



## Business Plan



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## **II. Executive summary**

This document describes GenomVisio business plan, <http://www.genomvisio.net>, a SpinOff of the UPC (Polytechnic University of Catalonia) that commercialize technology developed at the university based primarily on the visualization and management of high quality digital content. This company was incorporated on 12 January 2010 with an initial capital of € 40,156.

What is proposed is a google map of living beings and manufactured items, based on three basic elements: zoom magnification from 1:1 to 1:100,000, vision and visualization of objects inside loop based on CT. This technology can be applied to any object or living being and subsequently generated images can be accessible via the Internet. The viability of the proposal is based on the popularization of digital communications and electronic equipment, which connect to the network from anywhere with gadgets increasingly powerful and universal.

### **II.1 Product and Business**

At this time we have a very advanced product line in education and we are working on a second product line in healthcare market. The business model proposed is mainly based on subscription.

#### **II.1.1 Education**

Our products are online education oriented. The first website is in beta version and can be accessed at <http://www.genomedu.net>. It has been very well received in different conferences we have done in all educational levels from primary to university. We are currently in an initial promotion plan in Catalonia. From June we will have the multilingual version that will be promoted in the rest of Spain and in the international market.

Our clients may comprise:

- Institutes, healthcare vocational centers and universities to incorporate.
- Textbook publishers: they incorporate into their text contents of our websites, zooms, rotations, 3D.
- Students and parents of all educational levels.

#### **II.2 Small dental and trauma Clinics**

This product line is based on marketing the website VisioTac that will provide to doctors dentists, trauma specialists, etc., a 3D visualization tool for DICOM tests and will provide a TAC library with annotations made by experts that may be used for explanation of treatments and expected results. It will provide to small clinics have a medical visualization technique at a very affordable price.

#### **II.3 Professional services**

This is a complement of our portfolio that allows the integration of our solutions in other environments. At this moment we are considering joining a medical models human viewer to add him to display real tissues and organs as well as 3D manipulation.

### III. Innovation

Innovation is one of the strategic areas of GenomVisio with a budgeted of 15% of incomes.

The innovation portfolio at present includes:

- ❖ **Comparison**: consists in visualize two samples simultaneously for comparison. As an example, a cirrhotic liver with a healthy Gen360° or 3D vision of a healthy bone from another broken, etc. This new application could be added to existing websites with a library with different pathologies.
- ❖ **Knowledge Pills**: consists on developing training options and information about a specific topic by adding course contents, exercises, games and images to the website.
- ❖ **Veterinary**: It's about creating atlases of animals adapting to major GenomEdu features with the aim of offering it to schools and veterinary clinics.
- ❖ **Quality control**: Another idea being evaluated is the possibility of applying the technology developed to the quality control department, to study the effects of the use of materials, comparing objects and manufactured materials.

#### III.1.1 The management team

The team is led by entrepreneurs Dr. Xavier Messeguer, Roman Roset and Caterina Sampol. His multidisciplinary background has allowed the design lines of the initial GenomVisio business plan. Due to the technical characteristics of products and the quality of contends, is considered a key success factor to have a group of scholars and external partners who act as advisors and specialists. For this reason GenomVisio staff includes an **Advisory Board** in order to determine the strategic direction of the company and a **Technical Committee** that oversees the technical and scientific validity of products.

#### III.1.2 Financial summary

Note that the previous investments aren't charged to GenomVisio, this investment have reached € 70,000.

As a company, the turnover rates are determined by different types of subscribers and subscriptions. The billing will start in September 2010 with a forecasted growth adapted to the slow reaction of the market activity. The prediction results are:

Balance Sheet	2010	2011	2012	2013	2014	2015
Profit and lost account	1.992,00	4.302,10	28.647,31	189.293,67	420.820,44	746.376,03

And the cash flow statement is:

Cash Flow Statement	2010	2011	2012	2013	2014	2015
Cash Flow		-3.020,16	13.762,84	246.081,97	937.544,52	2.144.056,52

The 80% of costs are determined by the payroll personnel and 12% for payments of external partners and specialists in various subject areas. Initially the company will be configured with the minimum staff.

## IV. Opportunity

This report covers **GenomVisio** business plan. **Genomvisio** is an spinoff of the UPC (Polytechnic University of Catalonia) that commercialize technology for visualizing high-quality digital content developed based primarily on technology developed by research groups.

The widespread use of Internet accelerates the introduction of changes in all levels and in all areas of society. These changes create new needs that require answers based on new paradigms; therefore, new business opportunities emerge. **Genomvisio** wants to exploit this emergent opportunities.

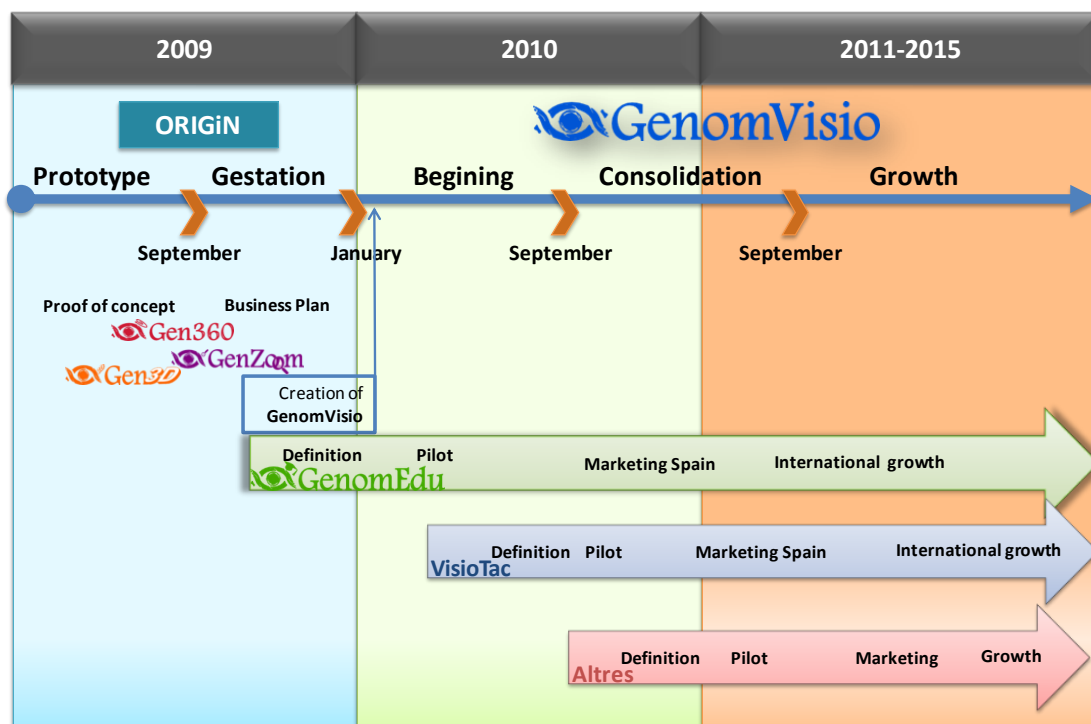
**GenomVisio** business plan is based on the Internet and digital communications:

Internet is a worldwide potential market that requires and offers opportunities for new tools giving responses to existing and new media needs.

In this context of new uses of the Internet, our proposal contains two lines of work:

- **Consolidation and growth**, with the mission of commercialize web site solutions based on the three core products of **Genomvisio**.
- **Innovation**, with the mission of increase **Genomvisio's** products catalog with a strong innovation policy with the collaboration with research groups in different fields.

