile, and mentions of your key team members.

If your not familiar with this, you'll find a lot of examples for the former venture leaders winners

<http://www.venturelab.ch/fr/vLeadersWin.asp>

Or from this blog

[http://blog.guykawasaki.com/2006/04/the\\_art\\_of\\_the\\_.html#axzz1CjvZl6CO](http://blog.guykawasaki.com/2006/04/the_art_of_the_.html#axzz1CjvZl6CO)

**Again: make it attractive !**

**Dr. Marie-Christine Fluet (CEO, co-founder)** is currently postdoc at the Rehabilitation Engineering Lab at the ETH Zurich. She has been working for three years on the VPIT carrying out experiments with patients, performing the analysis of the movement data and statistical comparison of the data with conventional clinical scales. She studied electrical engineering at the Polytechnical School of Montreal, Canada and did a PhD in Neurosciences at the Institute of Neuroinformatics, University of Zurich, Switzerland during which she investigated cortical motor areas controlling hand grasping. She thus brings a combination of technical skills and an understanding of the motor system and neurological disorders which is a great advantage for discussing with clinicians and therapists. Her determination constitutes a strong base to lead this project to success. She is able to take risk in order to concretize her ideas and realize her vision. She can also take initiatives and make things happen. She demonstrated in several occasions her ability to find the resources necessary to pursue the project, such as raising funds and recruiting collaborators. She founded the company with **Lesley Spiegel (Manager of Strategic Business Development, co-founder)**, which is CTI Start-up coach at the Commission for Technology and Innovation and has a strong experience in building high-tech start-ups with focus on medical technology.

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