MDB CAPITAL GROUP

Uni-Pixel, Inc.

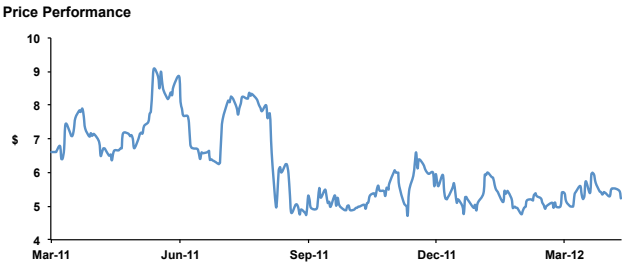
Disrupting the Touchscreen Market

Research Re-Initiation | April 12, 2012

SEEING VALUE OTHERS DO NOT. CREATING VALUE OTHERS CAN NOT.

COMPANY DETAILS

HEADQUARTERS
The Woodlands, TX
EMPLOYEES
Approximately 20
FISCAL YEAR END
December
LISTING
UNXL (NASDAQ)
Price Performance



	YTD	3m	6m	12m
Abs	-2.79%	-10.45%	3.77%	-22.06%

Last Price	$5.23
Date of Price	10/Apr/2012
52-week Range	$3.98 - $9.20
Shares Outstanding (mm)	7.14

ANALYST INFORMATION

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Please read the disclosures on page 32 for important required information including analyst certification.

INVESTMENT SUMMARY

We are initiating coverage of Uni-Pixel, Inc. ("UniPixel," or the "Company"). UniPixel is an established leader in the field of performance-engineered films that has invented technologies that could disrupt the fast growing touchscreen market.

Growing Market

Due to the rise of the iPhone, iPad and competitor products, the touchscreen industry is growing at a rapid pace. The NPD Group projects that the market for touchscreens utilizing projected capacitive technology will grow at 50% CAGR until 2015, to a size of over $17 billion.

Disruptive Technology

The principal pain point in the touchscreen industry is based on the fact that almost all screens use the rare earth element indium tin oxide, a rare earth metal that is scarce, expensive and brittle; it also limits screen performance. UniPixel has invented a process called UniBoss™, which allows it to make screens at a lower price point and with better physical performance. Recently, industry leader Texas Instruments validated the UniBoss technology by entering into a binding memorandum of understanding with UniPixel to collaborate in the development of an integrated touchscreen solution.

Strong IP Strategy

UniPixel has a well-planned intellectual property strategy that integrates with every aspect of its operations. UniPixel has already worked to protect the intellectual property it uses as a foundation for its imminent product offerings, and has a plan in place to further monetize its years of research and know-how.

Experienced Management Team

UniPixel has an experienced management team in place, led by CEO Reed Killion. Recently, it has been able to attract top talent from other leading firms in the touchscreen space, including COO Peter Shin.

Contents

Background

UniPixel is an industry leader in performance-engineered films.

Touchscreens are made up of several components—UniPixel has product offerings that will compete in two of those component markets.

History

UniPixel, Inc. provides solutions for embossing micro - and nano-structures on film surfaces that can be used in a variety of commercial applications and markets.

UniPixel was founded in 1998. Throughout the Company's history, it has focused on developing what it calls "performance engineered films," including LCD backlights, 3-D films, electronic circuits, and Time Multiplexed Optical Shutter ("TMOS") display technology.

UniPixel had a successful IPO in 2006 and a secondary offering in December 2010. In May 2010, UniPixel sold a portion of its intellectual property portfolio relating to dynamic backlighting, field sequential color displays, and TMOS technology to Rambus, Inc.

Most of the Company's approximately 20 employees work from UniPixel's headquarters in The Woodlands, Texas.

Product

A touch module is comprised of several different components. In a basic projected capacitive ("pro-cap") screen, a transparent conductive layer, which is often called a touch sensor, is stuck to a display, and a cover lens is affixed on that conductive layer. The conductive layer plugs into a chipset, which is often called a touch controller, inside the housing of the device (See Figure 1).

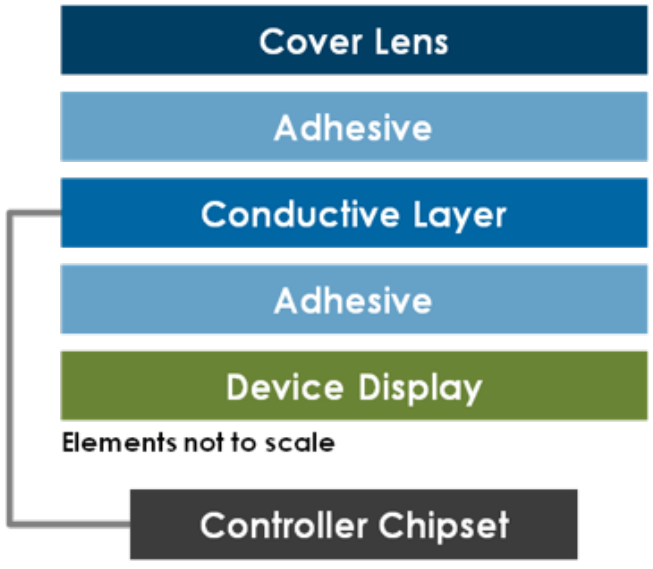

Figure 1: Basic Projected Capacitive Touch Module Unit Schematic

Background

UniBoss

UniBoss is UniPixel's competitive product offering in the conductive layer, or touch sensor space. The conductive element in UniBoss is copper, which UniPixel can print in very fine lines. In testing, UniBoss has achieved significant improvements over the incumbent technology, which utilizes indium tin oxide ("ITO") as the conductive element.

Diamond Guard

Diamond Guard is UniPixel's competitive product offering in the cover lens space. Diamond Guard is a hard, clear polymer. In testing, Diamond Guard has achieved significant improvements over the incumbent technology, which is aluminosilicate glass.

UniBoss - Diamond Guard Stack

Because it can provide both the touch sensor and cover lens layers, which is unusual in the touch sensor industry, UniPixel can also offer UniBoss and Diamond Guard as an integrated stack. This can have a meaningful impact on UniPixel's customers, which are currently likely to be mobile device original equipment manufacturers ("OEMs"), since such a stack would simplify these customers' supply chain operations.

Touchscreen Industry

The touchscreen industry is growing rapidly.

Most touchscreens use indium tin oxide as the conductive element. Indium tin oxide is scarce, expensive, brittle and does not perform well electrically.

UniBoss is based on copper, which is plentiful, inexpensive, strong, and performs very well electrically.

Because of the problems with indium tin oxide, there are several other firms doing research on alternative materials, though we are not aware of any that are as advanced as UniBoss.

The transparent touchscreen market is exhibiting rapid growth with the proliferation of mobile devices from manufacturers such as Apple, Motorola, Samsung and others. The NPD Group projects the market to have a CAGR of 25% 2010 to 2015 (See Figure 2).

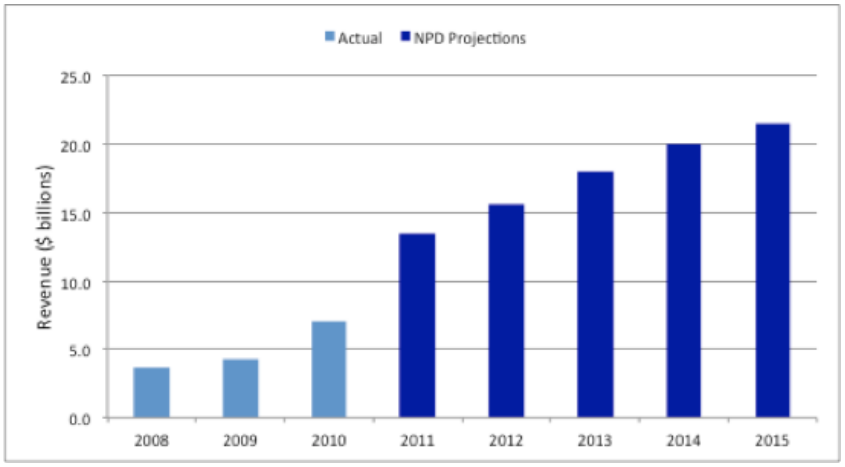

Figure 2: Touchscreen Industry Revenue Growth

Technology

Pro-cap is the largest and fastest growing segment of the touchscreen market, owing largely to its inclusion as the technology of choice in Apple's iOS and Google's Android mobile devices. Pro-cap touchscreens are growing even faster than the touchscreen market at large; the NPD Group projects a CAGR of 50% from 2010 to 2015 (See Figure 3).