## V. History



Since 2.000 Doctor Xavier Messeguer has led a research group of the UPC in bioinformatics (<http://algggen.lsi.upc.edu> ). In the last years, their work has been focused on developing bioinformatics tools in collaboration with other disciplines research groups and researching

new tools that visualizes genomes in a friendly and fast way. This was the seed for the development of interactive tools for visualizing images and 3D human body parts.

## V.1 Prototype

In late 2008 Doctor Messeger group developed the following products:

- **GenZoom**: a zoom on the human organs and tissues.
- **Gen360**: an outer space view of the organs of human body.
- **Gen3D**: an internal spatial vision of the human body from CT scans.

And then they planned the implementation of a prototype of each product.

This stage was carried out in the university during the first eight months of 2009 and was made as a proof of concept of the initial products. So in mid 2009 the first web site was implemented integrating the three products with other functionalities in order to become a tool for teaching and learning the anatomy of the human body by viewing real high quality images. The name of the web site is *GenomPort*.

In the last two years *GenomPort* won different awards:

- At 2008, the "BDigital City of Knowledge" sponsored by the City of Barcelona;
- At 2009, the Digital BDigital Global Congress Innovation award for universities and public institutions.

## V.2 Gestation

The mission of this stage was the definition and development of the core products of **GenomVisio** with the following phases:

### V.2.1 Definition and development of core product

We defined three basic products:

- **GenZoom**: a tool that allow zoom with photographs at different magnifications.
- **Gen360**: a rotational, so in tree dimension, view of an object.
- **Gen3D**: an internal space vision from ACT scans.

They where complemented by:

- Online accessibility with different functionalities.
- The users can associate contents to the images in a friendly way.
- The user can create specialized environments combining a part of the images with other contents.

### V.2.2 Defining and developing the first line of business: GenomEdu

A line of products oriented to the Educational market. We want to be a referent in Education 2.0 and all our products are web based they will be accessed directly by the user and also may be integrated in other products like digital books.

The first product of this line is GenomEdu, a web site that shows the human anatomy online and gives to the teachers, students and schools pleasant environments tools.

We created a multidisciplinary team of specialists in fields like medicine, biology and informatics in order to generate contents of human beings for the three core products. Thus, our experience in computing gained in the design of the prototype was perfectly complemented by these partners:

- **GenZoom** needed to identify the most significant human tissues. This definition was made by the Department of Cell Biology at the University of Barcelona (UB).  
Also needed to establish the quality of the images:
  1. **Conventional photographs** (up to 50x) we collaborated with the Center for Imaging and Multimedia Technology of the UPC.
  2. **Optical microscope photographs** (20 to 1000x magnification) we contacted with the Department of Cell Biology at the UB to obtain the optical microscopy photographs and samples and to have adequate samples of high quality.
  3. **Electron microscope photographs** (of increases 1000-100000) we contacted with the Electron Microscopy Unit of the Scientific and Technical Services of the UB.
- **Gen360** we contacted with the Department of Obstetrics-Gynecology, Pediatrics, Radiology and Anatomy of the Faculty of Medicine, UB and with the morgue responsible of the medical college for having good pictures of the human body.
- **Gen3D** we contacted with the Moving Group of the Technical UPC to develop the 3D application and with the Vic Hospital that gave us TACs.

Finally we designed a website integrating the core products with the current parameters of a social web 2.0 style. In this point Roman Roset joined **GenomVisio**, he participates as an entrepreneur and manages de operation team.

In this phase we also established the initial contacts with teachers, schools and university faculties to demonstrate the product. Every person we contacted was positively surprised with **GenomEdu** and told us that they would incorporate **GenomEdu** to his teaching activity.

### V.2.3 Defining and developing a second business line: Visiotac

The second business line is oriented to the professional healthcare market. The core product for this line is Gen3D, and functionally they will offer the possibility of viewing personal and particular TACs to users and doctors in diagnostic of illness.

### V.2.4 Other business lines

We are studying other applications of our technology, with different groups of images: plants and animal species as well as other natural or manufactured materials. Our tests on insects, plants and tissues have shown the feasibility of the idea and invited us to look for financial partners to develop these lines. In this research we have the collaboration of the UPC School of Agriculture and have contacted with public and private institutions that might be interested in our results as the Education Ministry of Catalonia, the catalan Institute of wine, various foundations teachers, schools, and so on.

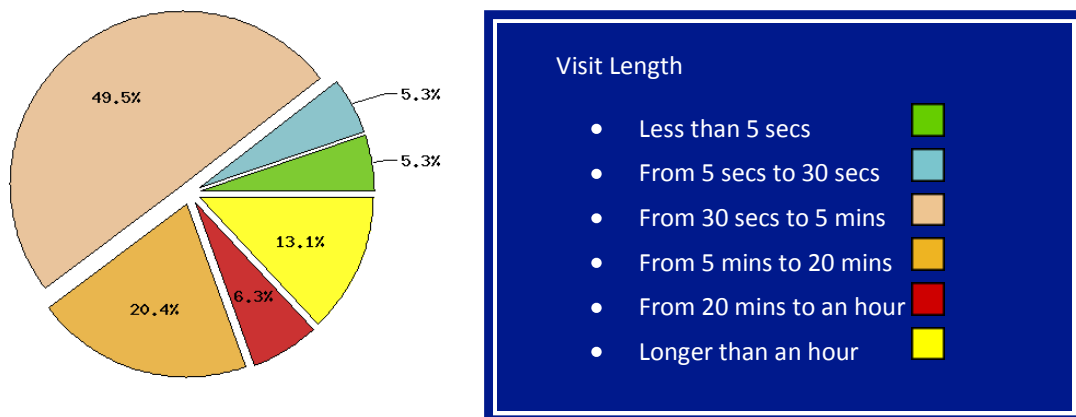
### V.2.5 Creation

We also worked on create a business company, as a spin-off of the UPC, to commercialize the products. We developed the Business plan, created the managerial organization and determined the composition of company along with all legal aspects.

### V.3 GenomVisio

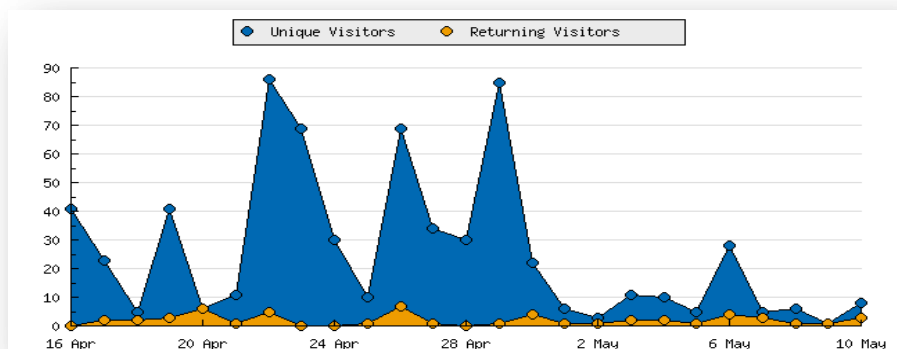
#### V.3.1 Beginning (January to September 2010)

In January 2010 GenomVisio was constituted as a company. Its initial capital of € 40,156 was given by shareholders. This amount of capital wasn't enough for developing all the lines at the same time, so we decided to focus **GenomVisio** on a single line of business **GenomEdu** and also to continue developing **VisioTac** with a largest calendar, more slowly. In parallel, we are preparing for the commercialization in the consolidation phase. On April 16 we published a beta version of **GenomEdu** with free access: <http://www.genomedu.net> as a part of our commercial strategy. **GenomEdu** is an innovative tool for teaching that need to be known and we need to know more about the use of the product in order to establish appropriate policy entries. During the last month we had about 350 accesses, with the following statistics:



Approximately 10.6% leave the portal in the first 30 seconds, thus more than 99% are interested enough for spending time seeing the contents.

