Lytro Camera Marketing Plan

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LYTRO CAMERA MARKETING PLAN 1

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1 Introduction

**The Lytro Light Field Camera**

The Lytro camera can be the biggest revolution in cameras since its digitalization. It is a portable light field camera which allows you to capture the whole light field of a scene so that you can easily change the depth of field and focusing point of a photo after capture.

*Figure 1. A “Red Hot” version of the Lytro camera*
Executive Summary

Inside is a special micro lens array, a patented invention of Lytro. This is the key to capturing every plane of light in a scene so the user can choose focus later. It is a one-of-a-kind, innovative camera and there are no other products with a similar lens structure. Because of this the Lytro’s major competitors already exist in the market ranging from basic to professional. These competitors include Nikon, Canon, Olympus, Panasonic, Sony and PhaseOne. All of these competitors have an established market and developed features designated for each target market. Other than focusing capabilities, the Lytro camera distinguishes itself among its competitors with its built-in social media functions. Once the Lytro is connected to the computer, a photo can be edited quickly and uploaded to Facebook easily. In beginning stages of marketing, the camera will be targeted towards the camera enthusiast, the amateur photographer and the “techie”. Marketing will first begin online and with small, infrequent ads on TV. Once it has been adopted it will then be promoted via photo contests. The future possibilities of Lytro are endless. Because of its unique, tiny micro lens, it can be implemented into many other devices such as Smartphone’s and tablets. The Lytro camera itself has room for development with better sensors and more internal space.

Mission Statement

Better the world through revolutionizing photography through the way we capture life’s greatest moments.
Vision Statement

Lytro aspires to create revolutionary imaging technology that can be implemented in an array of camera devices to provide quality, interactive images easily shared via social networks.

Lytro, Inc

Formerly known as Refocus Imaging, Inc, Lytro is a start-up technological company founded in 2006 by Ng Ren, a Ph.D graduate from Stanford University. The technology used in their products is based on his research about computational photography at Stanford Computer Graphics Lab.
2 Product

**Lytro Camera Hardware**

The first generation of Lytro cameras is equipped with a square-shaped Lytro Light Field Sensor which is very different from the conventional cameras. A special kind of spherical micro lens-lets array covers the whole sensor upon each single pixel, making it possible for the sensor capture the whole the light filed. This means the camera gets light from every direction in the scene that is being captured. With these special optical designs, the lens is able to provide 8x optical zoom at a constant F/2 aperture. Such an excellent optical characteristics can hardly be achieved even on a high-end D-SLR. Using computational photography technique, the captured light field is then processed by the Lytro Light Field Engine 1.0, a customized graphic processor, to form the images that humans can perceive. The formed images will be saved along with focusing information using the Light field picture (.lfp) format to the internal storage. The 16GB model can save approximately 750 pictures (350 pictures for the 8GB model) while the 2500mAh battery can support up to
500 shoots when charged up. All of the above fancy features are packed into a 1.6-by-1.6-
by-4.4 inch aluminum cubical stick body, weighted only 214g that one can easily carry.¹

¹ http://www.lytro.com/camera
More than meets the eye.

The Lytro packs advanced engineering and tremendous innovation into a deceptively simple design, giving you many capabilities unheard of in conventional cameras.

<table>
<thead>
<tr>
<th>Feature</th>
<th>16GB Light Field Camera</th>
<th>8GB Light Field Camera</th>
<th>8GB Light Field Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$499</td>
<td>$399</td>
<td>$399</td>
</tr>
<tr>
<td>Color</td>
<td>Red Hot</td>
<td>Graphite</td>
<td>Electric Blue</td>
</tr>
<tr>
<td>Storage</td>
<td>756 Pictures</td>
<td>350 Pictures</td>
<td>350 Pictures</td>
</tr>
<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Type</td>
<td>Internal flash drive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>Lytro Light Field Sensor and Lytro Light Field Engine 1.0.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lens</td>
<td>8x optical zoom; Constant f/2 lens.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controls</td>
<td>Power button; Shutter button; Zoom slider; Touchscreen.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>1.46 in</td>
<td>33 mm back-lit LCD display with glass touchscreen.</td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>Tap on touchscreen to set exposure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>Long-life Li-Ion internal battery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>File Output</td>
<td>Light field picture file (.lfp).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Field Resolution</td>
<td>11 Megarays: the number of light rays captured by the light field sensor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td>Includes a free desktop application for importing, processing and interacting with living pictures from the camera. It is built for Mac OS and requires Mac OS 10.6.6 or higher. A Windows application is in development.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture Output</td>
<td>Produces HD-quality interactive, living pictures.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture Storage</td>
<td>Free storage for living pictures on Lytro.com, subject to the Terms of Use. (Internet access required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picture Viewing</td>
<td>View and interact with living pictures on the Lytro camera as well as any internet-connected computer, smartphone or tablet supported.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Field Engine</td>
<td>Version 1.0. This is the software that processes light fields to produce interactive pictures. Keep watching this space!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>Ultra-light anodized aluminum structural skin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grip</td>
<td>Silicone Rubber.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-waste</td>
<td>RoHS certified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>7.55 oz</td>
<td>214 g</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>1.61 in x 1.61 in x 4.41 in</td>
<td>41 mm x 41 mm x 112 mm</td>
<td></td>
</tr>
<tr>
<td>Included</td>
<td>Lytro Light Field Camera: Lens cap; Cleaner Cloth; Wrist Strap; 3.28 ft</td>
<td>1 m Micro-USB cable for data transfer and charging</td>
<td></td>
</tr>
<tr>
<td>Optional Accessories</td>
<td>Fast charger; Replacement lens cap. (Separate purchase required)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. Lytro spec sheet²
Perceptual Map