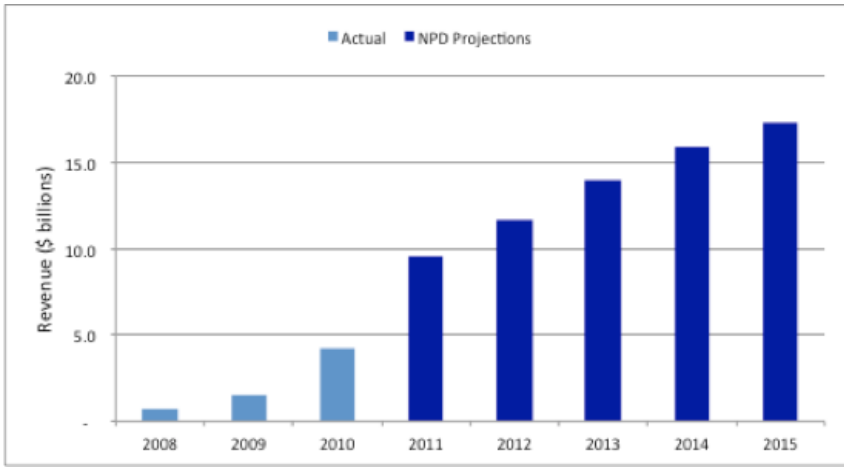

Figure 3: Projected Capacitive Touchscreen Industry Growth

Pro-cap touchscreens are activated by lightly brushing a touch input—which can be either a finger or a stylus—on the screen. These screens apply current to a grid pattern, which creates an electrostatic field; when the touch input touches the screen, it disrupts the stored electrical charge (or capacitance) of this electrostatic field. The touchscreen controller chipset detects the x/y coordinates of this disruption and registers the touch input (See Figure 4).

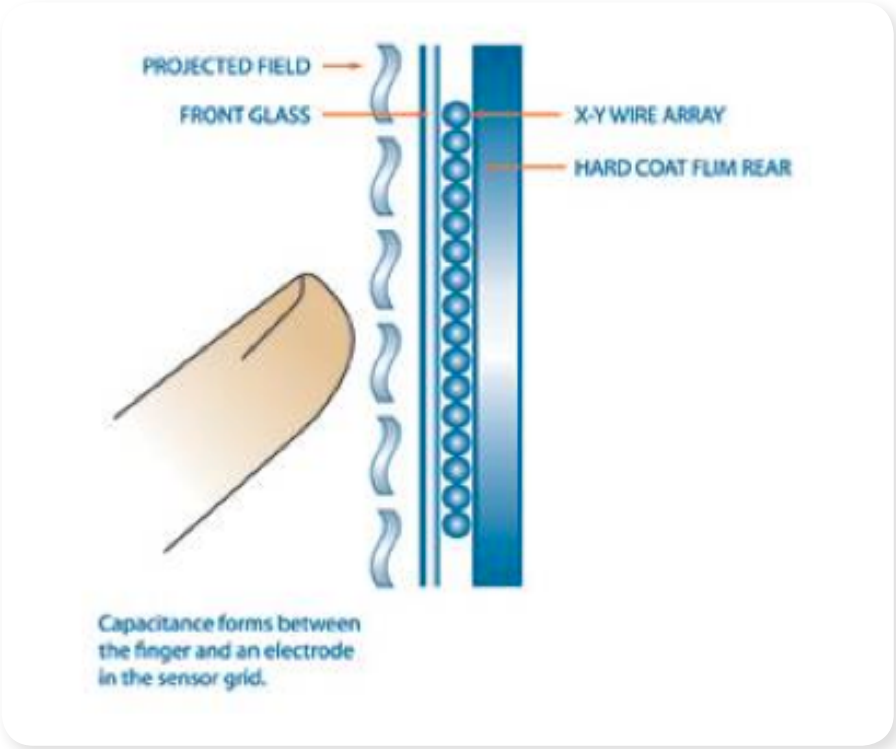

Figure 4: Projected Capacitive Touch Diagram

Pro-cap enables several touch inputs (i.e., multiple fingers) to direct devices, so it is often called “multi-touch” technology. There has been huge growth in the sales of mobile devices based on Apple’s iOS and Google’s Android platform (See Figure 5).

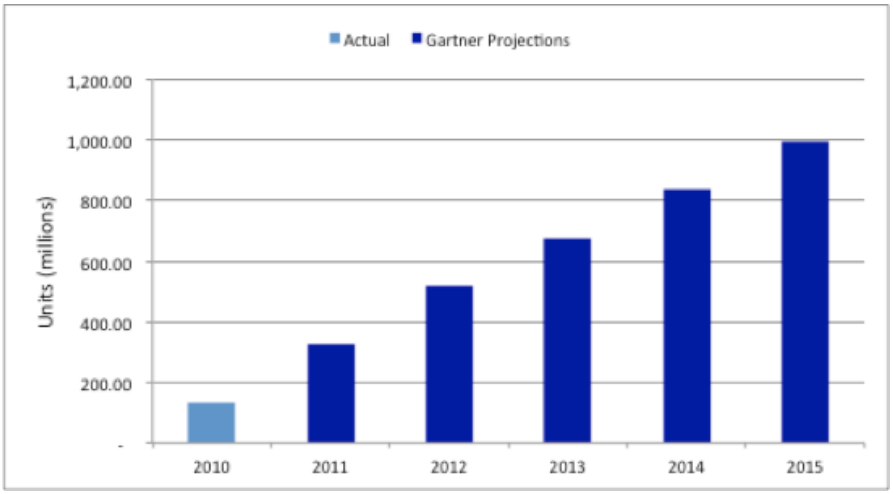

Figure 5: iOS/Android Device Sales Growth

Touchscreen Industry

The potential growth opportunity for touchscreens is not limited to mobile devices. Despite Apple CEO Tim Cook's declaration that we are entering a "post-PC era," PC sales continue to grow. Gartner estimates that 364 million PCs were sold in 2011; of those, approximately 92%, or approximately 335 million, run on Microsoft's Windows operating system.

Analysts expect Microsoft to release its new Windows 8 operating system in October 2012. In its communications about the platform with software developers, Microsoft is emphasizing the multi-touch functionality of the system. We interpret this development as portending a "mouseless" PC experience. This would be a game-changer for the pro-cap touchscreen industry; it would double the size of the personal electronics touchscreen market, adding 335 million PCs to an existing market of over 325 million tablets and smart phones per year.

Pain Point: Indium Tin Oxide

The use of ITO in the touchscreen industry presents a number of issues for device manufacturers.

Price and Scarcity

First, ITO is expensive. Industry estimates place the average cost of transparent conductive layers based on ITO at approximately $4.05, or approximately one-fourth of the total cost of the touch module unit. The high cost of ITO is due primarily to the scarcity of indium, a rare earth metal. According to the US Geological Survey, there are approximately 16,000 tons of indium in the world, over half of which is in China. At the current rate of consumption, some experts estimate that these reserves may be depleted by 2020.

China's primacy in the indium market is cause for considerable concern. On March 13, 2012, the United States, Japan and the EU filed a complaint with the World Trade Organization, to try to force China to loosen its trade restrictions of rare earth materials.

> "If China would simply let the market work on its own, we'd have no objections, [but Chinese policies] currently are preventing that from happening and they go against the very rules that China agreed to follow."
>
> *US President Barack Obama*

This situation places significant geopolitical risk to the supply of indium, which in turn exacerbates the price volatility of ITO. Over the past three years, the price of indium has ranged from $300 / kg to $800 / kg.

Another key issue is that ITO is a critical component of several fast-growing industries; applications utilizing ITO also include LCD screens, OLED displays, plasma displays and solar cells. The growth and potential of these applications will work to push the price of ITO even higher.

These risks have caused major technology firms to pursue alternative technologies to ITO for touch sensor applications. For example, Fujitsu and Kodak have both announced high-profile efforts researching PEDOT touch sensor technology; we discuss PEDOT films in greater detail in "Competitors: PEDOT Films," below.

In addition, ITO is hard to work with, making it expensive to deposit onto a substrate. Manufacturers must deposit ITO onto a substrate using a process called sputtering, which is a costly process that involves significant energy consumption and expensive equipment. Sputtering is achieved by passing a high-tension electric current through an inert, low-pressure gas such as argon, which surrounds a donor and recipient material. This process creates high-energy plasma, which causes rapidly accelerated ions to strike the donor material, thus displacing its atoms. The donor atoms then strike and adhere to the target or recipient material at an atomic level and create a thin, even film.

Performance Issues

The performance limitations of ITO are just as critical as the supply risk and price of indium. ITO has two critical physical deficiencies: it has a relatively high electrical resistance, and it is a fairly brittle material.