The following statistic indicates the number of repeating visitors of the site:



We had the objective of improving our site by detecting and solving software errors by means of a small group of users. So we have promoted **GenomEdu** in a controlled way directly and with *Facebook*.

In addition, we had studied the user behavior, reactions and proposals. The conclusions are:

- The website is attractive; teachers enjoy its pedagogical possibilities.
- The expansion in Spanish Education market won't be immediate. Spanish market in education is changing paradigms with the introduction of internet tools in the teaching and learning process. Our product needs the consolidation of these changes.
- The Educational market is stationary and the programs and tools used through the learning process are planned every year. So the marketing of **GenomEdu** must be attached to the scholar calendar from one year to another.

Then we decided:

- To improve the offering of **GenomEdu** including developed lessons that teachers may use directly in class can act as an accelerator of the introduction of our product.
- To increase the market of **GenomEdu** accelerating the deployment of the English version and the international marketing strategy.

Based on these findings and the general idea we developed the consolidation phase.

#### **V.4 Consolidation (September 2010 – September 2011)**

In this stage we want to focus on the marketing of two products: **Visiotac** and **GenomEdu**.

#### **V.5 Growth (after September 2011)**

After consolidate **Genomvisio**, our strategy will change in order to accelerate the growth of the company.

## **VI. The board**

The entrepreneurs are Xavier Messeguer, Roman Roset and Caterina Sampol. We have a multidisciplinary background that allowed us design **GenomVisio** Business Plan.

Due to the technical characteristics of products and the quality required in the images, we consider a key factor for success to have a board with experts and external partners who act as advisors and specialists. In this sense we create the Advisory Board, which mission is advising the management in product strategy. In the technical and scientist field we have the Technical Committee which helps us to oversee technically and scientifically **GenomVisio** products.

### **VI.1 The Entrepreneurs**

The curricula and training of entrepreneurs covers both technical and business fields:

- Dr. Xavier Messeguer, graduated in Physics at UB and Ph.D. in Computer Science in 1996 by the UPC. He is Professor of the Languages and Information Systems Department since 1999 and has worked in bioinformatics, designing computing algorithms and applications for research in biology and physics (<http://alggen.lsi.upc.edu>). The scientific activity has also given him the managerial

and relational skills necessary to lead interdisciplinary projects. The scientific production in the period of collaboration with Genome Spain and the income obtained in this collaboration were the basis and start point of GenomVisio.



- Mrs. Caterina Sampol, graduated in Mathematics at UAB (Autonomous University of Barcelona) in 1986 is a business professional with twenty four years of experience in Information Technology and Communications solutions and services. She has a great background in management and leadership in different areas: consulting, project management, service delivery, marketing and business development. She is a committed professional customer oriented and flexible with negotiation capabilities who enjoys leading teams.
- Roman Roset, computing engineer since 2003 at UPC is the technical specialist. Till now he's been working in semantic and social web in web 2.0 research projects with different institutions and universities as the Barcelona Supercomputing Centre. He's been collaborating in European projects with private and public institutions.

## VI.2 The Shareholders

GenomVisio shareholders are:

Shareholder	Rate
Xavier Messeguer	58.33%
Caterina Sampol	17.33%
UPC	5%
Roman Roset	2%
Other investors	17.34%

## VI.3 The Advisory Board

Important scientists will be advisors to the board and will participate in the strategic development of **GenomVisio**. Initially in the Advisory Board we will have advisors in the fields of biology, medicine and computing.

The initial Advisory board is:

- Dra. Mercè Durfort: Cell Biology professor at Faculty of Biology, University of Barcelona (UB). She's Ph.D. in biological sciences by the UB since 1973. Since 1985 she is teaching and researching at the UB where has occupied several managerial positions. Since 1993, is member of the Royal Academy of Arts and Sciences of Barcelona and for the period of 1994 to 2000 was the Institut d'Estudis Catalans president for Biological Sciences Section, which is full member since 1989. She belongs to several scientific societies and is author of technical publications and videos

designed to provide methodological support for teaching. In 2004 he received the Creu de Sant Jordi.

- Dra. Isabel Navazo: Languages and Systems professor at the Technical University of Catalonia since 2003. Ph.D. in industrial engineering in 1986 from the UPC. His research and teaching focuses on Computer Graphics in geometric modeling issues, visibility in complex scenes, and representation and visualization of scientific data; the Serva applying research results in the design of virtual reality systems and in the reconstruction, manipulation and visualization of three-dimensional medical images to aid in the diagnosis, teaching and training of specialists. In 2008 she was named a Fellow of Eurographics, which since 2004 has served as education director of the executive committee of this association. She is currently the Spanish Section President of Eurographics Association.
- Dr. Mariano Monzo: Anatomy and Embryology professor at Faculty of Medicine, UB. He was graduated in Biological Sciences in 1977 and in Medicine and Surgery in 1980. He's Ph. D in Medicine and Surgery since 1983. He's being working in the relationship between embryonic and tumor cells, as well as translational oncology. He has published papers and books related to experimental oncology. As Professor he has developed several academic positions in the Anatomy Embryology Department of the UB: Department Director, Secretary and Studies Director.

#### VI.4 Technical Committee

The technical committee is composed by scientific and specialist, they will lead product development in different areas. Their salary will be based on the profits.

Initially the technical committee is composed by:

- Dr. Fernando Aguado: PhD in Biology from the Universidad Complutense of Madrid in 1994, he's working in the Cell Biology of the UB since 2007 and is an specialist in cell biology, neuroscience and endocrinology.
- Carles Mitja: Professor and head of the Laboratory of Image Quality of the Center for Image Processing and Multimedia Technologies attached to the Technical Foundation of Catalonia.
- Enric Mele: PhD in biology from the University of Barcelona is currently IRTA (Institute for Agricultural Research).
- Ramon Masnou: Radiology Technician Hospital Vall d'Hebron Hospital in Barcelona.
- Quim Morales: a medical student at the campus Casanova, UB, and fellow in the Human Anatomy Department. He has collaborated in the design and development of CD-ROM "Interactive Anatomy Locomotor System" by Dr. Begoña Torres.

