Google Inc. *Google Logo*. Digital image. *Google*. N.p., 19 Sept. 2013. Web. 17 Feb. 2014.

Should Google Inc. continue marketing Google Glass (in light of the negative product reviews generated)?

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Introduction

Google - the market leader in search, is currently testing an innovative product called “Google Glass” (henceforth “Glass”). Glass is a “wearable computer” capable of making phone calls, accessing the internet etc. (See figures 1 and 2).

Fig. 1. *The Google Glass*; Stuart Houghton; "Google Glass: Release Date, News and Features"; *TechRadar*; 7 Nov. 2013; Web; 27 Feb. 2014.

Fig. 2. *Models wearing Google Glass*; Suresh Krishna; "New Product Development: Lessons Learned from Google Glass."; *All Things Technology, Leadership and Life*; 26 May 2013; Web. 27 Feb. 2014.

Despite the fact Glass is stated for a late 2014 release (Minyanville), Google already began marketing the product since 2013 in order to stir public awareness and response. Furthermore, Google currently restricts the sale of glass to beta testers[1], called “Glass explorers”, for gaining product feedback and generating free publicity through social media (Simonite).

Despite the marketing hype, many predicted that Glass would fail as few would want to wear such a dorky-looking product and because Glass can easily violate privacy with its front camera. In light of such bad press, this commentary evaluates wether Google should continue marketing Glass for 2014 or delay the product till people find the concept of wearing Glass more socially acceptable.

[1] This is because Glass is currently undergoing the test marketing stage in the product development cycle.

Findings

The findings from the supporting documents are stated below, they're used in analyses that follow:

- The use of Glass is restricted as it's an innovative product; The product faces many technological limitations like low battery life, bad user interface etc. (Dickey). Glass also lacks many popular applications like Facebook on the device [2] and a USP (Dickey).

- While Glass is currently sold at $1500 [3]. Google can also sell Glass at near production cost ($210 / unit) due to good relationship with suppliers and corporate clout. This price parallels the price of a smartphone.[4] (Minyanville)

- If successful, Glass can expand the "wearable technology" market to $6 billion by 2016.[5] (Minyanville)

- The price of Glass is detrimental to the product's success in 3 supporting documents, market research reveals that few would buy Glass at above $500 (whereas many would at $200)[6] (Minyanville) However, document 5 believes Google will sell Glass at exuberant prices to correlate with their marketing strategy.[7] (Couts)

- In order to succeed, Glass needs to "conquer the cool crowd" of people, using influence to gain market share [8] (Simonite). Document 5 states Google plans to market Glass as a fashionable, luxurious product through high prices and above-the-line promotion, building a sense of exclusivity to make the product desirable.[9] (Couts).
- The public expectation from Glass may be too high[10] (Dickey).

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[2] Supporting Document 1 p.10

[3] This is a form of Google's price skimming strategy.

[4] Supporting Document 3 p.13 - 17

[5] Supporting Document 3 p.13

[6] Supporting Document 3 p.14, Document 5. p.20, Supporting Document 1 p.10 ,

[7] Document 5 p. 20 -21

[8] Document 4 p.18

[9] Supporting Document 5 p. 20 - 21

[10] Supporting Document 1 p.10

- Supporting document 2 asserts that products usually outgrow their social taboos as time passes, citing headphones. If so, Glass will soon have a large impact on the way humans interact with technology, this will require redefinition of social boundaries[11] (Nurun).

- Affected stakeholders have formed pressure groups in response to Glass "adulterating the way people interact", hence the design of Glass must consider the sense of users' privacy as individuals and social beings in order to achieve to social acceptance. [12] (Nurun)

- The financial impact of Google Glass on the company's cash flow is negligible, Google earns $29.7 billion in gross profit per year [13] (Minyanville).

[11] Supporting Document 2 p.11

[12] Supporting Document 2 p.12

[13] Supporting Document 3 p.16

Analysis

SWOT and PEST Analysis of Google. Inc and Glass

Strengths	Weaknesses
• Glass is an innovative type of product. • Using Glass, Google can diversify its product offerings. • Google is a brand leader in Search. • Google has strong cash flow • Multiple economies of scale	• Glass faces many technological limitations • Glass is expensive and seems dorky. • Google lacks experience selling hardware. • Google has a bad brand image in terms of privacy (Cohen). • Glass is product oriented. • Glass can invade privacy. • Lacks 3rd party applications. • Google has introduced many failed products before.