The Lytro camera is extremely portable with no parts to attach and its lightweight design. Its internal functions are limited because most editing is done with the software. The one function that makes it strong is how it captures every plane of light. The closest cameras to Lytro are interchangeable lens cameras (Sony NEX5, Olympus EPL3, and Panasonic GF2) because they are smaller than DSLR’s, but have more internal editing functions. Lytro surpasses these cameras in the fact that its portability far exceeds that of the interchangeable lens cameras.

The ability for Lytro to share pictures is more advanced than its competitors because it can simply upload directly to Facebook. The micro lens array inside the Lytro is brand new technology that is nothing like anything on the market. Lytro’s focusing capabilities are easily the best on the market. The closest cameras to the Lytro are Sony NEX5, Olympus EPL3, and Panasonic GF2 because they have decent focus with an image output of small, easy to upload files.

2 http://www.lytro.com/camera
Lytro Camera Software

With the completely new optical structure of the camera hardware, the software system is re-designed as well. We developed a new file format for storing the multi-layer light field image. Another highlight will be our interactive image presenting and sharing software.
Using this software, the users can embed the image or even the whole album on websites, from personal website to popular social network website like Facebook and Twitter (Figure 3), where viewers can freely click to focus on the desired spots on the image.

Figure 3 Screenshot of the online interactive sharing app.

**Lytro-exclusive Technology**

Light Field Camera Image, File and Configuration Data, and Methods

US Pat. App 12703367 - Filed Feb 10, 2010

Interactive Refocusing of Electronic Images

US Pat. App 11948901 - Filed Nov 30, 2007

**User Capabilities**

The two main capabilities of the Lytro are focusing and sharing through social media.
**Focusing**

The Lytro has superior focusing capabilities over every camera on the market. By capturing the entire light field of an image, it allows the user to choose focus later. This light field technology is new on the market with the release of the Lytro camera. It allows the user to correct focusing issues later so they never miss a moment. The Lytro can solve focusing issues due to lack of ability, and even imperfections caused by external factors (high speeds, low-light, shooting through glass, auto-focus not working correctly, etc.).

Autofocus on most SLR cameras use a method called “phase detection system”. This means the camera uses a separator lens to produce two images from the light coming through the lens. The camera then calculates the distance between the two to determine optimum focus. This method is very fast, but is not always accurate. When there is something in-between the subject and the camera (such as a window) the autofocus has difficulty focusing the correct light field (the window itself or the subject behind the window) according to the photographer’s intentions for aesthetic. Compact cameras use a “contrast detection system”. As the lens moves forward and back, it seeks the lens position where the image contrast is highest. Clearly this system takes a lot longer and has difficulty focusing in low-light scenes. “Continuous-servo (AF-C)” focusing maintains focus on a moving subject. Consequently, this technology does not focus very sharp because there is lag time between the moving focus plane of the subject and the camera calculating and

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Nikon  [http://www.nikon.com/about/technology/core/software/caf/](http://www.nikon.com/about/technology/core/software/caf/)
actually firing. The focusing ability of the Lytro does not encounter these issues. The user simply fires the camera and it collects every plane of focus for the user to adjust later.

**Social Media**

The Lytro camera has built-in social media capabilities that allow the user to upload to social media websites faster and easier. Most images today are shared digitally and decreasingly shared via prints. This capability will be a strong competitor with smartphone cameras. Not only can the user’s final image be shared easily, but it can be shared with the same fun the user had of changing the focus. Viewers can see the image and click to change the focus as well.