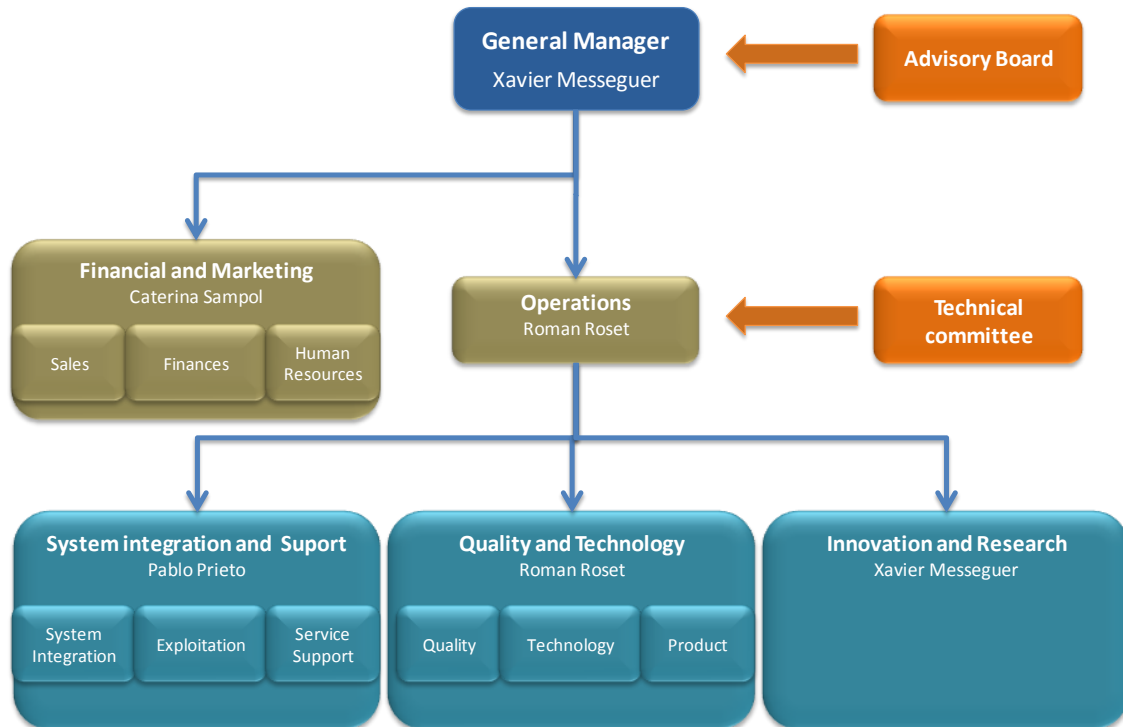
#### VI.5 Collaborators

The rest of collaborators are involved in software development. They are:

- Pablo Prieto: Bachelor in Computing Science.
- Alvaro Villalba: Last year student in computer science at the Barcelona's Computing Faculty (FIB).
- Marc Musquera: Engineer in Computing Science.
- David Gomez: Last year student in computer science at the FIB.

- Alba Artigas: Photography Student at the Centre de la Imatge i Tecnologia Multimedia (CITM).
- Guifré de Peray: Photography Student at the CITM.

## VI.6 The Staff



## VII. Products

### VII.1 General Features

The outsets of our products are:

- **Technological Independence:** This is a basic and fundamental feature in the design and development of products. Following this principia, we have developed software specifically on those aspects we consider critical. Incorporate open source components already designed and proven.

We believe this is a key issue facing the future that means we can change, extend, sell or deliver the software because **GenomVisio** is the owner. Only the 3D viewer is subject to a foreign license.

- **Ownership of contents:** GenomVisio owns all public contends.

### VII.2 Core products

The initial core products are:

### VII.2.1 GenZoom

This product allows the user navigate through digital photographs at different magnifications (from 1:1 to 100,000:1) made with a magnifying glass, microscope and scanning electron microscope or by linking the images to visualize them dynamically as a zoom. With this feature the **GenomEdu** users are able to navigate from the cell body to the core reaching to distinguish the DNA. To understand the timeliness of this idea you can read the paper “Visualization of image dates from cells to organisms”, published in Nature Methods 7 S26-S41 (1 March by 2010) doi: 10.1038/nmeth.1431.

### VII.2.2 Rotational Vision (Gen360)

Is a Technology that allows visualization of part of bodies as if they were turning 360 ° in a dynamically on screen and optical zoom from 36 pictures taken every 5 °.

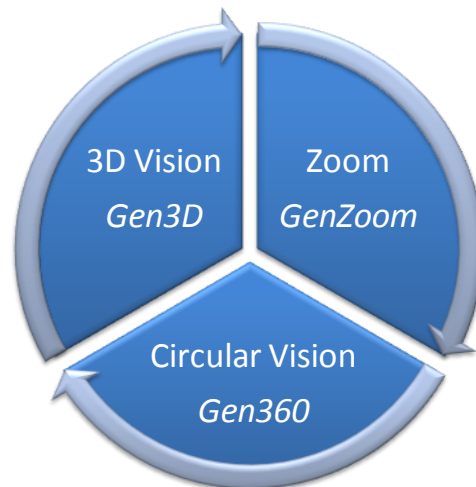
### VII.2.3 3D View (Gen3D)

It's a DICOM image viewer that reconstructs 3D bodies from cuts (2D data) and allows the navigation by the different planes.

## VIII. Technology

Products explained in the previous sections involved:

- Collection of images based on existing technologies.
- Its software integration that could be executed within a browser or applet.
- Minimized times of data transmission and load in the browser.



## IX. Technical Features

Our websites are web 2.0 applications and are framed in the growing tendency to treat the client's browser as a container for applications, so we have a web server based on simultaneous petitions serving content handling applications.

### IX.1 WebServer

- Development technology. The server was developed on PHP Symphony due to the versatility for programming web servers and libraries. Symphony is an ease development environment with a lot of open source applications. With Symphony is easy to include blogs, forums, wikis and other programs developed PHP to the website.

- Permission Policy: there will be different types of users the teacher type will be able for creating personal spaces and for editing contents, the classrooms, and for providing access to the classroom to other users, the students.

## IX.2 Applications

**GenZoom** and **Gen360** have been programmed javascript and **Gen3D** is a Java application, and is running in an applet.

## X. Portfolio

As mentioned, initially **GenomVisio** portfolio is based on the exploitation of the three core products merged with other functionalities in three business lines:

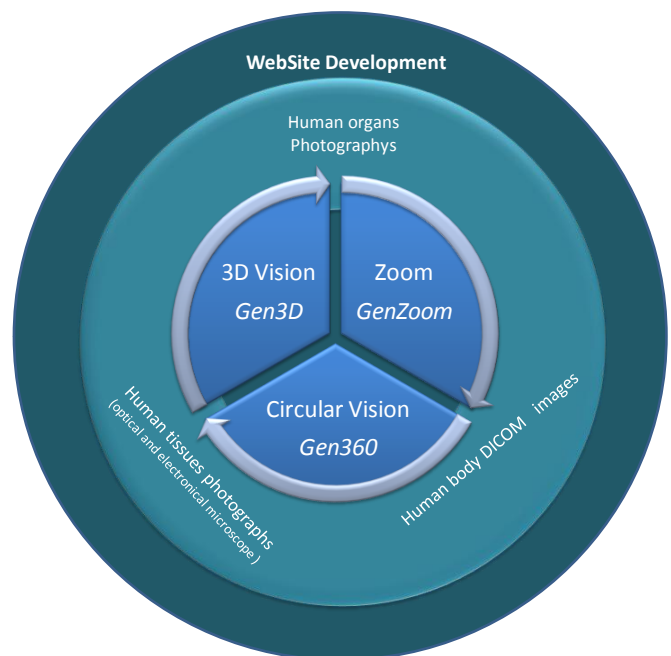
### X.1 Education

#### X.1.1 Products

They are based, primarily, on the marketing of **GenomEdu** (<http://www.genomedu.net>). It is a website which offers viewing from different parts of human body. It allows users interaction with images by zooming, rotating organs in a circular vision and 3D vision. Every content is organized into "classrooms". Now you can access to "Classroom Demonstration" in <http://www.genomedu.net> that is accessible and free.

In addition, **GenomEdu** allows the users customize the site by creating "classrooms" to suit the learning content to the specific students or themes. This is an important feature of our website because:

- Globally, we are at a turning point in education, with the advent of digital books and the Internet in daily life education, school and at home, beginning with a pilot during the course 2009 - 2010 which runs on an accelerated at all education undergraduate studies and schools in the coming years. This is a change led by Government in Spain. In the immediate future, new pedagogical needs will emerge from the new pedagogical paradigm.
- Regarding the specific topic of the human body, with GenomEdu we want answer the concerns generated by our body. A web search on the terms "3D Human Body Anatomy" offers 185 000 results. Analyzed the first 100 there is only one (<http://www.visiblebody.com>) offers 3D view and interactively parts of the body but have not found any that has zoom and 3D visualization in real organs. And finally, if for example we have a resonance, where we



can find a tool that allows us to understand this sequence of photos to know exactly the cause of our misfortune? We did not find any portal that allows it.