I first evaluate the internal factors of marketing Google Glass. The advantage of developing Glass is that it allows for product diversification. Because Google only markets free services like Gmail, Glass would be Google's first tangible product. Since the wearables market is still in its infancy, launching Glass early could help Google quickly become the market leader and turn Glass into a "star" product as the market grows[14]. However, even if Google uses all its internal strengths to support Glass, the product could still fail: Firstly, many wouldn't trust Glass because Google has been known to track its customer's private data (Cohen), resulting in lack of consumer trust in the product. Secondly, third party developers like Facebook are unlikely to develop for Glass due to the capital investment required[15] and lack of confidence in the product; Glass is more likely to fail due to its product oriented nature and the general lack of market research about wearable computers. Finally there is little chance Glass will appeal to a wide market due to price, since market research reveals consumers are likely to buy Glass at $200 (Minyanville)[16], Google has small profit margins to operate on, if the company were to charge a premium for Glass, it would lose many potential customers, leading to the idea that Glass appeals to a niche market[17].

[14] According to the Boston Matrix, used data from supporting document 3

[15] Supporting document 1 analysis regarding product development

[16] Supporting document 3 analysis

[17] Supporting document 3 and supporting document 5 analysis; regarding creating product exclusivity.

SWOT Opportunities and Threats

Political	**Economical**
• Violation of privacy laws.	• Fast "wearables" market growth. • Consumer demand is highly dependent on price. • Market growth of $6 billion by 2016, selling 9.4 million units (Minyanville).
Social	**Technological**
• Increasing pressure group activity • Possible negative responses. • Public expectation of Glass may be too unrealistic. • Shift in consumer perceptions over time. • Possibly marketing Glass as fashion.	• Competition with smartphones in terms of price and functionality. • Numerous limitations regarding wearable technology. • 3rd parties unlikely to develop for Glass. • Growing number of technologically savvy customers.

We can use a PEST diagram to deduce the SWOT **Opportunities and Threats** Google faces if it markets Glass. We can clearly see that majority of the issues arise from a social and technological perspective. The external social environment has the biggest influence over Glass's success due to the shift in consumer perceptions[18]: consumers are more likely to wear glass if it's perceived positively, hence Google's marketing strategy. Google's marketing plan to portray Glass as a form of fashion is risky because it uses above-the-line promotion (i.e using Glass in a fashion show[19]) and requires large marketing budget yet cannot guarantee shift in consumer perception, meaning Google could lose money[20]. Furthermore, if too much hype is created, then the user's perception of Glass becomes more unrealistic [21], only leading to disappointment and damage to the company image when the actual product is released. Finally, from a technological standpoint, PEST shows another reason not to buy Glass is due to close competition from the smartphone market. Contemporary smartphones cost the same as Glass yet contain more applications and features (sans the social dilemma). rendering the concept of Glass obsolete.

[18] As stated in supporting document 5

[19] See figure 1 again.

[20] As Glass will likely be unable to amortize (break-even) the costs incurred when released.

[21] Think flying cars, we always thought we could develop them by 1980's then the 2000's.

Force field Evaluation

To reach the final conclusion, I used force field analysis to weigh each decision.

FOR change	Score	Change Proposal	Score	AGAINST Change
Competition from Smartphones	5	**Google Inc. stops marketing Google Glass**		
Lack of 3rd party support	4		5	Strong financial position
Privacy concerns	4		5	Potential Opportunity Cost
Consumer reaction	3		4	"Wearables" Market Growth
Technological limitations	2		4	Revolutionize human technological interaction
Price	1		3	Potential product diversification
Pressure groups	1			
FOR change	**20**	**Total**	**21**	AGAINST Change

Despite the fact there are more driving forces towards stopping the marketing of Glass, the restraining forces are significantly more powerful, resulting in the decision to continue marketing Google Glass. The evidence for such is provided in the conclusion.