**Feature Analysis**

<table>
<thead>
<tr>
<th></th>
<th>LYTRO</th>
<th>CANON T3I</th>
<th>NIKON D7000</th>
<th>PANASONIC GF3</th>
<th>OLYMPUS EPL3</th>
<th>SONY TX100</th>
<th>ST700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Color</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Internal Storage</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Battery Life</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Resolution</td>
<td>3</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Sharing</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Display</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Lens</td>
<td>9</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

*Table 1: Feature Analysis*
As mentioned in the previous section, we defined there groups of devices who will directly compete with us in the camera market including DSLR, compact camera and smartphone camera. Therefore we chose two representing products from each group to do the feature analysis comparison. The results are listed in Table 1. From this comparison, we can see that the key advantages of Lytro camera are its lens design and sharing features, which are exactly where our technology strengths lie. Lytro owns two patents related to imaging formation technology and interactive sharing of the light field photos. However, one controversial aspect of Lytro is the image resolution. Limited by the current manufacturing technology, the addressability of Lytro is 1080-by-1080, which is slightly over 1.2 megapixels. This is enough for screen displaying, for the vertical resolution of current full HD displays are also limited to 1080 lines, but not satisfying for printing (5’ by 7’ maximum). However, this won’t be a too big issue since current trends show more people are sharing their photos online. Given this hard spec of our product, we developed our interactive online sharing software, so our users can easily upload the photos they took with Lytro to social network sites they are using, such as Facebook and Twitter.
3 Market

The camera market is continuing to grow; currently it is about a $30 billion industry and it is estimated that roughly 2.5 billion people own a digital camera. The market itself is quite saturated, saturated meaning the top 60% of the market is controlled by the four biggest vendors: Canon, Sony, Nikon and Samsung. This can be a challenge for our Lytro camera to complete against those brands in the market, since Lytro as a brand is little known; you need basic knowledge about photography to understand the advanced technology it incorporates which happens to be the camera’s main selling feature. But on the other hand, Lytro completely changes the way photography is done. Lytro is aiming to change the market with its new cutting-edge technology, pushing itself ahead of the competitors by entering the market with no truly similar competitors.
Camera Market

There is a wide range of cameras on the market today from professional camera’s to cell phone cameras. The three basic segments are cameras for professional use, cameras for amateur use and the most basic cameras. Professional use cameras, such as Phase One, Nikon D3x, and Canon 5D Mark II, are designed for photographers who want the best quality image and complete control of every aspect of shooting (ISO, aperture, shutter speed, file format, etc.). The Phase One system is top of the line, providing professional...
photographers with a digital medium format back. Nikon and Canon offer professional DSLR’s which are not as comparable in quality, but are more affordable. Cameras designed for amateur use make up the biggest segment. This segment includes everything produced by Nikon, Canon, Sony, and Kodak. This group includes DSLR’s that are not up to professional reproduction standards, such as the Nikon D80 and the Canon EOS Rebel. They have good image quality output, but do not work for professionals. The image output is ideal for amateurs who want good images but cannot afford the top of the line equipment. The basic cameras are simply point and shoot cameras and cell phone cameras. The quality is average but the cameras are user friendly. The user does not have to know much about camera functions because the camera does all the thinking for the user. Cameras like this include those in the Nikon Coolpix line, the Canon Powershot line and smartphone cameras (iPhone, Droid, Blackberry, etc.). Most camera phones today come with 8megapixel’s which is more than enough for the typical point and shoot user. Sales of SLR’s and cameras with built-in lens’ all increased from 2009 to 2010. Sales of SLR’s rose significantly higher than cameras with built-in lens’. From 2009 to 2010, cameras with built-in lens’ increased shipment 113.2% (year on year growth), while SLR’s increased an astounding 130.0% (year on year growth). From 2010 to 2011 (January through November, as December 2011 data is not yet available), year on year growth for SLR shipment increased significantly more than cameras with built-in lens’ (126.0% and 92.2% respectively). The percent of images taken with smartphones increased from 17% in 2010 to 27% in 2011. Cameras with a built-in lens suffered a 17% decrease in units and
an 18% decrease in dollars for the first 11 months of 2011. On the contrary, SLR’s increased 12% in units and 11% in dollars for the same time period.