Resistance

As measured in ohm meters, indium has an electrical resistivity that is over 5 times greater than that of copper. Indium's higher resistance point hinders its performance.

• *Power Usage*

The high electrical resistance of ITO means devices have to supply more power to the screen, increasing the power efficiency or capacity requirements of the device's battery. This has significant implications to a device's battery life. A less resistive screen material could either deliver better battery life, smaller battery size, or both. Lower power usage would also have a positive environmental impact, as it would allow for less electricity used and a longer battery lifecycle.

• *Latency*

When a user touches a screen, nodes at the edge of the screen register the current disruption. The greater the electrical resistance, the more slowly the current disruption moves across the screen. The speed with which a material can process a current disruption is known as its RC time constant. One of the key drivers of a high RC time constant is the electrical resistance of the material. The larger the RC time constant, the more slowly the touch module registers the input. Therefore, the greater the resistivity of the material, the longer the latency period between touch input and controller processing.

Users increasingly want to be able to sketch ideas and take notes on their touchscreen devices in the same way they do with paper and pen now. However, trying to replicate a pen-and-paper experience on a device that has even a few milliseconds of latency can be distracting and disorienting, because users have been conditioned by years using pen-and-paper solutions that, of course, have zero latency. Thus, ITO-based solutions limit the potential of touchscreens to replace pen-and-paper.

Brittleness

ITO is brittle, and often cracks from overuse. This quality has a few negative implications.

• *Production Issues*

This brittleness increases the cost of working with ITO, as it results in greater product breakage and defect rates, as well as increased cost of care and handling.

• *Size Limitations*

The brittleness of ITO also has an impact on its desirability for traditional consumer markets. For example, for the past few years Microsoft has been developing a technology it calls Microsoft Surface, which is based on a tabletop-sized touch screen that allows for collaborative work by allowing for touch inputs from several different people. ITO's brittleness means that it is exponentially more expensive to make larger touchscreens that utilize ITO as the transparent conductor, which limits the consumer application of a technology such as Microsoft Surface. In addition, the sputtering process makes it difficult to achieve a uniform coating of ITO over a large area, which also limits the size of an ITO screen.

• *Specialty Market Desirability*

In addition, the brittleness of ITO has a material impact on the addressable market. The risk that an ITO screen may crack and become inoperable limits its desirability to customers who want to use touchscreens in certain mission-critical applications, such as health care and defense.

UniPixel's Solution: UniBoss

UniPixel has worked to develop a new technology in response to this market need. UniBoss™, UniPixel's patented adaptable manufacturing platform, produces transparent conductive films. The UniBoss process prints and applies copper to a flexible substrate. The UniBoss process provides superior adhesion and uniformity, with substrate thicknesses as small as 12 microns.

UniPixel intends to offer UniBoss in the marketplace for approximately US$25.00 / ft^2. We estimate that one square foot of UniBoss can cover 13 smartphones. (We derive this estimate from the fact that an iPhone has a screen of approximately 11 square inches, so 144 square inches of UniBoss should cover approximately 10 iPhones). At those prices, the cost of UniBoss is approximately $2.50 per smartphone. Current industry estimates are that ITO layers cost approximately $4.05 per smartphone, so UniBoss represents a savings of over 35% over the cost of ITO-based solutions. UniPixel estimates it will make gross margins of over 50% on Diamond Guard at that price level.

The benefits of using copper instead of ITO are numerous. First, copper is plentiful and inexpensive relative to ITO; indium costs approximately $600 / kg, whereas copper costs only about $8 / kg. The supply of copper is also not subject to significant geopolitical risk; not only does the United States have significant copper reserves, but most of the worldwide reserves are located in key US trade partner nations such as Chile, Peru and Australia.
Copper also has significantly lower electrical resistance than ITO, which means it outperforms ITO on parameters such as power efficiency and latency. The improvement on these points is significant. UniBoss has a theoretical latency of less than 1 millisecond, which is low enough to be competitive with pen-and-paper based solutions. In addition, UniPixel estimates that a device with a UniBoss copper-based touchscreen would draw less power than one equipped with a traditional ITO-based screen.

Copper also has the benefit of being much easier to work with than ITO. The UniBoss process uses a simple printing process to put complex microstructures into printed circuits, such as antennas and sensors (See Figure 6). This means that as the size of the screen increases, the cost of UniBoss rises much less slowly than the cost of an ITO-based solution.

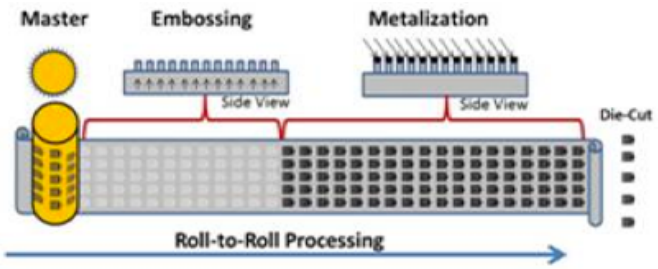

Figure 6: UniBoss Production Process

UniPixel can reduce the complexity, cost and risk of manufacturing touch-panels and other electronic circuit applications. Because of these factors, as well as the growth in the touchscreen market, we believe there is an opportunity for UniBoss in this market. We note that there are several possible market segments for UniBoss to address. Based on the scalability of its form factor, we speculate that UniBoss may ultimately be best suited to large screens. However, both the supply and demand sides of the touchscreen market are evolving rapidly, so the market suitability of UniBoss may still change dramatically.

Competitors

As the limitations of ITO are well known in the touchscreen industry, there are several competing technologies vying to become the new standard. We believe that all of these competing technologies have certain critical limitations.

We also note that the market is already starkly segmented by size, application and price (among other factors). We believe the benefits of UniBoss, both as compared to ITO as well as to the other emerging technologies, are numerous and significant enough that UniBoss will have a place in the rapidly growing touch screen market.

Other Printing Techniques

Photolithography is an optical means for transferring patterns onto a substrate. Essentially, the process covers the entire surface of a substrate with a conductive material, uses photographic means to transfer a pattern to that substrate, and then uses the as a guide for etching away the unneeded conductive material. This method of photolithography is a subtractive technique, in that it entails covering the entire substrate first and then removing the excess; this contrasts with an additive technique, such as embossing.

The main issue with subtractive photolithography is that creating the masters is difficult and expensive. Consequently, it is not clear that photolithography-based solutions will be significantly less expensive than the ITO-based solutions currently in the marketplace.

Inkjet printing is another printing technology. Inkjet printing of touch sensors is conceptually similar to inkjet printing of documents on a home printer; the difference is that inkjet electronics printing uses molten metals as the “ink” and a transparent substrate as the “paper.”

Inkjet printing is a relatively old technology, and the consistent problem it has had is that the process of printing is too slow; this leads to long production times and high costs.

The largest player in inkjet-printed touchscreens is Atmel, which is one of the largest players in the touchscreen controller space. In April 2012, Atmel introduced an ink-jet printed screen it co-developed with a UK-based company called Carclo PLC. We are interested to see how Atmel’s offering represents an improvement over existing inkjet printed touch sensors. Atmel has not yet made pricing and performance details public. We will continue to monitor this technology as it develops.

Optical

Optical touchscreens are most often based on LED technology, in which a series of diodes are arranged around the screen; the system locates the x/y coordinates of the touch inputs based on where the finger or stylus interrupts the infrared light emitted by the diode.

The main concern with optical solutions is that they are currently difficult to fit into small form factors such as smartphones. This is because the LEDs have a thickness that must be hidden under a raised bezel at the edge of the screen, so it does not mesh into the design of the display of a device such as the iPhone.

The major developers of optical solutions are primarily smaller players such as Neonode, NextWindow and Flatfrog.

Silver Nanowire

The principle behind silver nanowire is similar to that of the copper-based UniBoss solution. The advantage of the silver-based approach is that silver is even more conductive than copper, so a screen based on silver should hypothetically outperform one based on copper.

To date, the reality has not matched that hypothesis. This is because, due to certain physical limitations of silver, it cannot be arrayed in a grid pattern on a flexible substrate. Consequently, it must be arrayed randomly on the substrate, which has a negative impact on the conductivity of the screen. In addition, silver-based solutions currently in the marketplace exhibit high haze; this would be particularly noticeable when devices are in the "off" state, which is a major factor for industrial designers of major device OEMs.

Two of the key players in the silver nanowire space are small-cap player Cambrios (which recently signed a co-development deal with Samsung) and Carestream (which recently signed an unrelated agreement with UniPixel; for details, see "Recent Developments: Carestream Agreement" below). The technology is still very much in the beta stage, and has not been introduced on any significant device currently sold to consumers.