Conclusion

The force field helps us arrive at the conclusion that Google should continue marketing Google Glass for late 2014. This is because of many reasons. While the idea of consumer reception towards Glass had been given major significance throughout the commentary, we now clearly see that human perception is capable of adapting, as stated in supporting document 2: products usually outgrow their social taboos as time passes. So Google can be confident that Glass will become acceptable in long term. In the short-term however, Glass will have to face criticism and lack of support; If Google were to remove Glass right now, it would miss the opportunity to diversify its products from free services and would be unable to utilize the future growth of the "wearables" market. This would potentially result in loss of a "wearables" market leader position and definitely incur opportunity cost. Finally, despite the fact that smartphones could cannibalize the market for Glass, Google could leverage its strong financial situation and incur annual losses, as stated by supporting document 3 (Minyanville).Google could even fund developers to write applications for Glass. However, none of this would change consumer reception of Glass.

To convincingly market glass, I believe that Google should, most importantly, address the pressure groups about Glass's effect on privacy and practice using CSR (Corporate Social Responsibility)[22] to gain consumer trust. Because people will not be utterly convinced, Google can still form a partnership with Sunglasses companies[23] like Ray Bans to convincingly market Glass as a fashion item and lessen the aesthetic concerns. Over time, Google can more effectively use marketing strategies in different market segments to gain market share, eventually turning Google Glass into a mainstream product.

[22] Supporting document 3

[23] As this agrees with supporting document 5.

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Appendix

Supporting Document 1

Early Google Glass Adopter Says the product is 'doomed' in 2014 - Business Insider

Published: 31 Dec 2013 Author: Megan Rose Dickey

Tech pundit and early Google Glass adopter Robert Scoble thinks the search giant's Internet-connected Glasses won't be an instant hit.Google needs to get the price below $300 and make a lot of adjustments to its API, battery life, and design, Scoble writes on Google+.

"Price is gonna matter a LOT", he writes. "But I'm hearing they won't be able to get under $500 in 2014, so that means it's doomed. In 2014. When they get under $300 and have another revision or two? That's when the market really will show up. 2016, I say."

That prediction fits in line with Business Insider Intelligence's Google Glass forecast, which says the product will not become mainstream until 2016.

Here's a summary of why Scoble thinks Glass is doomed in 2014:

- People have too high of expectations for Glass.
- Glass in its current iteration is "too hard to buy and acquire."
- There aren't enough apps. For instance, it's still missing Uber and Foursquare, and it's still lacking support for Facebook.
- The UI itself simply can't handle a lot of apps.
- The battery doesn't work well for shooting video. Scoble says it only lasts 45 minutes for video.
- It's too hard to push images from Glass to your smartphone in real time.
- There's no "contextual filtering. When I'm standing on stage, why does Glass give me Tweets? Why can't it recognize that I'm at a conference at least and show me only tweets about that conference?," he writes.
- There's no easy way for developers to let Glass users test out their apps.

Even though it might be doomed in 2014, Scoble still loves his Google Glass.

"That all said, I'm still wearing mine," he writes. "See you next week in Las Vegas at the Consumer Electronics Show.

Supporting Document 2

Name: What are you looking at? How Google Glass will change public space (Again)

Published: 2nd Quarter 2013 Author: Nurun (Company) Date Accessed: 5th Feb 2014

We are just beginning to become accustomed to lone bystanders speaking out loud in public places without casting a suspicious eye upon them. Not long ago, Bluetooth earpieces, wirelessly connected to mobile devices, were an oddity treated with ridicule. Attached as some have become to using them everywhere, the technology's contribution goes much further than its most obvious purpose, facilitating handsfree conversations. In a matter of a few short years, connected earbuds have literally transformed the way we think and listen in public spaces.

With Google Glass, a similar revolution is about to take hold in the field of vision. As the last few months have revealed the initiative to the world, the breakthrough device popping up here and there in North America, Glass promises to transform the way we think about sight and visual interaction. The connected frames could forever alter what we see, how we see, where we see—and all that on a massive scale.

Why Would You?

As new as Google Glass may feel, computerized eyewear has been around for some time. A professor of electrical and computer engineering at the University of Toronto, Steve Mann has been playing around with such devices for 35 years. While the popular device is about to hit the market surrounded by massive hype and techno-geekism, Mann reminds us that the primary objective behind such inventions is to enhance our vision, making some things more discernible and more memorable than they would be without it. This notion of augmented and mediated reality is already present in most smartphones. In that regard, Google Glass is nothing but the ultimate combination of mobility and accessory. From the user's perspective, Mann says, this combination promises better intermediated experiences. "After you've used such eyewear," he writes in IEEE Spectrum, "you don't want to give up all it offers."