### X.1.2 Business model

The business model is based on underwriting and professional services through bespoke projects.

We distinguish three access profiles:

- **Student:** they have free access to those classrooms the teacher has invited as a visitor and without modifying contents.
- **Teacher:** they can create classes and classrooms assigning students to them.
- **Manager:** they can manage a "school" which are groups of many teachers with their classrooms.

We also distinguish different types of access:

- **Free access:** the occasional visitor will access to a sample student profile.
- **Basic:** the basic user through an invitation or a lump sum will access to all the options available on the website for 24 h with a student profile.
- **Premium:** the premium users will access with teacher profile and will be able to create classrooms with different options and to introduce or modify new contents, to manage guests and other services such as forums or blogs and to allow free access of their students.
- **Schools:** the subscription is designed for schools. And they will manage the premium users.
- **Integration:** to allow access to our website from a platform or third-party product.

We have identified different types of customers:

- **Editorial:** they can improve the value offered in digital texts with zooms, rotations and 3D views from GenomEdu.
- **Individual users:** teachers, students, patients, researchers, physicians, curious people.
- **Institutions and schools:** in all educational levels from primary school to college.
- **Corporate advertising:** Our content can be also used in advertising and outreach campaigns in different areas.

### X.1.3 Competitors

GenomEdu is an innovative product at the level of content and technology, since there is no website with images of the human body that allow users navigate the depth and body to go from the macroscopic to the DNA using the zoom technique. It also allows viewing the most important organs of human body in 3D and manipulating different parts of the skeleton.

There are some partially similar products:

- Videos that develop as the zoom  
<http://www.wonderhowto.com/community/member/madscientist/playlists/infinite-zoom/how-to-zoom-into-the-eye-of-a-fruit-fly-160038/> or  
[http://www.dailymotion.com/video/x4mt1u\\_zoom-into-human-skin\\_tech](http://www.dailymotion.com/video/x4mt1u_zoom-into-human-skin_tech)

They provide interactivity to the user.

- It is also possible to access virtual microscopes to see pathological tissues as in <http://alf3.urz.unibas.ch/vmic>, and other websites on different diseases.

This is a highly specialized offering for physicians and researchers.

We believe that the lack of direct competition is an opportunity to be seized and we must make rapid deployment in the school market and abroad. To achieve this goal, we have raised and reinvest a large rate of profits in the first three years in innovation and product development.

## X.2 Small dental and trauma Clinics

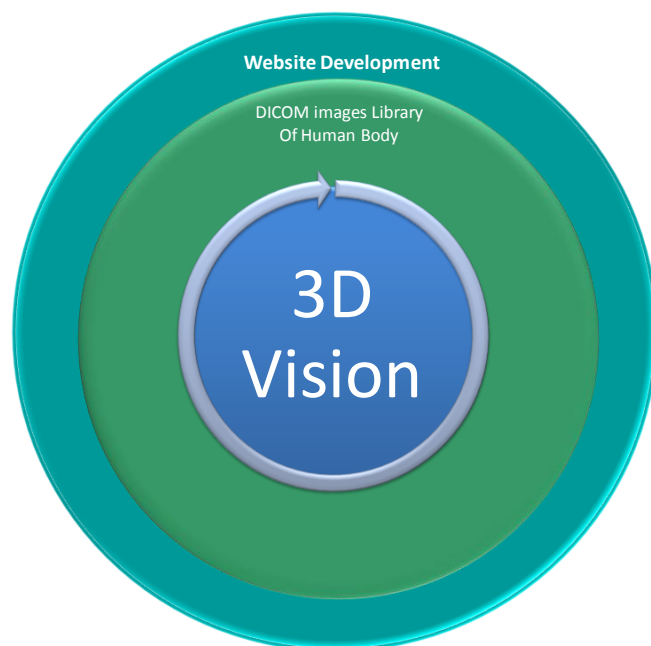
### X.2.1 Portfolio

It is based primarily on the marketing of the VisioTac website. It will provide to dentists, chiropractors and other healthcare professionals a 3D visualization tool through images in DICOM format. 3D reconstruction of our display is particularly powerful when available CT scans (Computed Tomography) that have high density in 2D sections. Our viewer makes the computer reconstruction of the 3D object and allows the users to manipulate it on screen by rotating, zooming and looking inside by cutting through a plane.

VisioTac will provide:

- A **library** with annotations made by specialists that may be used in the explanation of treatments and expected effects
- A 3D visualization tool for DICOM images.

VisioTac will allow users to reconstruct 3D body images from their own resonances and TACs. With VisioTac, healthcare professionals will access image diagnostic technology from anywhere and with any personal computer. Our differential factor is to extend to all healthcare professionals the ability to use 3D visualization tools for DICOM images from everywhere and easily; they only need a computer connected to the Internet.



### X.2.2 Business model

VisioTAC will be accessible by subscription through the Internet. The potential customers are:

- Education centers for dentistry and medicine.
- Small dental and trauma clinics.
- Individuals.

### X.2.3 Competitors

There are competitors, <http://www.sph.sc.edu/comd/rorden/dicom.html>, so we will need to be aware of the competitive advantages of our viewer, which are:

- **3D visualization.** The 90% of the displays on the market only display the images in 2d.
- **Web access.** Facilitates its use from any PC without installation.
- **Images library.** It is a value added factor that will facilitate doctor - patient communication for diagnosis.
- **Improving performance.** VisioTac performance is superior of all free viewers studied.
- **Improving price.** Other competitor studied such as the Japanese company KGT Inc. [http://richmedia.kgt.co.jp/html/oversea/intage\\_realia.html](http://richmedia.kgt.co.jp/html/oversea/intage_realia.html) offers a high performance tool but has higher price.

In conclusion, VisioTac will be a powerful tool for small medical centers with user friendly interface at low price.

### X.3 Professional Services

Professional Services Includes the development of customized solutions and integration projects in other portals and other applications. Services will be tailored in accordance with the effort associated with each project. While not ruling out specific projects, we will seek long term partnerships that provide a clear innovation in product or customer service.

The possibilities of integration of our solutions in other areas are very large and may be of interest to:

- **Institutions** related to a plant or animal species. For example, INCAVI that could develop a thematic portal on wine.
- **Chemical industry:** issues such as the effect of cosmetics on the skin, etc.
- **Quality Control Departments** of materials.

We are studying integrate our products with the Vision application MédicaVirtual <http://www.visionmedicavirtual.com/> which would be very innovative.

## XI. Users, customers and market

Our products may be of interest for various user segments that make up our potential market.

### XI.1 Education customers

#### XI.1.1 Users

Although the contents must be interesting in all educational levels, our offering is focused on:

- The biology teachers and high school students.
- Teachers and university students related to life sciences and biology.
- The digital book publishers and specialized texts.

#### XI.1.2 Customers

Our customers are:

- **Organizations:** They will contract GenomEdu subscriptions that will allow access to all users in the organization.
- **Professionals, specialists and curious:** Individuals interested in our websites contents and functionalities.

- Other companies interested in applying our technology to other areas.

### XI.1.3 Market

GenomVisio websites are accessible to any computer connected to the Internet via a browser. So our market is global.