The current market of digital imaging is growing very fast. New technological advances in digital sensors have the biggest effect on the market. The average camera consumer is concerned with how many megapixels a camera has. The average camera phone has 8 megapixels today which can be printed at photo quality (300 ppi) at a maximum size of 8.5 by 11 inches. This technology implemented in cell phones is astounding. Fortunately, most users do not need to print larger than 5 by 7 inches, if they even print at all. Focusing capabilities of digital cameras is consistently increasing as well. Auto focus is getting better (faster and easier) but auto focusing still presents problems for any photographer. When working with fast moving subjects, such as sports photography, auto focusing will work, but may not focus what is needed. When shooting through glass or in low light situations, auto focusing has difficulty finding focus at all, let alone what the user intends to have in focus. The focusing capabilities of the Lytro solve all these problems. The only way to get around auto focusing issues in these situations is to manually focus, which is not an option on camera phones and is difficult to do on cameras with built-in lens’. As for SLR’s, you can manually focus much better, but it is difficult to do at a fast pace for sports photography and difficult in low-light situations when you can barely see your subject. The Lytro camera technology allows the user to shoot now and focus later. If you focus an image wrong from any other camera, the image is no good. The Lytro allows the user to work with this margin of error to correct the image in post.
Competitors

Lytro is aware of its competition in many segments of the camera market. Currently there are 3 main types of cameras dominating this market. These types include:

- Compact cameras
- Smart phone cameras
- DSLR cameras.

Lytro hopes to penetrate this market but introducing a new focus-oriented segment to take away market share from companies like Cannon and Nikon.

Camera Hardware Reports

Internet users over the age of 18 were surveyed by Senior Analyst, Billy Hulkhower at Mintel Oxygen on what photo-related hardware they intended to purchase in the next 12 months. Of those surveyed, 24% said they planned to purchase a cellphone or tablet with a camera, 14% any digital camera and 11% said a SLR camera (film or digital). Lytro will use this information to determine the future of Lytro and their entrance in to cell-phone related hardware. It is evident that conventional cameras may die out eventually other than in professional use, so to master the technology now and find a way to implement it into newer products will set Lytro apart from its competitors.

Compact Cameras

Currently, compact cameras are the most basic camera type in the camera market. This market segment is the largest, with an estimated 2.5 billion digital camera users worldwide.
with companies like Canon reporting yearly sales revenue of over $45 billion. They provide easy-to-use features such as auto focusing and point-and-shoot style photography. Usually the images on the camera are easily uploaded on to the computer, but have a limited number of advanced features. These cameras are generally the cheapest and currently make up the largest portion of the “non-smart phone” camera market. The average prices for a compact camera are between $70 and $300. This segment of the market, although still currently the largest, will begin to diminish with the rise of cell-phone camera technology as the highest end smartphones already have comparable camera features to the top-of-the-line compact cameras.

**D-SLR**

D-SLR, Digital Single Lens Reflex, Cameras are primarily used by professional photographers or hi-end consumers who have advanced knowledge about photography. They will generally produce a better quality picture than the compact or smart phone cameras. These cameras are more expensive than the other styles. Low-end D-SLR cameras run between $500-800 and have significantly less features then the middle and high end D-SLR cameras which can run from $2,000 all the way up to over $15,000 with cameras like the Phase One. Those prices are also only taking into account the body of the camera, the camera lens alone range from $400-1000’s depending on the desired quality.
**Smart Phone Camera**

Smartphone cameras are the rising stars in the current camera market. The world is moving into a more technical generation and with that smart phones are becoming more and more prevalent in society. As smart phone popularity is rising (nearly an 85% increase in sales from Q1 2010 → Q1 2011), the phone’s specifications are getting increasingly better. Among these advancements are better quality built-in cameras. Experts believe this is why in 2011 the camera became the second most used feature on the average smartphone. 71% of smartphone users are taking pictures on their smartphone this is behind text-messaging which currently about 95% of smartphone owners are using.

As of January 2012, the average camera in a high-end smartphone has flash, face detection and image stabilization. Both the HTC Incredible 2 and Apple’s iPhone 4S camera specifications include an 8-megapixel sensor with both auto and manual focus and an LED flash component. This is a dramatic change from Apple’s original iPhone which only had a 2-megapixel sensor, no flash and no video recording options. This shows the consumers desire for higher quality cameras in current smartphones. Smart phones are fairly cheap in comparison to DSLR cameras, but they come with a necessary monthly phone plan and data packages.

Smart Phones on average are selling for between $100-400 becoming slightly cheaper with the purchase of the phone plan. The sales of smartphones are rising at an increasing rate, from 2006’s sales of 11.2 million smartphones to 2011 when manufacturers reported sales
of 78.6 million smartphones. Projected manufacturer sales are expected to hit around 100 million for the 2012 year.