Silver Nanoparticles

Also based on the conductive properties of silver, this technology involves coating a substrate with nanoparticles, then heating the substrate to melt the nanoparticles to connect them to create a circuit.

The principal issue with this technology is that in order to connect the nanoparticles, there must be a lot of them on the substrate, which can present problems with transparency of the screen. In addition, manufacturers can only use a few substrates for this process, because the process requires heating the film to melt the particles together and many plastic screens would melt under those conditions.

FujiFilm is the best-known player developing silver nanoparticle technology. A number of smaller developers are also working on this technology, including Five Star Technologies, Cinema Nanotech, and Applied Nanotech.

PEDOT Films

PEDOT:PSS is a polymer that has electrical conductivity. Manufacturers develop PEDOT in solvent form, and then roll it onto substrates.

The main problem with PEDOT film at the moment is that it is not as conductive as competing technologies. In addition, conductive polymers are not terribly stable —they degrade much more quickly than ITO-based screens. Also, material costs are likely to be an issue with PEDOT adoption, as developing the films requires expensive solvents in a complex, multi-step process.

The market leaders in PEDOT development are currently Heraeus (which recently signed a joint development agreement with Kodak), Agfa, and Plextronics.

Carbon Nanotube

Carbon nanotube ("CNT") screens work by suspending carbon nanotubes in solution and using liquid coating methods to apply them to substrates. The main disadvantages to this technology at the moment are twofold: first, they are currently relatively expensive compared to other alternative technologies; and second, the material is highly resistive at the junction point where the nanotubes touch. Thus, these films do not currently offer significant performance benefits over ITO-based solutions.

Key developers in the CNT space include small players, such as Unidym, Eikos and Canatu.

Graphene

Graphene is a promising entrant to the touchscreen space. Graphene is a thin plane of carbon with a thickness of one atom, which can conduct electricity.

The major hurdles for graphene relate to its relative immaturity in the marketplace. Graphene as a

material is not nearly as well understood as copper, silver or ITO. In addition, graphene is very sensitive to defects and impurities, meaning that it presents manufacturing challenges at commercial scale. At the moment, graphene is about three times as electrically resistive as ITO, which exacerbates the issues related to power usage and latency outlined above. Also, graphene currently requires a rigid substrate that can withstand temperatures of over 1000°C.

However, the relative immaturity of graphene also means that researchers' understanding of the material may advance quickly. We note that Samsung, working with Sungkyunkwan University in South Korea, patented a roll-to-roll transfer process in 2010 that could significantly advance the potential of graphene for use in touchscreens. There have also been rumors that Samsung will be releasing a phone with a graphene-based flexible touchscreen (supposedly called the "Galaxy Skin") sometime in 2012. We will continue to monitor these developments, as they may have a major impact on UniPixel's competitive position.

Cover Lens Industry

The cover lens industry is growing rapidly.

The leaders in the industry offer enforced glass products.

Glass is scratchable, breakable, heavy and thick.

Diamond Guard is a clear, hard polymer that is stronger, lighter and thinner than glass.

The cover lens business is important to some large companies, who are incurring R&D expense to protect their market share.

Industry analysts expect the cover lens industry to grow at a very rapid rate as well (See Figure 7). The NPD group estimates the size of the total cover lens industry at approximately $4.6 billion in 2011; though most of the growth here is due to mobile devices, the overall industry also includes PCs and TVs.

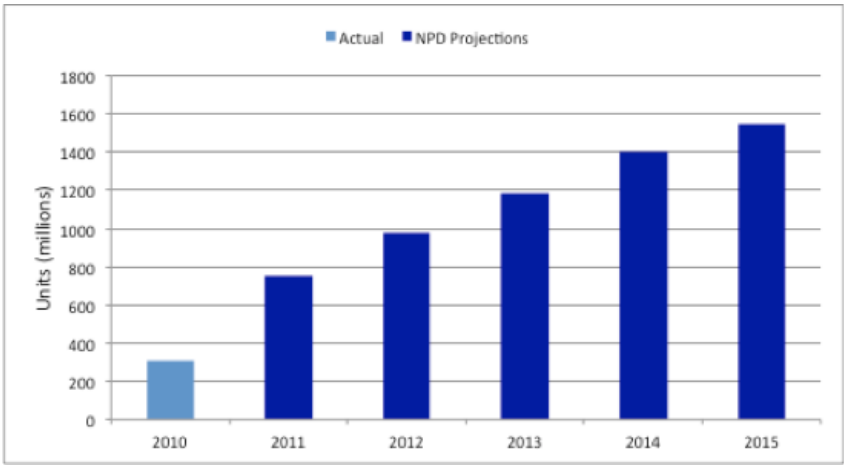

Figure 7: Cover Lens Market Growth

Technology

Pro-cap touchscreen devices have a cover lens that fits on top of the conductive material layer. This cover lens is intended to protect the sensitive components of the touchscreen (See Figure 8).

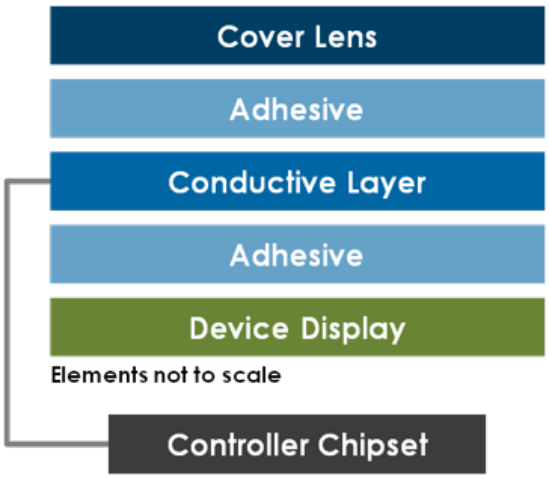

Figure 8: Touchscreen Basic Design Schematic

Cover Lens Industry

Pain Point: Glass

The major product offerings in the cover lens space for touchscreens are made of glass. By its nature, glass presents certain performance defects.

First, glass is expensive. Industry estimates place the average cost of the glass component at $5.10, or approximately one–third of the total cost of the touch module unit.

In addition, although leading glass-based lenses are chemically reinforced with an ion exchange process, users can still scratch or shatter them. Scratches can obscure the screen, and cracks can create consumer safety and device operability concerns. Consumers concerned about these qualities often purchase aftermarket add-ons such as films and covers to protect their devices' displays.

Glass also does not respond well to the current trend towards sensor-on-glass ("SOG") modules. SOG modules eliminate the sensor substrate and locate the conductive material directly on the cover lens.

The main reason for this is that mobile devices are highly space-constrained. Device OEMs are trying to differentiate their devices by either making them thinner or adding features (computing power, battery life, camera size) to existing form factors. Glass has a typical thickness of .5 mm, which constrains device manufacturers' design options. In addition, device OEMs would like to simplify their supply chains by reducing their number of suppliers; however, the glass-based incumbents in the cover lens space do not currently have the capability to create a transparent conductive layer.

UniPixel's Solution: Diamond Guard

UniPixel has developed a product called Diamond Guard™, which is a clear, hard, scratch-resistant polymer that can replace traditional glass-based cover lenses.

UniPixel intends to offer Diamond Guard in the marketplace for approximately US$2.50 / ft^2. We estimate that one square foot of Diamond Guard can cover 13 smartphones (as with UniBoss, above). At those prices, the cost of Diamond Guard is approximately $0.25 per smartphone. Current industry estimates are that Corning is selling Gorilla Glass at approximately $5.10 per smartphone, so Diamond Guard represents a savings of over 95% over the cost of Gorilla Glass. UniPixel estimates it will make gross margins of over 50% on Diamond Guard at that price level.

Diamond Guard maps well with customer desires. First, while the current stack of cover glass and transparent conductors is approximately 1.05 mm in thickness, a stack of Diamond Guard and UniBoss would be approximately 0.27 mm thick. (See Figure 9.)