The vision-enhancing devices worn by Mann are the product of his own genius. Relying on sophisticated algorithms, his prototypes can create synthetic images, reduce or extend perceived wavelengths. With them, Mann experiments with night vision, automatic recording and filtering that truly strengthen his senses. With that in mind, one may ask, what exactly does the Google Glass promise entail?

Co-founder and editor-in-chief of news network The Verge, Joshua Topolsky recently visited Google's New York City headquarters where he was given the opportunity to learn about—and to try firsthand—the features of the latest edition of Google's innovative Glasses. In a lengthy piece devoted to what he calls "the bizarre device," Topolsky takes the perspective of would-be users, and tries to answer one simple question: "Why would anyone want to wear this thing in public?" In asking this question, the journalist ties the potential success of the device's undeniable technological advantages with the issue of its social acceptance.

The Social Side of Visual Enhancement

Though Topolsky concludes his article by admitting to his own desire to jump on the Glass bandwagon, he makes a few valid points regarding the necessary contextualization of the device. Wearing the device to dinner parties, dates and movies, he writes, may adulterate the way we interact, in mostly undesirable ways. By opening the door to innumerable potential abuses and misuses, Glass runs the risk of facing opposition much beyond any other technological artifact of our times.

Looking at Glass from an anthropological point of view raises several questions. Are there general rules of usage etiquette? Do we have the right to film someone without their knowledge? To gather information about someone without their consent? Can we ask someone to remove their Glasses? Or, alternately, must we ask permission to put them on? Will the split between for and against be largely generational? Or along social class lines?

The true issue here is the acceleration of new technologies. In essence, technological innovation denotes progress. But the divide that stems from Glass shows that our culture has increasing trouble understanding and digesting this progress to give it collective meaning. The ensuing debate could be a much more profound societal debate than just a dispute over Google's latest gadget. It will lead each person to choose the vision of society in which he/she wishes to live.

Already in the news, the owner of Seattle's The 5 Point Café, Dave Meinert, has received significant media coverage after declaring that the device was banned "in advance" of its release, adding that "ass kickings will be encouraged for violators." Answering Forbes magazine's request for comments, Google's spokesperson reportedly said: "We expect that, as with other new technologies such as cell phones, behaviors and social norms will develop over time." Some even go as far as suggesting that early adopters of the beta version of Glass—all of whom participated in the online Twitter contest structured around the #ifihadGlass hashtag—had their imagination hacked, partly, to the benefit of Google's meta social narrative.

While social media sits at the core of the engineering orientations and marketing development of many new technological devices, such strategies directly question the interrelation between identity and public space. On the one hand, vision-enhancing devices will allow us to look around while we drift through email, freeing hands and eyes from the self-induced reflex to constantly look down at our mobile screens. This, we can agree, is a good thing. But each one of us—and without a doubt other spaces like The 5 Point Café—will need to contribute to the collective redefinition of our idea of living together.

Bad Mouths and Social Conventions

As with many breakthrough inventions of the last decade, the changes induced by technological artifacts go beyond individual users, falling into the social sphere. This evolution of social norms involves a series of iterations that mimic product life cycles. The new behavior is first introduced at the periphery and then gradually gets normalized through mass adoption. In the alternative, users reject the behavior, and the product becomes irrelevant. In this vein, reporter Hamish McKenzie compares Glass with the Segway, recognizing that devices like Glass need to conquer "the cool crowd" in order to avoid the fate of the motorized stand-up scooter.

Either way, what is at stake is the social acceptability of the device. As with any new technology, early adopters will undoubtedly be perceived, as a recent Mindset Media and Nielsen Online study showed, to be "conceited" and "arrogant." These traits may work both ways, in that those of us who fit Nielsen's profile are also deemed to possess higher levels of leadership and assertiveness, qualities generally positively linked to success in the workplace.