However, for ease, economy and proximity, we segmented it geographically. So we distinguish:

- Catalan market
- Spanish market
- International market

We made market prospective with some focus groups with the following conclusions:

- ❖ **Internet users:** We can conclude the existence of a latent market that consumes the products resulting from technical progress or innovations. And we must consider users around the world interested in the human body.
- ❖ **Teachers:** all presentations we make to teachers had a big success; the way **GenomEdu** presents the human body is innovative and pedagogical. They also enjoyed policy commitment by the teaching book in digital format.

**GenomEdu** is geared to the educational community, according to the number of sites on the Internet our potential market is at least the one shown in the following table:

GenomEdu market				Segments						
				Catalonia			Spain		World	
			Públic 210	Private 310	Total 520	Públic 2050	Private 3018	Total 5068	World Total 50680	
<b>Primary and secondary school</b>				<b>210</b>	<b>310</b>	<b>520</b>	<b>2050</b>	<b>3018</b>	<b>5068</b>	<b>50680</b>
	Primary		200	300	500	2000	3000	5000	50000	
	Secondary		200	300	500	2000	3000	5000	50000	
	Bachelor		200	300	500	2000	3000	5000	50000	
	Professional Schools		10	10	20	50	18	68	680	
		Nursing	5	5	10	30	10	40	400	
		Physioterapie	4	5	9	20	8	28	280	

Our experience in different schools, it is necessary to establish a protocol for personal visits to schools before the product is not sufficiently known and accepted in the teaching field. For this reason as shown in the next table, we propose a low growth, 5 new schools per month, on the first year and our main market will be Catalonia and Spain in the second half of the first year. But in the second period we'll have a remarkable growth in the international.

Growth	2011		2012		2013		2014		2015	
	Market rate	Customers	Market rate	Customers	Market rate	Customers	Market rate	Customers	Market rate	Customers
<b>Catalonia</b>	0,90%	47	4,50%	79	10,00%	141	20,00%	162	30,00%	187
<b>Spain</b>	0,50%	17	1,0%	58	3%	178	5%	194	10%	497
<b>World</b>	0,00%	-	0,1%	183	0,3%	456	0,7%	684	1,0%	912

Interannual growth	2011	2012	2013	2014	2015
<b>Catalonia</b>		3,60%	5,50%	10,00%	10,00%
<b>Spain</b>		0,50%	1,50%	2,50%	5,00%
<b>world</b>		0,10%	0,20%	0,40%	0,30%

Promotion strategies are being tested in the Catalan market and they will be translated and adapted to the Spanish market in the second half of 2010 and to the International market in 2011.

## XII. Dental clinics and trauma

Our initial product in this segment is VisioTac.

### XII.1.1 Users

VisioTac future users will be:

- **Individuals:** people in general who are interested in more details about the human body parts and likes to learn about specific illness patterns, communicate with other people with similar interests or reconstruct test results.
- **Healthcare Professionals.**
- **Distributors of visualization tools in hospitals and healthcare centers.**

The access to the websites will need a registered user. In the registration form rating information will be saved, as the city and the region where they live, their education and profession and the language in which they are expressed, and payment information in the case of subscriptions. We'll also keep a record with the pages every users visits in order to identify it's interests.

### XII.1.2 Customers

VisioTac subscriptions will be:

- **Small Private clinics.**
- Professionals, specialists and curious: **individuals** interested in this type of content and functionality.
- **Companies and institutions** interested in applying our technology to other areas.

### XII.1.3 Market

Despite the potential market is much broader we felt that we must be cautious to quantify volumes and growth. The healthcare sector has great potential yet is a focus market by all business. Therefore we believe that the market penetration will be difficult and complicated. The potential market for our product so rough as it is very difficult to determine globally accurate data, is shown in the table below:

Visio Tac market		Catalonia	Spain	World
<b>Targeting medical centers</b>		<b>2.176</b>	<b>14.615</b>	<b>14.742</b>
B	Individual	22	22	149
C	Little center	791	5.361	5.361
D	Medium Center	923	6.254	6.254
E	Big center (more than 10 specialist)	440	2.978	2.978

We considered the rest of the world market equivalent to the Spanish market because we don't intend to make an overly aggressive expansion policy. We expect to see wide Spanish acceptance to make the most detailed study of International growth.

The tables bellow shows the growth planned for this product over the next 5 years:

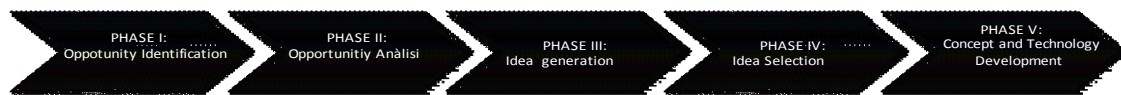
	2011		2012		2013		2014		2015	
Growth	Market rate	Customers	Market rate	Customers	Market rate	Customers	Market rate	Customers	Market rate	Customers
Catalonia	0,74%	16	3,68%	80	7,58%	165	11,95%	260	16,09%	350
Spain	0,14%	20	0,75%	110	1,37%	200	2,26%	330	2,74%	400
World	0,01%	2	0,06%	9	0,20%	30	0,47%	70	1,02%	150

Interannual growth	2011	2012	2013	2014	2015
Catalonia		2,94%	3,91%	4,37%	4,14%
Spain		0,62%	0,62%	0,89%	0,48%
world		0,05%	0,14%	0,27%	0,54%

### XIII. Innovation

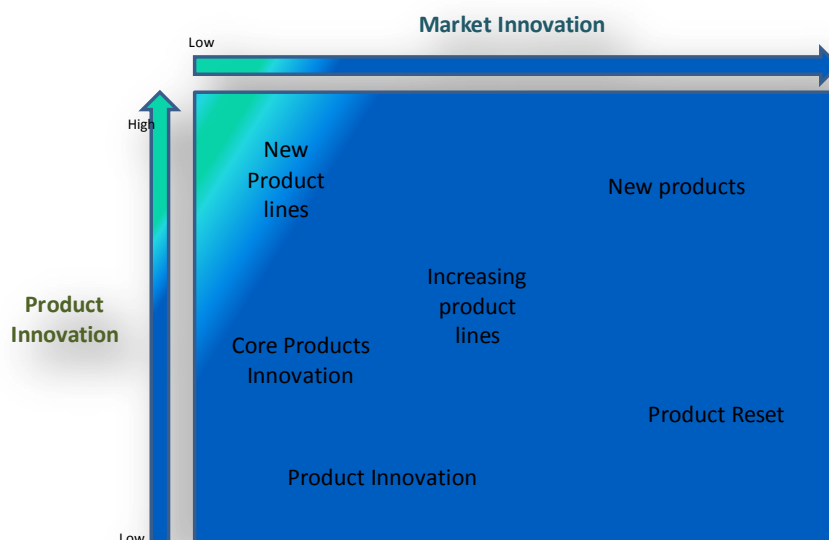
Innovation is a strategic area in GenomVisio and we will devote over 15% of revenue to innovation activities.