**Market Segmentation**

Lytro has done a vast amount of research to generate an audience with high potential for interest in the light-field camera. Through this research, Lytro has narrowed down the market in to 3 major segments: the camera enthusiast, the amateur social-elite, and the “techies”. These are the target groups that the Lytro is most likely to acquire sales from.

**Camera Enthusiast**

The camera enthusiast segment includes people who are understand the basics of photographic principles (lighting, exposure, etc.), and consider photography a hobby. They are between the ages of 20 and 40. This group is willing to spend a little more money to add a novelty camera to their collection. Often they are not willing to pay full price for professional equipment as this is not what they need in a camera for their tasks.

**Amateur Photographer**

The second targeted group is the amateur photographer. This group loves taking pictures, but like the camera enthusiast, does not need a professional output of photos. They are looking to take quality pictures without the hassle of major editing, difficult uploading and software post-production. This group is similar to the camera enthusiast and shares the same basic photography knowledge, but what distinguishes them is they are between the ages of 16 and 64 and use photography more socially. They want good images that they
easily edit and upload to social networks quick, or share with their family at social gatherings.

To put a number on the size of this group is near impossible; this is due to the definition of what an amateur photographer is being so subjective. According to the United States census bureau, the best guess population for people aged 16-64 is around 190.4 million. A random survey of around 1,100 people show that roughly 81% of the population aged 16-64 owns at least some form of camera. Lytro uses these two figures to come up with a US amateur photographer population of around 154.2 million people. The average annual income for a person aged 16-64 living in the United States is around $55,000 making group an $8.4 trillion segment, although not all of that is disposable.
The “Techie”

Lytro has designed the first light-field camera to be social network friendly; the camera’s software comes with features allowing users to quickly upload all of their favorite photos. As reported in 2010, Facebook is now over 600 million users of which 250 million came in 2010 alone. Looking at the 600 million Facebook users, it has been determined that the number of users falling into the age range of 18-34 is around 80 million in the United States alone. This data represents the growing interest in social networking in today’s society which is good for Lytro who is targeting this market heavily. With these 80 million targeted Facebook users and a collection of over 140 billion uploaded photos, there is a large market for potential Lytro customers.

(Breakdown of US Users by Age)
This group is not necessarily photographically inclined. Instead, this group is interested in having the latest technology first. The techies like the ease of shooting, uploading and editing provided by Lytro. They are most interested in the “cool” feature of choosing the focusing point. The ability to upload to Facebook so easily is an added bonus so they can share their latest gadget with all of their friends. They are always the first to try new technology in their circle of friends and they take pride in it. Similar to the amateur social-elite group, they are 18 to 34 and like the ease of the product, but they are mostly interested in the technology of the lenses inside. In the future as Apple and Lytro continue to work on putting this technology into iPhones, this group will become larger as the iPhone is a common tool of the “techie.”
SWOT Analysis

The biggest strengths are the Lytro’s focusing capabilities and ease of use while its biggest weakest are a lack of brand recognition and it’s resolution. The Lytro will start out
with a small market, which will threaten its profits. The two opportunities saving the Lytro are its uniqueness in the market and increasing social networking trends. With over 250 million photos uploaded each day to Facebook, the Lytro will capitalize on this growing trend with built-in Facebook capabilities. The focusing capabilities of the Lytro are completely new to the market. Lytro has a patent on its micro lens array (the main component of it’s advanced focusing system). The Lytro’s technology is going to start a new trend in the camera market. Consumers will be attracted to the unique technology of the Lytro, but Lytro’s competitors will try to implement a similar focusing system to compete with Lytro. Once this happens, Lytro could lose profits because it is does not have brand recognition or customer loyalty because it is so new to the market. Lytro’s opportunity for growth and expansion outweighs its threats and weaknesses. Steve Jobs of Apple was looking into the Lytro technology and how it could be implemented into the iPhone. This is a possibility because the Lytro sensor and micro lens array are both so small. Lytro as a company also has room to improve their products resolution and internal memory. These are minor upgrades that put the company on track for planned obsolescence of each model, providing profit on each upgrade.
4 Product Life Cycle

**Lytro 1**

Lytro plans to release the first version of the Lytro Light-field camera in early 2012. The camera will be released in 2 different versions, the 8GB version which comes in Graphite (Grey) and Electric Blue color options, the second version is the 16GB option only selling in the Red Hot color option. Opening sales will come from pre-orders through the company website. All pre-orders will include the Lytro camera, lens cap and charging cable. Accessories for the original Lytro include a “fast battery charger” and replacement lens caps.