But in the eyes of critics like Adrian Chen, early adopters—those "who demand that all social interaction happen on their terms"—are nothing short of "assholes." Building on the work of The Atlantic's senior editor Ta-Nehisi Coates, Chen goes on to explain why such a depreciative quality is a natural part of innovation in social norms. First, early adopters demand new terms for social interactions: their own. "Now that everyone uses cell phones," he writes, "we retroactively imagine that they were trailblazers." His point is: back when cell phones first appeared, they weren't quite perceived that way.

Beyond name-calling, Chen suggests social questions when we consider the usefulness and purposefulness of new technology. What rules, what etiquettes will spring from the gradual acceptance of the latest vision-enhancement technology? Difficult to say, but clearly the inventors and promoters of these technologies cannot focus solely on the features. The design of these innovations must also integrate a deep consideration of users, both in terms of their individual needs, but also in the face of how they contribute to redefining society at large, and social space specifically.

Supporting Document 3

Breaking Google Glass into pieces: The costs of production and likely retail price

Author: Minyanville, NASDAQ. Published: 23rd August 2013. Accessed: Jan 27th 2014

Google Glass (GOOG), the much-hyped augmented reality device, looks like the most promising foray into the wearable tech market by a major company thus far. **IHS iSuppli** (IHS) forecasts that the smart Glass market will hit the $6 billion mark by 2016, with up to 9.4 million units sold by then.

First announced in spring 2012 , Google Glass is now in use by a limited group of Google employees, developers, and about 10,000 early adopters (known as "Explorers") who were chosen by Google.

It costs to belong to that last category; as an Explorer, you have to pay $1,500 for the device and you cannot resell it. In fact, it's cost that might be one of the decisive factors to make or break Glass's market prospects. As the popular technology blogger and Glass Explorer Robert Scoble puts it , "The success of this [device] totally depends on price."

In public talks, he has asked audiences about their willingness to purchase a Glass headset, and found that most people were reluctant to buy the device at $500. But, he says, when he asked crowds about whether they'd purchase Glass at $200, "literally every hand went up."

"This was consistent, whether talking with students, or more mainstream, older audiences," Scoble said.

So how much will Glass cost? And what does it cost Google to make one?

We asked experts and we did some math ourselves. Based on the components used, it should cost less than $210 to produce one device.

The retail price will therefore all depend on what margin strategy Google will choose to use. So far, a Topology Research Institute analyst predicted that the device would carry an initial price tag of $299.

A Question of Price -- and Timing

Google has promised to expand the number of Glass Explorers this year, and the company has said that it will offer "even broader availability next year," which means that regular customers in the US will have to wait until 2014 to buy the device at a retail outlet. (There has been no news about when Glass will be available internationally.)

Google chairman Eric Schmidt delivered a slightly more specific message about the timing of a retail launch earlier this year. "Thousands of these [devices] will be in use by developers over the next months and then, based on their feedback, we'll make some product changes, and it's probably a year-ish away," he said in an April interview with the BBC .

By the time Glass makes it into the mass market, the price is expected to drop.

But Google has yet to provide any hints about the price tag for Glass. In 2012, Google employees were quoted as saying that Glass would be sold at roughly the price of a contemporary smartphone. However, the company did not respond to Minyanville's multiple requests for comment.

How do tech firms set a product price? Aside from taking into account the most obvious factors, like components used and margins imposed, the price of the product usually reflects the scale of production, special discounts (or lack of thereof), shipping, and customs fees as well.

And let's not forget about contractors' margins, too.

Google is reportedly outsourcing Glass production to Taiwan-based **Foxconn Technology** (TPE:2354), although speculation could not be confirmed. A Foxconn representative said in an email that Foxconn was not commenting on any existing or potential customers and their products.

Another possible production partner for Google is Shenzen, China-based PCH International , a third-party supplier of product development and production services, which also has offices in Ireland, South Korea, Japan, and Hong Kong. Last October, PCH International opened a new US location in San Francisco, just 35 miles away from the Google Campus in Mountain View. PCH International declined to comment on any possible relationship with Google, quoting internal policies that ban discussion of any individual companies or clients.

Then again, Google might look no further than its new hardware subsidiary, Motorola Mobility, to handle Glass manufacturing -- but perhaps not anytime soon. Motorola Mobility CEO Dennis Woodside told the Wall Street Journal that "it could someday be an opportunity."

Electronic manufacturing services (EMS) -- the companies that design, manufacture, and deliver devices to big brands like **Apple** (AAPL) -- are known to operate on relatively thin margins , reportedly around 1.5%, or $8 per iphone 5 (1.2%).