The Innovation will have the next 5 phases:



We will classify the innovation using two dimensions:

1. Product innovation
2. Market



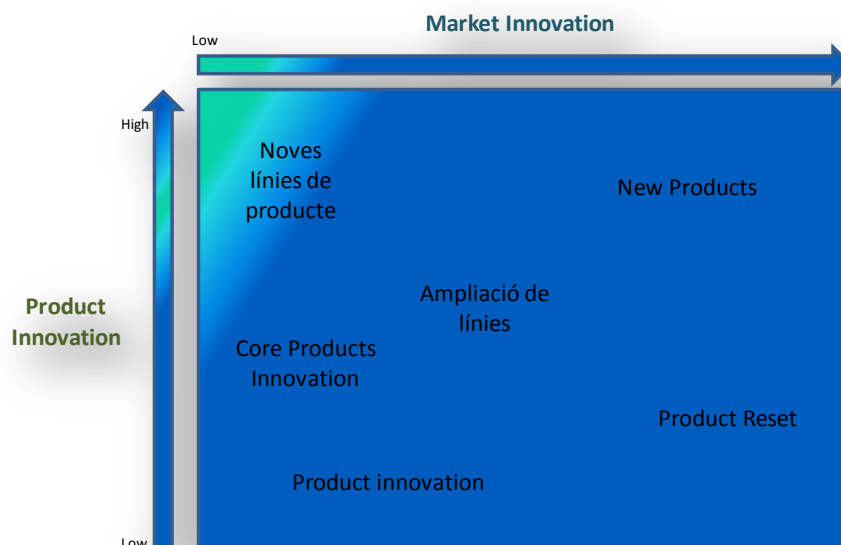
The Innovation map for GenomVisio is a useful tool for strategic decisions.

### XIII.1 Innovation portfolio

The innovation portfolio changes over the times and projects in this portfolio are at different stages of development:

- **Comparisons:** Will display two samples at the same time facilitating their comparison. It will use a core product with two different contents. For example, a healthy liver and cirrhotic one; Gen360° or Gen3D vision for a healthy bone with another broken, etc. This product is in Phase V and it's a product innovation. This new application could add to the existing websites based on a library of conditions or create new business lines.
- **Knowledge Pills:** Develop syllabi and pedagogical contents merging GenomEdu contents, educational content, exercises, games and images. The target customers are geared to provide solutions to specific issues in teaching mode "turnkey": the teacher does not need to develop new content on the subject matter. It is also expected that these pills can be embedded in other solutions and digital publications. It's also in Phase V at the top left of the Innovation map.
- **Veterinary** Line:  
It would create major animal atlas transferring and adapting the functionality of GenomEdu and creating new image libraries of images for specific species. The target market will be veterinary sector, clinics and schools. This product is an idea would represent a new business line, a new product in a new market.
- **Line quality control:** we are also testing the idea of applying the technology developed in quality control for products, to study the effects of using the materials and compare attributes of objects and manufactured materials.

Next image is the Innovation Map of GenomVisio in Mai 2010:



## XIV. Business Development

### XIV.1 Behavior

A website must gain trust and credibility of users and customers in order to achieve this statement GenomVisio must:

- Be transparent and serious. This means having the "Authors" on the home page explaining the company, its staff and the projects.
- Provide contact facilities for customers.
- Show the source of all information provided.

### XIV.2 Promotion

#### XIV.2.1 GenomEdu

The promotion plan is:

- ❖ **First Stage:** Process adjustment and improvement in the Catalan market that includes different activities such as:
  - Presentation at the World Edu-IT conference held in 2009 in Barcelona.
  - Presentation at the conference CIDUI to celebrate the month of July in Barcelona.
  - Expodidáctica Stand at the fair held at the Fira de Barcelona in March.
  - Offering TV3 some programs even under negotiation.
  - Interview with the program COMRàdio.
  - Active presence on social networks like Facebook, twitter and YouTube

This process is done with a beta version only published in Catalan.

- ❖ **Second Stage:** Spanish market deployment will begin on June 2010 with the release of multilingual version. The lines of work will follow the same pattern as in the Catalan market:
  - Radio and television presence.
  - Contact with Spanish and Autonomic governments in Education.
  - Other contacts with publishers, universities, clinics, etc.
  - Promotion in educational journals and blogs, social networks, etc.
- **Third Stage:** International market promotion will begin on September 2010 and will follow the same pattern of first and second stages.

#### XIV.2.2 VisioTac

This product has a temporary lag of six months from **GenomEdu**. So the proof of concept will be held on the second half of 2010 where the business plan will be designed. We plan commercialize VisioTac in the first quarterly of 2011.

The internationalization strategy will be based partnering with distributors in major countries. The international deployment will begin in Latin America (Argentina, Brazil and Mexico) and Europe (Portugal, France, Italy and Sweden) markets.

### XIV.3 Pricing

In this chapter we describe the price policy that depends on product costs and market characteristics.

#### XIV.3.1 GenomEdu

Previous considerations for price:

- ❖ It must be easily assumed both by a private school as a public school.
- ❖ It must enable medium term amortization period for initial investments.
- ❖ It must finance product innovations.

We made the following rate prices as a result of the study of a sample of Catalan schools and the costs of **GenomEdu** website:

GenomEdu prices		Heigh		
Type	Characteristics	100%	Price	Temporality
A	Bàsic	10%	1 €	per day
B	Prèmium	10%	10 €	per month
C	Little School (1 class in every level)	10%	35 €	per month
D	Medium school ( 2 classes in every level)	15%	60 €	per month
E	Big School	30%	80 €	per month
F	Multicenter	25%	130 €	per month

#### XIV.3.2 VisioTac

Criteria for price rates:

- ❖ They must be easily affordable by small and medium-sized dental clinics (with a maximum of 5 professionals).
- ❖ They must allow a short time amortization period for initial investment.
- ❖ They must finance product improvements.

The following table shows the prices for different target segments:

Visio Tac prices		Per month
Types	Characteristics	
A	One Access	2,50 €
B	Individual Acces	40,00 €
C	Litle center	60,00 €
D	Medium center	120,00 €
E	Big center	190,00 €

The proof of concept will validate these rates. The survey on a clinical sample indicates that the prices are perfectly acceptable.

#### XIV.3.3 Professional Services

Despite not being the focus of GenomVisio activities we envisage the possibility tailored services for customers.

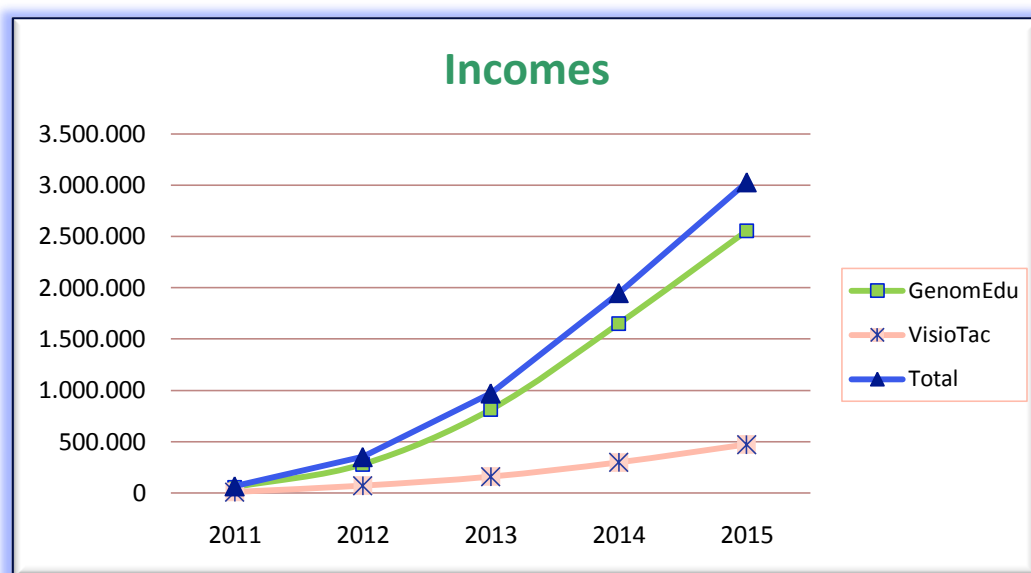
Income from such services won't represent a significant volume of the total waste or design.