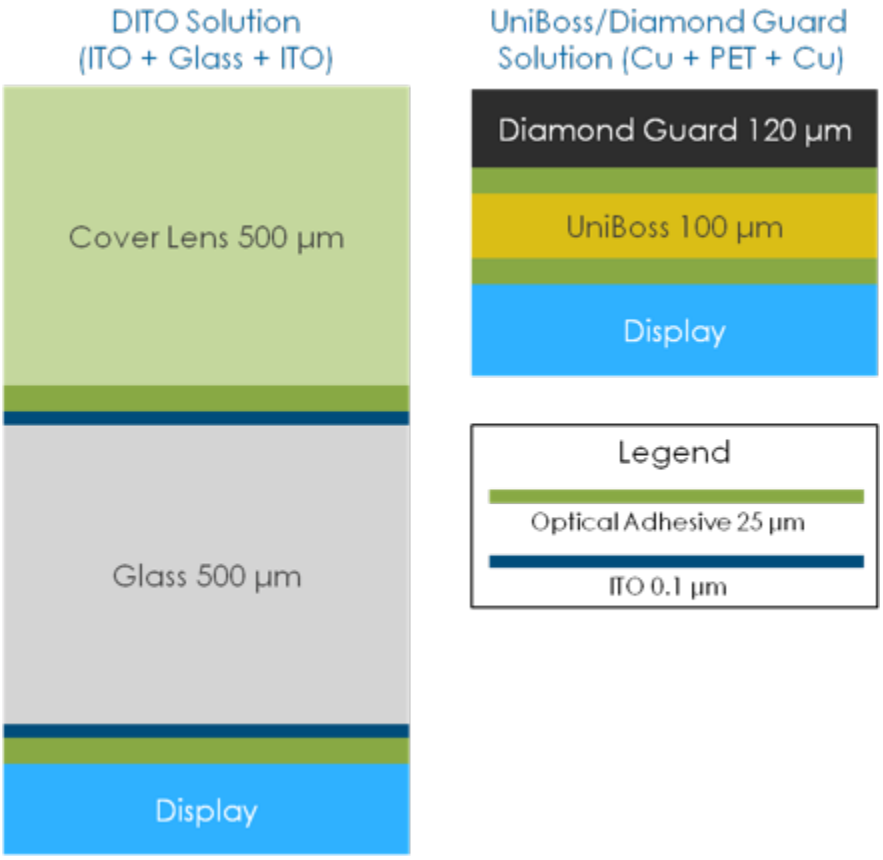

Figure 9: Combined Diamond Guard and UniBoss Thickness

Second, the combined price of Diamond Guard and UniBoss would be approximately 70% ($2.75 vs. $9.05) cheaper than the combined price of the equivalent glass and ITO-based components utilized today, based on the pricing discussed above. Finally, the fact that UniPixel has the capability to make both components would help potential buyers of both products simplify their supply chains.

Competitors

There is constant innovation in the cover lens space, as players continue to experiment on ways to strengthen and otherwise enhance their product offerings.

Corning

Corning's Gorilla Glass product is a high-strength alkali-aluminosilicate thin sheet glass. Apple has used the product since it released its first iPhone model. Industry estimates place Gorilla Glass revenues at nearly $1 billion. Corning continues to innovate, having recently released two new products. Gorilla Glass 2, released in January 2012, has the same hardness and scratch resistance as Gorilla Glass, but in a thinner size. In addition, in March 2012 Corning announced it had developed
a new product called Lotus Glass, which is a low-power solution targeted at the LCD and OLED markets. It is also highly thermally stable, which means Lotus Glass might be considered by device OEM customers as a target substrate for high temperature conductor deposit techniques.

Asahi Glass

In January 2011, Asahi Glass, the largest glass manufacturer in Japan, released a product called Dragontrail, a chemically strengthened float glass. Asahi estimated its 2011 sales at approximately $360 million.

Competencies

UniPixel's IP capabilities are strong for a company in its development phase.

The Company's R&D capabilities are very strong.

The Company is focusing on finding partners to assist it in developing its manufacturing, sales and order fulfillment capabilities.

Intellectual Property

UniPixel has retained MDB Capital to help it develop an intellectual property strategy. As a result of confidentiality provisions that are a part of that relationship, and to avoid disclosing the Company's strategies against its competitors, we limit our comments here to the opinions we developed based on public representations by the management.
We measure corporate capability with respect to intellectual property goals on two dimensions: the ability to protect the Company's existing product portfolio, and the ability to generate future licensing revenues from related technologies.

In order to develop appropriate benchmarks for these dimensions, we consider which phase of its lifecycle a company is in. We broadly categorize technology growth companies as falling into three phases:

Development
Marked by advanced prototypes, as well as the beginning of third party validation of its technology.

Validation
Marked by OEM or channel partner agreements, as well
as joint development agreements.

Commercialization
Marked by product launch, as well
as rapid revenue growth.

Our assessment is that Uni-Pixel is currently in the "Development" phase of its lifecycle, though it is quickly moving into the "Validation" phase.

We then develop qualitative scores across these dimensions using data from our proprietary PatentVest database. In particular, we consider the relative age of a company's intellectual property portfolio and the breadth of the technology focus, as measured by the distribution of a company's innovations across a number USPTO primary classifications.

At the "Validation" phase, we would expect to see companies score a 5 along the "Protect Existing Product Portfolio" dimension, and a 2 along the "Develop Strategic Intellectual Property" dimension. We rate UniPixel as ahead of the typical

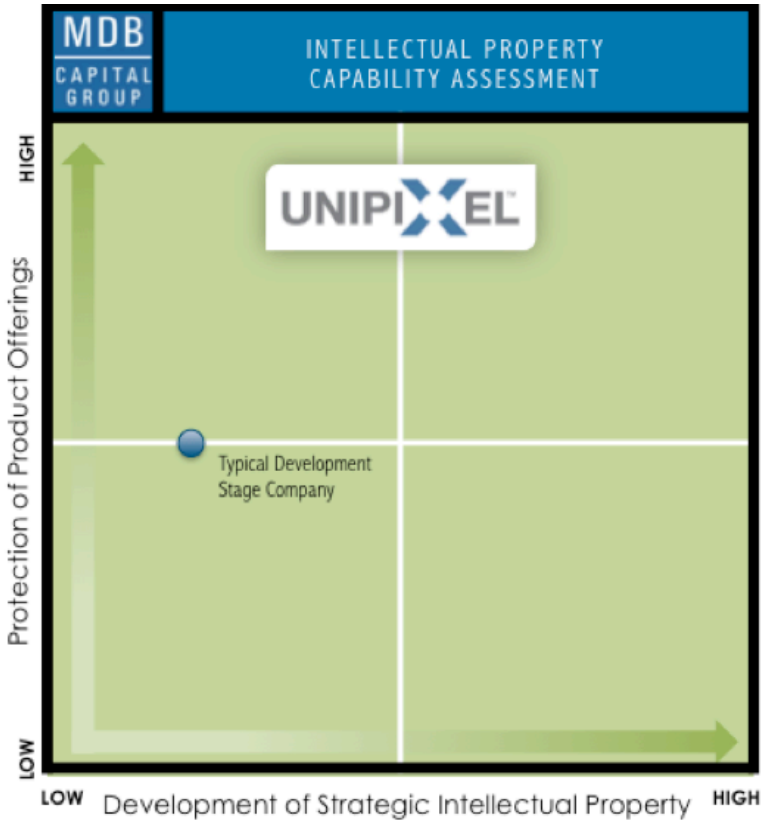

Figure 10: Intellectual Property Capability Assessment - UniPixel

development stage company on both dimensions (See Figure 10).

Protect Existing Product Portfolio

On this dimension, we measure the progress of the Company in ensuring that it is effectively protecting its technology from infringers. Companies can achieve that by exhaustively considering every patentable dimension of their innovations, including all materials, processes, logic and applications.

We rate UniPixel an 8 out of 10 on this dimension. The Company has prioritized technology protection; it has 3 issued patents and 49 filed, representing 39 unique patent families. It also has an additional 70 unique patent families in its patent pipeline. Approximately 70 of these patents relate to UniBoss.

Develop Strategic Intellectual Property

On this dimension, we measure the progress of the Company in patenting ancillary technologies that may not relate directly to its own key products, but may have value within a broader eco-system. IP of this sort may have licensing or transactional value separate and apart from the core business. Perhaps the pre-eminent example of a firm that has effectively this capability is IBM, which generates over $2 billion in IP licensing revenue per year, and recently was capable of transacting several thousand patents to companies with significant IP needs, including Facebook and Google.

We rate UniPixel a 5 out of 10 on this dimension. This rating is based on the Company's understanding of and priority the priority it places on developing this capability given its size and the stage of its technology development. The Company has naturally focused on its own product offerings in this early stage, but our discussions with management indicate that generating licensing revenue is also a priority to them. We also note that UniPixel has already monetized its IP in the past, having sold non-core IP to Rambus Technologies in May 2010.

Research / Development

UniPixel has been a market leader in working with high performance films since 1998. Consequently, it has significant capabilities in research, development, testing and design of printed electronics products.