Kevin Keller, a senior principal analyst for IHS iSuppli , told Minyanville that the EMS margins generally don't exceed 5%, but may be significantly lower in some cases.

"I'd say that 1.5% is very low. Maybe someone like Apple may be able to negotiate for something like that with Foxconn, but on average, it's usually around 3% to 5%," he said.

Tearing Down Google Glass

Let's go down to the component level and try to estimate the production costs of Google Glass. A teardown of the device by some techies at Catwig uncovered all of its guts, making it relatively easy to explore all the components used in detail.

Minyanville asked some experts to help us estimate the production costs for Google, based on openly available information. Sergey Kovalev, head of production support at electronics design house Promwad , said that according to his engineering team's estimations, the cost of Google Glass materials should not exceed $194 per unit when produced in 10,000-unit batches.

That estimate matches at least two other expert valuations. Keller told Minyanville that he expected the bill of materials (BOM) for Google Glass to be "well under $200," and Scoble said the same thing .

Build Quality

A cut-and-dried list of components is one thing, but to estimate a device's worth, it's also necessary to consider how well the parts come together.

Looking at Glass, Star Simpson and Scott Torborg of Catwig.com write , "The build quality is what you'd expect from a device that costs as much as a high-end laptop. Everything fits together precisely, and has a solid feel and great surface finish."

Kovalev agrees. "I cannot say that the device design is simple, and that is based solely on commonplace components," he tells us. "It took a lot of work to design it."

Keller adds that none of the Glass building blocks can truly be called "off-the-shelf" parts: "Everything is customized to some degree, even if it's a semi-customized variation of what might be considered a standard product."

At the core of Google Glass is **Texas Instruments'** (TXN) OMAP 4430 processor. It was released in 2011 to power a wide range of tablets and smartphones, including the **Samsung**

(OTCMKTS:SSNLF) Galaxy Tab 2, the Motorola Droid RAZR, and **Amazon's** (AMZN) Kindle Fire.

However, at about $15 per piece, it's not nearly the most expensive component. **SanDisk's** (SNDK) 16 GB Flash module and **Elpida's** (TYO:6665) 1 GB RAM module together sell for about $29, while other smaller elements might total up to $35.

Compared to smartphones -- where the screen might be the most expensive component, representing roughly 20% to 25% of total cost of materials -- the advanced optical system in Glass is not a massively expensive product; it is about $25 (13% of total costs), according to Karl Guttag , a technology consultant and inventor, who has been closely following the development of display technology in the Glass project.

"The Himax FSC LCOS [Field Sequential Color, Liquid Crystal on Silicon] requires both a display device and normally a 1-chip ASIC controller.... Figure the controller costs about $2 to $3, but this would go to near zero if the functionality was integrated into other chips in the system," he tells Minyanville.

"The LEDs for illumination are about $2, and then the films for homogenizing/spreading the LED light and polarizing with packaging are another $2 to $3. I would guess the optics, including the beam splitter in front of the eye, are on the order of $5. When you total up the display plus controller, illumination LEDs and films, and the optics, the total cost is probably about $25, plus or minus $5."

The figure might be even lower for Google. In July, the company bought a 6.3% stake in Himax Display, a subsidiary of **Himax Technologies, Inc.** (HIMX). Google might exercise the option to increase its stake to a total of 14.8% within the next year.

Checking off other items on the list, we'd estimate that the bone conduction speaker and the whole audio subsystem combined are under $12, which is roughly the same price as the camera module ($11), the printed circuit board ($12.3), the wireless module ($12.05), or the case with frame ($11).

Add a bunch of sensors ($23.38), a small and cheap battery ($0.7), and box contents ($7), and you'll get to a bottom line of $193.59 for parts. Throw in $15 more for assembly, testing, packaging, and other related costs to make it $208.59 in total.

Clout and Scale

Of course, these numbers in reality are likely to be lower than the estimates above, thanks to Google's clout and its enormous purchasing power.

As in the Foxconn-Apple situation described above, suppliers and partners might go the extra mile to offer bigger discounts and drop a number of one-time manufacturing costs (like molding and tooling, or setting up printed circuit board production), hoping to amortize the costs on the future volume.