**The Future of Lytro**

Our plans for the future of Lytro are numerous, in the future newer versions of the camera will be released. These versions will include new specifications like more internal memory, better batteries, other design options and more. Along with new features for the camera we plan to bundle software and accessories with different models to help all Lytro enthusiasts.

https://www.lytro.com/camera
get the most out of the Lytro experience. Lytro also plans to hook up with Apple to provide the focusing capabilities in Apple’s iPhone.

**Lytro 2**

The second version of the Lytro 1 Light-Field camera is planned to be released Q3 2013 depending on the market’s reaction to the Lytro 1. The Lytro 2 will come with new features including wireless capabilities, more hard drive space, a stronger battery, and new color options. The wireless capabilities in the Lytro 2 will allow users within range of a wireless network to instantly upload photos to a drop box or sharing/editing location. The Lytro 2 will offer a new internal hard drive size, by releasing a 32GB option along with the previous 8GB/16GB options of the Lytro 1. With the new hard drive size, the users will be able to store over 1400 pictures on their Lytro camera. To go along with the new hard drives, the Lytro 2 8GB/16GB options will be available in graphite, electric blue and red hot but the 32GB option will come in Obsidian (black), and Pearl (white).

**Lytro 2x**

The Lytro 2x will follow the release of the Lytro 2, coming out for the 2013 holiday season. This version of the Lytro, based on current pre-release criticism, should satisfy some of the resolution concerns. The sensor addressability will be 2x the current resolution resulting in a 2160 x 2160 resolution which is roughly 4.8 MPx. The upgraded resolution will encourage more of the market to gain an interest in Lytro and test/purchase the Lytro 2x. With the
release of the Lytro 2x, it is also expected that the price of both the Lytro 1 and Lytro 2 will drop becoming more affordable to other users.

**Bundling and Accessories**

The current version of the Lytro will only come with a lens cap and charge cable. In future sales though, Lytro plans to release editing software with the purchase of certain Lytro models, along with selling it separately. Along with releasing software with the camera, Lytro will provide licensing to other companies to produce more focusing software and accessories for the Lytro.

Some new accessories to be made for the Lytro will include a docking station and a few cases to store the camera. The docking station will provide a permanent place to charge the camera and will have the proper hook-ups to connect the dock directly to the computer so the users can edit, update and share their photos while the camera is charging. For the avid Lytro user, the Lytro Pro Bundle will be release which will consist of a docking station, 2 extra lens caps, and a “fast battery charger.” This bundle can be sold with or without the camera, including varying Lytro models.

**Apple**

When the Lytro was first announced Steve Jobs took an interest in the focusing capabilities and met with a few representatives of Lytro. Apple has always taken pride in being a leader of smartphone camera technology. With the new potential Lytro brings to the camera market, Apple saw an opportunity to group with Lytro to push forward. Jobs
and Lytro exchanged information about the possibility of licensing and incorporating aspects of the Lytro into a future model of the iPhone. Lytro plans to continue working with Apple, with plans of incorporating new focusing technologies in an iPhone following the release of Apple’s iPhone 5.
5 Channels and Distributions

The main media vehicles Lytro will use to promote is the internet and television. Internet advertising will be the main vehicle through camera forums and camera tech sites. Television will also be used but since it is much more expensive, it will not be as big of a promotion method as internet advertising. Advertisements during The Big Bang Theory and on ABC Family will be implemented at first running very few ads. These TV ads will be informative and designed to show the functionality of the focus abilities, but also show the social use side of the camera. Through forums such as The Photo Forum or Digital Photography Review, Lytro can advertise on the side. These websites are designed for photographers and even basic camera users to post questions or read information from other users about the tech specs of a camera, troubleshooting on different camera models, and even read positive/negative reviews about specific cameras. These two websites alone will hit the target market of professionals, amateurs and novices. Through television advertisements, Lytro can shed more light on the focusing technology (and the fun of it) as opposed to an internet advertisement. Lytro will also gain promotion through publicity, mostly through blogs. Although this is uncontrolled, it will spread the word about the Lytro and its focusing technology through word of mouth. This will hit our target market faster
than any type of advertising Lytro produces. Once Lytro hits stores and is available for purchase, Facebook and other photo sharing social media will be the next biggest promotion tool through publicity. Consumers will see the images produced by the Lytro from friends and will be able to interact with the photos.

**Promotion**

Since Lytro is a brand new product, it will use informative promotion towards consumers. Although it competes with Nikon, Canon, Sony, etc., it is not at first attempting to gain customer loyalty or convincing consumers to switch to their brand. The technology inside the Lytro is unique. The professional and amateur market will want to add this camera to their collection. The tech savvy and social media elites will want to buy this camera for its focusing advancements, not because they are loyal to Lytro.