Services Professionals prices		Per hour
Type	Characteristic	
CS	Consultant	120,00 €
AQ	Architect	60,00 €
AN	Analist	45,00 €
AP	Programing analist	30,00 €
P	Programing	24,00 €

## XV. Finances

### XV.1 Income statement

According to the planned growth strategy, incomes in each period shall be as shown in the following graph:



As we stated in other chapters, a quick growth is feasible with internet products so our forecast is:

Growth	2011	2012	2013	2014	2015
GenomEdu		399,03%	190,40%	103,20%	54,77%
VisioTac		530,55%	120,58%	86,67%	58,38%
		421,40%	176,03%	100,48%	55,32%

The contribution rate of initial products will be:

Product rate	2011	2012	2013	2014	2015
GenomEdu	82,99%	79,43%	83,56%	84,69%	84,39%
VisioTac	17,01%	20,57%	16,44%	15,31%	15,61%

As mentioned, Professional Services is a complementary business line and, therefore, its income's contribution is considered residual.

The rates will change over the time according to results and portfolio evolution.

**XV.2 Balance sheet**

Balance Sheet	2010	2011	2012	2013	2014	2015
Incomes	46.156,00	67.543,30	352.171,02	972.109,08	1.948.907,16	3.027.035,80
Sales	6.000,00	67.543,30	352.171,02	972.109,08	1.948.907,16	3.027.035,80
Assets	40.156,00					
Expenses	4.500,00	13.508,66	140.868,41	388.843,63	779.562,86	1.210.814,32
Expenses	4.500,00	13.508,66	140.868,41	388.843,63	779.562,86	1.210.814,32
<b>Contribution margin</b>	<b>41.656,00</b>	<b>54.034,64</b>	<b>211.302,61</b>	<b>583.265,45</b>	<b>1.169.344,30</b>	<b>1.816.221,48</b>
Operating expenses	15.000,00	34.085,00	157.686,67	242.019,67	325.519,67	467.591,15
External services and collaborations	24.000,00	18.000,00	35.000,00	80.000,00	250.000,00	300.000,00
Amortization	0,00	4.423,85	23.824,52	33.586,25	43.662,13	61.126,98
<b>Operating results</b>	<b>2.656,00</b>	<b>6.373,49</b>	<b>42.440,47</b>	<b>294.832,03</b>	<b>637.486,75</b>	<b>1.109.757,30</b>
Financial expenses	0,00	637,35	4.244,05	42.440,47	76.392,84	114.589,26
<b>Profit before taxes</b>	<b>2.656,00</b>	<b>5.736,14</b>	<b>38.196,42</b>	<b>252.391,57</b>	<b>561.093,92</b>	<b>995.168,05</b>
Taxes (25%)	664,00	1.434,03	9.549,10	63.097,89	140.273,48	248.792,01
<b>Profit and lost account</b>	<b>1.992,00</b>	<b>4.302,10</b>	<b>28.647,31</b>	<b>189.293,67</b>	<b>420.820,44</b>	<b>746.376,03</b>

The forecast is based on the following assumptions:

❖ **Minimize overhead**

In order to minimize overhead we have state:

- GenomVisio headquarters will be in K2M Business Park of the UPC.
- Minimal staff. We will work in a collaborative way with partners and research groups.

❖ **Financial statements**

- Shareholders initially invested € 40,156.
- 13% of actions are reserved for new shareholders.
- We have considered a 3 year amortization period for assets.

❖ **Income**

- Forecast incomes are based on the study of Catalan market extrapolate to the rest of markets (Spain and world)

❖ **Payments**

We distinguish different payment types:

- Micropayments. They will be carried out through a PayPal payment platform. The main micropayment customers will be the individuals and small schools.
- Contract with annual or quarterly revenue. For the rest of customers

❖ **Staff costs:**

Staff Category	2.011		2.012		2.013		2.014		2.015	
	Salary	Persons	Salary	Persons	Salary	Persons	Salary	Persons	Salary	Persons
General management	0,00 €	2	82.466,67 €	2	125.066,67 €	2	193.566,67 €	3	255.738,15 €	3
Unit Director	18.620,00 €	1	26.600,00 €	1	31.920,00 €	1				
Arquitect	15.465,00 €	1	18.620,00 €	1	21.413,00 €	1	31.920,00 €	1	39.900,00 €	1
Programmer							40.033,00 €	2	71.953,00 €	3
<b>Total</b>	<b>34.085 €</b>	<b>4</b>	<b>127.687 €</b>	<b>4</b>	<b>178.400 €</b>	<b>4</b>	<b>265.520 €</b>	<b>6</b>	<b>367.591 €</b>	<b>7</b>

❖ Collaboration agreements with partners and research groups:

Collaboration	2.010	2.011	2.012	2.013	2.014
Annual amount	18.000 €	35.000 €	80.000 €	250.000 €	300.000 €

### XV.3 Cash flow

The cash flow forecast for the next five years is:

Cash Flow Statement	2010	2011	2012	2013	2014	2015
Incomes		44.237,98	310.137,81	865.596,31	2.003.341,52	3.752.666,59
Capital		3.712	1.384	17.475	249.794	941.257
Collection		40.526	308.754	848.121	1.753.548	2.811.410
Payments		47.258,14	296.374,97	619.514,34	1.065.796,99	1.608.610,08
Cash Flow		-3.020,16	13.762,84	246.081,97	937.544,52	2.144.056,52

- **Collection:** It is expected that collection will be made with a time lag between sale and recovery of three months. The income of each year corresponds to approximately 85% of sales in the same period.
- We assumed that 15% of total **incomes** will be through cash **payment** platform. In this case monthly subscriptions will be charged at the beginning of month. The rest of customers will pay through direct billing of the annual fee. In this case, the estimated gap between billing and collection has been 90 days.
- **Payments:** payments include salaries, maintenance of infrastructure and equipments.

## XVI. Conclusions

As a final reflection we analyze the strengths and weaknesses for **GenomVision** and future options:

### XVI.1 Strengths

- All the products are along with contents.
- The entrepreneurs, their business experience and scientist knowledge.
- The staff with the advisory board and the technical committee.
- Innovative core products that do not appear in any other website.
- Adjusted prices for subscription.

### XVI.2 Weaknesses

- Lack of sufficient financial support to develop portfolio and marketing faster.
- The slow reaction of the Educational market as regards **Genomedu**.
- The difficulty of getting content for all locations of the human anatomy.
- Slow development for VisioTac.

### XVI.3 Deficiencies in the short term

In the short term should be developed:

- The Platform registrations and payments: Paypal has already been contacted to open an account for micropayments (less than 12 €) and must implement the platform.
- Searching tools: the user can search for words within our content.
- Platform of analysis must be analyzed in depth access to the portal.

What about the content and completeness of the site should be looking for:

- Adding zooms to the cellular level.
- Adding new TAC locations.

#### **XVI.4 Future options**

The cost containment has forced us to limit the scope of the first version of the website and the tools offered.

With more economical resources we would:

- Increase the zoom points
- Create new libraries for other animals.
- Tie zoom with useful medical information to users and specialists.
- Develop faster innovation options explained in the document.

#### **XVI.5 Control points and operational strategy**

Quarterly business plan will be reviewed in accordance with the market situation to adapt to the changing reality forecasts of market potential and how much of our bid development:

- In the last quarter of each year will review the implementation of annual business plan and will consider the changes as well as the most appropriate action plan the following year.
- In the year 2011, there will be a thorough review of the business plan and formulate the strategy for the period 2012-2016 will be adopted at shareholders' meetings.