Production / Manufacturing

The overall UniBoss process has three sub-processes: mastering, embossing, and metallization.

Mastering

The mastering sub-process consists of creating the master print mold, which the Company can array in any configuration a customer desires.

Embossing

Next, the Company installs the master onto a printing press, where it is used to "print" an embossed pattern onto a film.

Metallization

The film is then treated with a copper solution. The printed pattern on the film attracts copper ions, leaving an embossed copper pattern on the film.

UniPixel has developed significant skills in the area of mastering. The Company has also developed its skills in the area of embossing, though it will likely need to continue developing those skills (and hire additional employees) to bring its embossing capabilities up to the scale required by device OEMs. The Company currently outsources its metallization sub-process.

With respect to Diamond Guard, the Company has located a production partner; for details, see "Recent Developments: Carestream Agreement," below.

Sales and Marketing

UniPixel does not have significant capabilities with respect to sales and marketing functions. As a result, the Company has been pursuing a channel

partner sales strategy for its UniBoss product. The Company has already located a channel partner for its Diamond Guard product, though it will still need to continue to develop its own sales efforts with respect to that product as well; for details, see “Recent Developments: Carestream Agreement,” below.

Order Fulfillment

The Company currently does not have significant capability with respect to sales and marketing functions. Because of that, the Company is pursuing a partnership relationship to help it acquire order fulfillment capabilities. It has been able to do so with respect to its Diamond Guard product; for details, see “Recent Developments: Carestream Agreement,” below. The Company does not currently have an order fulfillment partner in place with respect to its UniBoss product.

Recent Developments

Texas Instruments and UniPixel entered a binding memorandum of understanding to collaborate in developing an integrated touchscreen solution, which validates the technological basis of UniBoss.

UniPixel has recently found a partner to help develop manufacturing, sales and order fulfillment capabilities for Diamond Guard.

UniPixel was able to recruit a respected veteran of Samsung's display business to serve as its COO.

Texas Instruments Agreement

In February 2012, UniBoss announced that it had successfully entered into a binding memorandum of understanding to collaborate in developing an integrated touchscreen solution with Texas Instruments ("TI"). TI is one of the industry's leading touch controller chipset manufacturers, having supplied its controllers to Apple, among other leading device manufacturers. The goal of the agreement is for the two companies to jointly develop an integrated touch module, consisting of UniPixel's UniBoss touch sensor and TI's touch controllers. The parties are currently working towards developing a prototype. We expect that a working model should be ready by the start of May 2012.

The agreement with TI allows UniBoss to leverage TI's sales channel in its go-to-market strategy. If the parties are able to successfully develop an integrated touch sensor, we expect that TI will use its existing relationships with device OEMs to generate sales. This may be one path in which the Company acquires sales and marketing expertise.

In addition, as an industry leader we expect that TI has tested all of the ITO-alternative technologies in the marketplace. Therefore, the fact that TI chose to enter into this agreement with UniPixel represents a strong validation of the UniBoss technology.

The relationship with TI should also provide comfort to UniPixel's customers. Device OEM customers considering switching from ITO-based solutions know that their decision will incur switching costs, resulting from redesigning manufacturing lines, modifying product design and changing marketing materials, among other things. We believe these customers will be more likely to incur these costs knowing that a large, stable company such as TI is associated with the component they are purchasing.

Although the TI agreement is a promising sign for the Company in terms of proving that its management can execute and validating its technology, it is important to note that TI is under no obligation to sell the integrated touch module it develops with the Company. Even if TI does decide to sell a module with UniPixel touch sensors, it is under no obligation to make them to the exclusion of other sales with other touchscreen manufacturers. We do, however, note that none of the other small touch sensor players working on competing technologies has publicized a similar agreement with TI, which they would likely do in the interest of spurring investor and customer interest.

Carestream Agreement

In February 2012, the Company entered into an agreement with Carestream, a manufacturer of medical films with revenues over $2 billion. Under the agreement, Carestream will source, manufacture, and fulfill sales of UniPixel's Diamond Guard product. Proceeds from Diamond Guard sales are to be split by the parties: if Carestream sources the sale, UniPixel will receive 50% of the gross profits; if UniPixel sources the sale, UniPixel will receive 70% of the gross profits. UniPixel will receive 70% of the gross profits of certain pre-identified potential customers (which include many of the largest device OEMs) regardless of which party sources the sale.

Recent Developments

The Carestream agreement mitigates a number of concerns relating to the Diamond Guard product. First, it is an indication that Carestream sees value in the product and is willing to commit time and resources to its potential. Second, it removes the manufacturing risk from Diamond Guard, since Carestream is a world-class film manufacturing organization. Third, it means that UniPixel will not have to spend resources developing sourcing, logistics and order fulfillment capabilities, since Carestream will be handling that aspect of the sales of Diamond Guard.

We note, however, that sales of Diamond Guard will likely remain primarily UniPixel's responsibility. This is partially because UniPixel has reserved the most meaningful customers for itself, as noted above; in addition, we do not expect there to be a large overlap between the (primarily health-care focused) customers Carestream's sales agents currently serve, and those who would be interested in purchasing Diamond Guard.

Peter Shin

In September 2011, UniPixel named Peter Shin its COO. Mr. Shin had previously held numerous senior management positions at Samsung Electronics Co., including senior vice president of research and development and vice president in Samsung's LCD division.

We view Mr. Shin's interest in joining the UniPixel team as a key validation of the Company's technology, given his status and knowledge of the display industry.

Key Milestone Timeline

This milestone timeline represents the Company's expectation of when it will be able to execute certain key events in the sales cycle. There is a lag between the date when UniPixel achieves a design win and the date it starts earning revenues; during this period, the Company will be prototyping and testing for that contract. This timing also takes seasonality into account, slowing down device OEM production (and, correspondingly, UniPixel's revenue) over the last two months of the calendar year (See Figure 11).

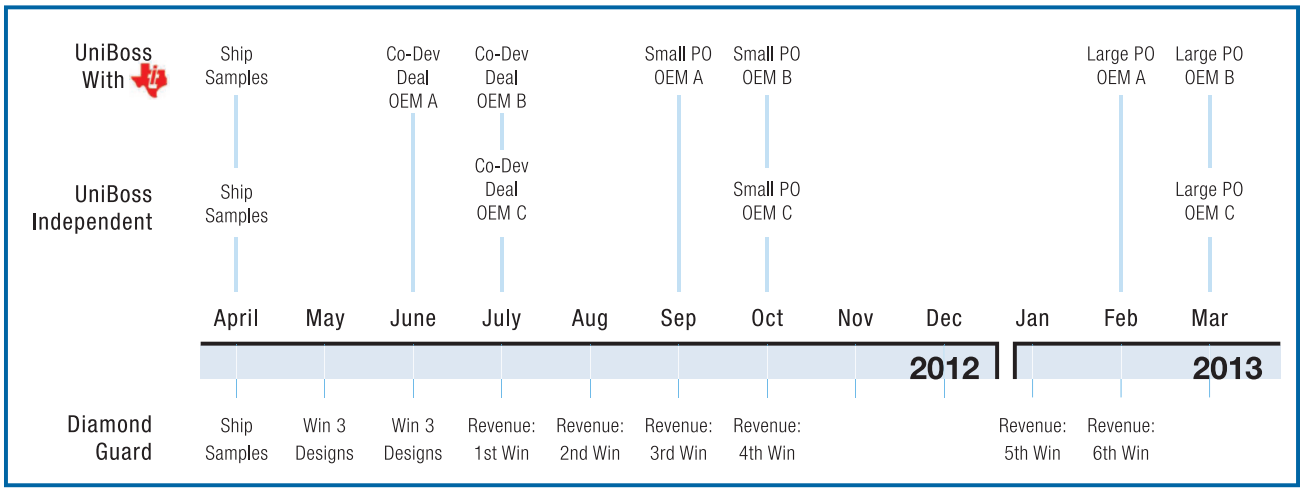

Figure 11: Projected Milestone Schedule

Financial Position

Diamond Guard and UniBoss have significant revenue and margin potential on the upside.

UniPixel has over one year of cash on hand at projected burn rates, though the Company may need additional financing to support rapid sales growth.

As we do not project significant EBITDA for the next 12 months, we believe the principal drivers of the stock price will come from announcements relating to design wins and other key milestones.

Though UniPixel generates some minor revenues, they are derived from non-recurring consulting projects. UniBoss and Diamond Guard do not currently generate revenues.