**Online Photo Contest**

Lytro plans to promote the Lytro through a contest shortly after the launch date, expected to be 1-2 months later. Using the contest, Lytro plans to increase initial sales by forcing participants to use the Lytro camera. The contest will be promoted mainly through online media. Groups and wall-posts will be passed around through social media sites like Facebook, posts featuring information on the contest will be featured on major forum sites like Reddit, and the Lytro Marketing group will advertise through videos on their channel. Other potential participants will have been informed through word-of-mouth advertisement.
Also with Lytro’s current relationship status with Apple, Lytro hopes to get them to sponsor and advertise the contest on their website.

**Contest Layout**

Participants in the contest will upload photos to a drop-box on Lytro’s contest web page. The individual uploads the image into one of two categories with the required the image is then posted to the website with a brief description. A team at Lytro will go through the user submissions and choose their 10 favorites for each of the categories. Those 20 images will then be put on Lytro’s web page where people have the ability to sign-in and vote. The image with the most votes in its category will win the grand prize.

**The Categories**

The first contest category will be Funniest image. Everyone enjoys a good laugh every once in a while and Lytro plans to take advantage of that. These images should be something that really made someone chuckle. The Lytro group will come together to determine which image had them amused the most and those will be posted to the top 10.

The Second Category will be a feature focused submission. Lytro would like its consumers to get the most out of the camera by encouraging them to use all of its features. Images in this category are expected to have taken heavy use of Lytro’s focusing capabilities. The submissions to this category will feature both a copy of the original image (validation comes through a letter-sequence embedded in the file’s code.) and the edited version. Lytro
expects that if the consumers begin to use and understand the software they will be happier with their purchase and be likely to come back in the future.

The Requirements

• All photographs must be taken with a Lytro camera.

• The photographs taken must be your own. To ensure this all images must feature a pet, person or distinguishable item that can be presented for validation upon receiving a prize.

• Each user can only submit 1 image.

• Participants must 16 or older or be accompanied by a legal guardian upon receiving a prize.

Contest Prizes

The contest will feature 18 Top 10 prizes and 2 Grand Prizes. The top 10 prize will consist of a Lytro camera case, an extra lens cap, $50 voucher (with participant’s name) for Apple’s first Lytro Product, and $250 cash. The grand prize will include a, Lytro camera case, extra lens cap, 16GB Lytro (Limited edition contest colors) and $2000 cash.

Total cost for the prizes will be around $8,000 and only about 25 extra cameras will need to be sold to cover the cost.
Integrated Marketing Communications

Lytro is a brand new company and the Lytro camera is its first product. Lytro is going to first inform the market about how this product works (not technically, but how the consumer can change the focus). Lytro hopes to convey the idea of not missing a thing, since one of its biggest markets uses social media and it has easy social media functions. Lytro is not quite up to professional photography needs of resolution and quality in the sensor yet. With this first product it will have more success promoting towards family and friend photography. The slogan “Never miss a moment” will hit home for this market. Photography of friends and family is candid and happens fast. With the Lytro, the user does not have to worry about focus. A picture of a friend can quickly turn into a picture of other friends in the background with the change of focus. Photo-bombing is taken to a whole new level. The social use of the Lytro is going to be the biggest promotion tool along with its social network publicity.
**Diffusion Curve**

To ensure a successful entry into the market, Lytro is greatly dependent on the experiences of their initial customers. Being a new company, Lytro must generate positive reviews to build a strong name.

*Figure 6 PLC and Diffusion Curve.*
Innovators

It is expected that Lytro’s earliest consumers will include “tech-savvy” individuals and people testing and reviewing the product. These people are from groups with a strong interest in gadgets that feature new advances in untouched technology. Lytro appeals to them with amazing focusing capabilities it is able to offer. These people will make up between 2-3% of its consumers, but will be a major deciding factor in Lytro’s success.

Early Adopters

Lytro has determined an early adopting group of the more tech-savvy social media users and the late “techies” that waited for the reviews of the innovators before purchasing their newest gadget. The techies will acquire the desire for the Lytro based on reviews on websites like Slashdot, Engadget, and PC World. The social media segment of this group will hear about the Lytro through their friends and online communities. This segment is expected to be between 13-14% of Lytro’s consumers.