We believe the upside scenario for UniPixel would generate meaningful revenues and earnings along the medium term. In that scenario, the Company would achieve design wins along the timeline set forth in Figure 11, above. **Please note that this does not represent our independent projection, as it is based on the Company's own expectations of timing and probability of closing deals in their sales funnel. Investors should discount these scenarios in accordance with their own level of risk tolerance before making an investment decision.**

Revenue Potential

Diamond Guard

According to UniPixel guidance, each Diamond Guard sale would conservatively translate to one roll of Diamond Guard per month. A roll of Diamond Guard is approximately 13,000 square feet. Assuming that Diamond Guard can cover 13 phones per square foot, an order of that size would cover approximately 169,000 phones per month, or just over 2 million phones per year. At a sales price of $2.50 per square foot, a conservative estimate of one roll per month would translate to revenues of approximately $32,500 per month. If UniPixel is able to perform at these order levels, and as customers become more comfortable with Diamond Guard, order sizes should increase. The Company has provided guidance that it will achieve at least a 50% gross margin on Diamond Guard.

UniBoss

According to UniPixel guidance, each UniBoss design win would begin with a small order of approximately $10,000 to $25,000, followed by a pilot order in the range of $100,000 to $250,000. Due to the lead times involved in designing UniBoss into a new device, we do not currently expect UniBoss to move beyond the pilot phase with any large device OEM for the next 12 months. However, if customers ordered UniBoss at the same scale per design win as outlined in "Financial Position: Diamond Guard," above, each design win would ultimately translate to revenues of approximately $325,000 per month (since the Company intends to sell UniBoss for approximately ten times as much per square foot as Diamond Guard). Also, as above, if UniPixel is able to perform in this pilot phase, and as customers become more comfortable with UniBoss, order sizes should increase.

The Company has provided guidance that it will achieve at least a 50% gross margin on UniBoss.

Cash Position

According to its most recent 10-K filing, at 12/31/11, UniPixel had approximately $7.2 million in cash and cash equivalents on hand.

UniPixel's current burn rate is approximately $425,000 per month, based on its most recent 10-K. We anticipate that the Company will need to hire six more engineers during the next year as it ramps up production of UniBoss. We also estimate it will need to hire an additional ten sales professionals.

Financial Position

We estimate a fully loaded cost per engineer of approximately $15,000 per month, and a fully loaded cash cost per sales person (exclusive of commission) of approximately $10,000 per month. This would translate to a monthly burn rate of approximately $615,000 per month.

The Company has provided guidance that its capital expenditures for the next year should not exceed $200,000. We do note, however, that if its partners ask UniPixel to ramp up production quickly, the Company may need additional financing to support its growth.

Key Drivers of Stock Price

We do not consider it likely the Company will generate significant earnings within the next 12 months. Consequently, we believe the key drivers of the stock drivers will be in the form of several key announcements.

Design Wins

If the Company is able to announce design wins with major device OEMs, investors should reduce the risk premiums they are currently placing on the Company's revenue forecasts, which would have a material positive impact on the stock.

Additional Co-Development Agreements

If UniPixel is able to announce additional co-development agreements similar to the TI agreement with other touch controller developers (such as Cypress Semiconductor Inc.), investors should view that as additional validation of the Company's technology and reduce their technological risk premium accordingly.

Production, Sales or Fulfillment Deal for UniBoss

If the UniPixel is able to announce it has found a production or sales partner for UniBoss, that would tend to mitigate the risk that the Company will have to expend significant time and resources on developing those capabilities itself.

Revenue Targets

If UniPixel is able to generate revenues from Diamond Guard and UniBoss along the lines of the guidance outlined in "Key Milestone Timeline" above, that would tend to mitigate the risk the Company will need to raise additional capital to successfully commercialize its products.

Risk Factors

As a small company that does not yet have significant revenue, UniPixel has significant market, technology and management risks.

UniPixel has a market capitalization of approximately $40 million. The Company currently generates small, non-recurring consulting revenues; it is not generating earnings. We strongly recommend that investors evaluate their risk profile before deciding whether or not to invest in UniPixel.

Within that context, we believe the primary risks to investing in UniPixel are:

Strong Competition

The transparent conductor market is very competitive, with several players—some much larger than UniPixel—working to develop and enhance new technologies. Significant technological advances by a competitive technology platform pose a risk to the future profitability of UniBoss.

Although we believe UniPixel has a technological advantage over its competitors in the ITO replacement space, we also note that this technological advantage may not be enough to lead the Company to large profits. In particular, market timing may be a factor—if UniBoss is beaten to the market by a competitor product that offers many of the same benefits, the product may crowd UniBoss out of the market.

The two large players who dominate the cover lens replacement industry (Corning and Asahi Glass) can use significant market power and customer relationships to avoid ceding market share to a small, new entrant. To both of these large players, the cover glass business is a significant company priority, and neither is likely to surrender market share easily.

Development Risk

Though the UniBoss technology performs well on testing units, UniPixel has not yet integrated a UniBoss screen on a working mobile device. UniPixel is currently working on producing such a prototype with TI, as noted above.

Customer Acquisition

For most device OEMs, changing suppliers is a risky move, requiring changes to device design, assembly and perhaps marketing. Purchasers at these large companies may be reluctant to award a major contract to a company as small as UniPixel. UniPixel's recent deals with TI and Carestream mitigate this risk somewhat, however, by putting the face of a larger, more established company on UniPixel's technology.

Indium Supply

Part of the reason (though not all) that the touchscreen industry is searching for alternatives to ITO is the perception that global supplies of indium will not last long. However, estimates of global supply of ITO may be materially wrong. In addition, as the value of indium goes up, it is likely that profit-seekers will find new methods of mining it, boosting the supply. Either of these developments might loosen the global market for ITO, which would reduce device OEM incentive in seeking out alternative technologies.

Manufacturing Risk

Though we believe that UniPixel is capable of producing UniBoss masters at commercial scale, it may need to find a manufacturing partner to effectively emboss at scale. We believe it is unlikely that this manufacturing partner will be Carestream, since, as mentioned above, Carestream is currently producing

Risk Factors

a competitor product to UniBoss based on silver nanowire technology.

Financing Risk

Though the Company has adequate cash reserves to finance its operations for the immediate future, there is a possibility that, if it begins to grow rapidly, it will need to finance inventory build-ups and increased headcount with additional debt or equity financing.

Management Risk

The Company's management has demonstrated its strength in the development phase of this technology. Though we are confident this team will successfully transition to an effective sales organization (and have already hired sales and marketing executives from industry leaders to supplement their skill sets), any investor must take into account the risks of this transition.

Intellectual Property Risk

Most of the key patents in UniPixel's portfolio have not yet been granted. Though we have no specific reason to believe the patents in its existing application pipeline will not ultimately be granted, we view the patent portfolio as the most important driver of the Company's long-term value; thus, investors should note this risk.

Customer Risk

The target market for UniPixel's products is made up of large device OEMs that have the potential to place orders of significant size. Consequently, the gain or loss of a single customer might have a material impact on the Company's financial results.

Management Team

Reed Killion **President & CEO, Director**	• Chairman, Animal Innovations • Trustee & Director, Texas A&M Research Foundation • President, Transition Marketing • VP Business Development, LogiCom
Peter Shin **COO**	• SVP, Samsung Research Center • VP, Samsung LCD Display • Founder, Photonage, Inc. • Director of Engineering, Texas Instruments • Managing Director, Daewoo Telecom Limited
Jeff Tomz **CFO & Secretary**	• CFO, Isolagen, Inc. • Principal, Benchmark Equity Group, Inc. • Director, InfoHighway Communication Corp. • CPA, Arthur Andersen Worldwide
Dr. Robert Petcavich **CTO, Sr. VP & GM**	• Sr. VP & CTO, Lumera Corp • Chairman, CEO, and CTO of several advanced materials and medical informatics technology companies (Alife Medical Inc, Polytronix Inc, Planet Polymer Inc, Alphascribe Express Inc, Material Sciences Corp) • Texas Instruments
Dan Van Ostrand **Sr. VP, Engineering, R&D**	• Founder, UniPixel • Founder and CEO, two technology companies • Engineering manager at Jet Propulsion Laboratory, Teledyne, Magnavox, and Informatics
Larry Dodson **VP Strategic Marketing**	• OEM solutions, N-Trig • VP Operations, Touch International • Strategic Partners Corporate Development, HP • Supply Chain Operations, HP / Compaq • Advanced Technology Process Development, Compaq

Exhibits

UniPixel, Inc.: Historical Balance Sheet
UniPixel, Inc.: Historical Income Statement
UniPixel, Inc.: Historical Statement of Cash Flows

Uni-Pixel, Inc.: Historical Balance Sheet

($ in thousands)	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	3Q11	4Q11
Assets												
Cash & Near Cash Items	1,139	680	880	308	438	1,935	973	13,049	11,005	9,588	8,495	7,217
Accounts & Notes Receivable	-	-	-	-	21	17	53	78	59	0	-	5
Other Current Assets	3	162	399	424	451	271	131	-	224	-	-	-
Total Current Assets	1,142	842	1,278	732	910	2,223	1,157	13,127	11,288	9,588	8,495	7,221
Gross Fixed Assets	1,606	1,606	1,606	1,606	1,606	1,606	1,606	1,615	2,334	3,040	3,053	3,127
- Accumulated Depreciation	1,093	1,172	1,250	1,329	1,402	1,457	1,504	1,544	1,597	1,715	1,849	1,977
Net Fixed Assets	513	434	356	277	204	149	102	71	737	1,325	1,203	1,150
Other Long-Term Assets	216	212	207	168	164	-	-	17	17	17	17	17
Total Long-Term Assets	729	646	563	446	368	149	102	88	754	1,342	1,221	1,167
Total Assets	1,871	1,488	1,842	1,177	1,278	2,372	1,259	13,216	12,042	10,930	9,716	8,388
Liabilities & Shareholders' Equity												
Accounts Payable	835	793	968	928	918	810	784	342	168	65	144	88
Short-Term Borrowings	-	-	636	2,283	3,062	3,079	3,092	-	-	-	-	-
Other Short-Term Liabilities	516	616	690	95	146	208	270	86	86	-	-	-
Total Current Liabilities	1,351	1,409	2,294	3,306	4,125	4,097	4,146	427	254	65	144	88
Long-Term Borrowings	-	631	1,242	-	-	-	-	-	-	-	-	-
Other Long-Term Liabilities	-	3	4	-	-	-	-	-	-	-	-	-
Total Long-Term Liabilities	-	634	1,246	-	-	-	-	-	-	-	-	-
Total Liabilities	1,351	2,043	3,540	3,306	4,125	4,097	4,146	427	254	65	144	88
Share Capital & APIC	45,815	46,120	46,486	47,780	49,209	49,655	49,971	66,514	68,607	69,413	69,993	70,597
Retained Earnings & Other Equity	(45,295)	(46,674)	(48,184)	(49,909)	(52,056)	(51,380)	(52,858)	(53,726)	(56,819)	(58,548)	(60,421)	(62,296)
Total Equity	520	(555)	(1,698)	(2,128)	(2,847)	(1,725)	(2,887)	12,788	11,788	10,865	9,572	8,301
Total Liabilities & Equity	1,871	1,488	1,842	1,177	1,278	2,372	1,259	13,216	12,042	10,930	9,716	8,388

UniPixel, Inc: Historical Income Statement

($ in thousands, except per share data)	1Q09A	2Q09A	3Q09A	4Q09A	FY09A	1Q10A	2Q10A	3Q10A	4Q10A	FY10A	1Q11A	2Q11A	3Q11A	4Q11A	FY11A
Total Revenue	-	-	-	-	-	63	39	37	104	**243**	52	138	1	5	**195**
Cost of revenues	-	-	-	-	-	10	-	1	10	21	8	36	0	2	**47**
Gross Profit	-	-	-	-	-	53	39	36	94	**222**	44	102	0	3	**148**
Selling, general and administrative	813	622	745	186	**2,366**	1,150	554	580	465	2,749	1,516	932	846	893	**4,187**
Research and development	1,010	748	694	314	**2,766**	851	640	720	340	2,551	1,624	902	1,030	987	**4,543**
Total Operating Expenses	1,823	1,370	1,439	500	**5,132**	2,001	1,194	1,300	805	**5,300**	3,140	1,834	1,876	1,880	**8,730**
Operating Income (Loss)	(1,823)	(1,370)	(1,439)	(500)	**(5,132)**	(1,948)	(1,155)	(1,264)	(711)	**(5,078)**	(3,096)	(1,732)	(1,876)	(1,877)	**(8,581)**
Operating Income (Loss) (Pro forma)															
Gain on sale of IP	-	-	-	-	-	-	2,089	-	-	2,089	-	-	-	-	-
Debt issuance expense	-	(6)	(48)	(111)	**(165)**	(143)	(179)	(140)	(93)	(555)	-	-	-	-	-
Interest income (expense), net	4	(3)	(23)	(54)	**(76)**	(66)	(78)	(75)	(56)	(275)	4	4	3	2	**12**
Income (Loss) before income taxes (GAAP)	(1,819)	(1,379)	(1,510)	(665)	**(5,373)**	(2,157)	677	(1,479)	(859)	**(3,818)**	(3,092)	(1,729)	(1,873)	(1,875)	**(8,569)**
Provision for (benefit from) income taxes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Income (Loss)	(1,819)	(1,379)	(1,510)	(665)	**(5,373)**	(2,157)	677	(1,479)	(859)	**(3,818)**	(3,092)	(1,729)	(1,873)	(1,875)	**(8,569)**
Net Income (Loss) (Pro forma)															
Preferred stock dividends and amortization of discount	*(1,182)*	*(1,191)*	*(1,196)*	*(1,060)*	***(4,629)***	-	-	-	-	-	-	-	-	-	-
Net Profit (Loss) (GAAP) attributable to common shareholders	(3,001)	(2,570)	(2,706)	(1,725)	**(10,002)**	(2,157)	677	(1,479)	(859)	**(3,818)**	(3,092)	(1,729)	(1,873)	(1,875)	**(8,569)**
Net Profit (Loss) (PF) attributable to common shareholders															
EPS diluted	($1.50)	($1.28)	($1.35)	($0.86)	**($4.99)**	($0.59)	$0.19	($0.41)	($0.24)	**($1.05)**	($0.43)	($0.24)	($0.26)	($0.26)	**($1.20)**
EPS diluted (Pro forma)															
Weighted Average Shares fully diluted	2,006	2,006	2,006	2,006	**2,006**	3,628	3,628	3,628	3,628	3,628	7,132	7,137	7,142	7,142	**7,138**

Uni-Pixel, Inc.: Historical Statement of Cash Flows

($ in thousands, except per share data)	1Q09	2Q09	3Q09	4Q09	FY09	1Q10	2Q10	3Q10	4Q10	FY10	1Q11	2Q11	3Q11	4Q11	FY11
Cash From Operating Activities															
Net Income	(664)	(1,379)	(1,510)	(664)	**(4,217)**	(2,147)	676	(1,479)	(868)	**(3,818)**	(3,092)	(1,729)	(1,873)	(1,875)	**(8,569)**
Depreciation & Amortization	(1,510)	83	83	83	**(1,262)**	78	58	47	40	**222**	53	119	134	128	**433**
Other Non-Cash Adjustments	(1,379)	292	177	314	**(596)**	1,514	(1,445)	469	383	**921**	2,092	767	580	604	**4,043**
Changes in Non-Cash Capital	(1,820)	(104)	415	(640)	**(2,148)**	20	(42)	0	(682)	**(704)**	(379)	60	79	(61)	**(300)**
Cash From Operations	(897)	(1,108)	(835)	(907)	**(3,747)**	(536)	(753)	(962)	(1,128)	**(3,379)**	(1,326)	(784)	(1,080)	(1,204)	**(4,394)**
Cash From Investing Activities															
Disposal of Fixed Assets	-	-	-	-	**-**	-	2,250	-	-	**2,250**	-	-	-	-	**-**
Capital Expenditures	-	-	-	-	**-**	-	-	-	(9)	**(9)**	(719)	(706)	(13)	(74)	**(1,512)**
Cash From Investing Activities	-	-	-	-	**-**	-	2,250	-	(9)	**2,241**	(719)	(706)	(13)	(74)	**(1,512)**
Cash from Financing Activities															
Change in Short-Term Borrowings	-	650	(650)	335	**335**	775	-	-	-	**775**	-	-	-	-	**-**
Increase in Long-Term Borrowings	-	-	1,925	-	**1,925**	-	-	-	-	**-**	-	-	-	-	**-**
Increase in Capital Stocks	-	-	-	-	**-**	-	-	-	15,275	**15,275**	-	73	-	-	**73**
Other Financing Activities	-	-	(240)	-	**(240)**	(109)	-	-	(2,062)	**(2,171)**	-	-	-	-	**-**
Cash from Financing Activities	-	650	1,035	335	**2,020**	666	-	-	13,213	**13,879**	-	73	-	-	**73**
Net Changes in Cash	(897)	(458)	199	(572)	**(1,728)**	130	1,497	(962)	12,077	**12,742**	(2,045)	(1,417)	(1,093)	(1,278)	(5,833)

Disclosures

Analyst Certification

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