Early Majority

Lytro expects its early majority group to contain mostly social media users. This segment will be made up of the 16-20 year-old segment of that group. This is because they rarely have the funds to spend on a gadget early in its release. This group will hear about the Lytro through their friends/photos on Facebook and will be intrigued by its abilities. Prices for the Lytro will still be similar to the initial launch at this point in its diffusion. It is expected that more of the $399 Lytro model will be purchased at this time. Towards the end of the early majority will be the casual amateur photographers. Parents and middle-aged adults
will hear about the camera on television, and through family and based on what they hear will decide to buy it.

**Late Majority**

At this point the Lytro will begin to drop in price becoming more appealing to those who have showed any interest until this point. This segment will continue to include a majority of family members and amateur photographers. This segment along with the early majority is expected to include around 70% of the initial Lytro’s sales.

**Laggards**

This segment of Lytro’s expected sales will most likely include the tech-avoidant segment of the population. By this time it is expected that another version of the Lytro has already hit the market and the technology will be surfacing elsewhere in the market. The laggards will realize that light-field technology will be a lasting trend so they will jump on. This segment will make up around 15-17% of the sales and will have the highest average age in Lytro’s diffusion.
6 Pricing and Break Even

Pricing Strategy

Lytro has developed a target market with a mean annual income of about $55,000 annually. Lytro also realizes a large low-income segment in the social media users, whose average age is around 19. The mean annual income for an individual under 20 years old is less than $10,000 annually. These people often work part-time jobs and are participating in some form of education which also creates a lot of expenses. Lytro has set its prices in the best fit to maximize profits while targeting the needs of both areas of the target segment.

Figure 7.1 Lytro Prices
The cost of the lower-end Lytro model (8GB model) is $399 USD. This price was determined through a mark-up strategy from the production cost getting the price to the $300-350 range. Once the appropriate percentage of mark-up was determined an odd-even pricing strategy was implemented to instill a level of happiness on the customer. The price was set ending in 99 to create a perceived discount of the price being set below $400.

The higher end model (16GB model) is priced $100 above the other model at $499. The price for this model was determined based on the cost of the extra memory, which to Lytro is nearly nothing. Added value is place on this model of the camera due to it being the only model that comes in the Red Hot color option. This is so when anyone sees the red colored Lytro there is a sense of prestige attached to it. This model also features the same odd-even pricing strategy.

**Break even analysis**

**Production Cost**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marvell Avastar 88W8787</td>
<td>15.0</td>
</tr>
<tr>
<td>Zoran ZR364246BGXX processor</td>
<td>5.0</td>
</tr>
<tr>
<td>1.5-inch display</td>
<td>10.0</td>
</tr>
<tr>
<td>Component</td>
<td>Cost</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Touch screen</td>
<td>7.0</td>
</tr>
<tr>
<td>2,100mAh Li-ion Battery</td>
<td>6.10</td>
</tr>
<tr>
<td>16GB NAND Flash</td>
<td>9.6 (8GB)</td>
</tr>
<tr>
<td>DRAM</td>
<td>9.2</td>
</tr>
<tr>
<td>Imaging System</td>
<td>35.0</td>
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<tr>
<td>Wireless</td>
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<tr>
<td>Power Management</td>
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<tr>
<td>Mechanic/ Electro-mechanic</td>
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<td>Packaging</td>
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<tr>
<td>Total (16GB version)</td>
<td>164.5 (8GB)</td>
</tr>
</tbody>
</table>

*Table 2 Production Cost Analysis*

**Break Even**
If we assume a $50,000,000 start up cost, a $30 operation cost for each unit sold, we are expecting a break even after we sell 213,530 units if the ratio of 8GB and 16GB model being sold are 4:1.

![Break Even Analysis](image)

*Figure 6 Break Even Analysis.*
7 Conclusion

The Lytro camera is going to change camera technology, as we know it. Through implementation in the iPhone and in other smart phones or devices the micro lens array of the Lytro will expand profits and provide Lytro the ability to grow as a company. The camera itself will be profitable because it has a target market that is growing with the increase of social media. Through promotion via Internet and camera blogs, the Lytro is able to reach this audience. With photo contests with interactive Lytro images, consumers can play with the images of others and learn how the camera works. Even though Lytro is not a recognized brand, it will grow from the innovative, unique technology. Once implemented into the iPhone, Lytro’s popularity and profits will skyrocket because Apple is already recognized and has highly sought after products. The possibilities of Lytro technology are endless. Lytro cameras are easy to use as you do not need to worry about aperture, shutter speed and focus. In the fast-paced, technological world we are living in and developing, the Lytro makes it easy to capture moments and share them almost instantly.

Lytro; Never miss a moment.
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