"With mechanicals, the biggest cost element that is volume- or quantity-dependent is the tooling costs -- for example, the injection-mold tools, or whatnot. For all the different plastic components in any given electronic device, [the price] could be on the order of the several million dollars, so that's amortized across the production volume," says Keller.

He doesn't expect drastic drops in manufacturing costs when the device goes into mass production. He tells Minyanville, "[Google has] already negotiated fairly favorable pricing to begin with," but as the components grow more and more mature, the price of raw materials might be reduced. "For some of the components -- like apps processors, memory, [and] optical sensors -- over the next couple of years, there might be on the order of 20% to 30% takedown on that."

Matter of Strategy

The price tag in a store does not necessarily have to reflect production costs; companies the size of Amazon, Google, or **Microsoft** (MSFT) can afford to sell devices at prices that are lower than production costs to quickly grow the installed base, and then the companies make money on exploiting the whole ecosystem.

Smartphone makers usually go for a 60% to 70% margin in their top-tier devices. The Samsung Galaxy 4's price tag includes an estimated 62% margin, and the Apple iPhone 5 is sold with a 68% margin.

Google is known to operate on fairly thin margins , and the price of its recent blockbuster release, the Chromecast , at $35, suggests that Google tends to stick to reasonable price points. (The $1,299 Pixel is the exception to the rule).

But even if Google decides to reap a smartphone-class reward on each Glass sold, the device should still cost no more than $599, and it'll likely be much less than that; $299 (for a 30% margin) or $399 (a 47% margin) might be the sweet spots for the company.

No matter the price, however, analysts are skeptical about the financial impact of the project in the near term.

"I don't know if it will even move the needle," Ivan Feinseth, chief investment officer at Tigress Financial Partners LLC, tells Minyanville.

That makes sense: According to IHS iSuppli's most optimistic scenario , there'll be just 2 million pairs of smart Glasses sold in 2015. Even if we consider that 100% of the market will be dominated by Google and the company opts for a relatively high 60% margin, 2 million sales would bring Google roughly around $600 million in gross profit. For a company that recognizes $29.7 billion in gross profit and $10.7 billion net income per year, a mere $600 million is not going to cause any serious impact.

"It's more of a kind of buzz-related item than actually a business needle-moving item," said Feinseth.

Want to Get "Glass" Now? You Can Get Pretty Close!

While the forthcoming sales of Glass might not mean much to Google's bottom line, it will mean a lot to the companies that are already producing Glass-like devices, including GoPro rugged cameras that start from $199.99.

Several other manufacturers also have products similar to Google Glass readily available or coming soon.

While the most advanced smart Glasses from **Vuzix M100** (CVE:VZX) are still not in stores, you can opt in for a Wrap 1200 video eyewear for a mere $499.99 .

The other option is a pair of Moverio BT-100 wearable Glasses from **Seiko Epson** (TYO:6724), priced at $699.99 , and running an Android-based OS.

How about smart devices in active wear? Check out Recon Jet , priced at $599 and due to hit the market in February 2014. Or you might choose a less advanced "live HUD" right now , for just $299. It stealthily integrates into Recon Ready alpine goggles.

If you're ok with having smart Glasses without a screen, check out Epiphany Eyewear Glasses , equipped with a high-quality camera and onboard storage, starting with $299 for an 8 GB model and arriving in late summer 2013, according to the company.

Indie products, such as GlassUp or PairAsight are options, too.

Whatever alternative you choose, keep in mind that competitors will have a hard time fighting Google Glass for market attention when the company switches on its marketing machine and begins promoting Glass, despite its cost or availability -- and even despite its flaws.

Supporting Document 4

Google Wants to Install a Computer on Your Face

Author: Tom Simonite Published: 4th March 2013 Date Accessed: 22nd Jan 2014

The search company is developing a computer in a pair of Glasses. But why would anyone wear them?

Google Glass, a compact computer fitted onto a pair of slim metal eyeGlass frames, is an impressive technical achievement. But can it be a business? Glass is the pet project of Google's cofounder Sergey Brin. The compact frames have a boom on one side that hides a camera, a battery, motion sensors, a wireless connection to reach the Internet, and other electronics. That boom also contains a small display, the light from which is directed into a person's eye by a thumb-size prism positioned just under his or her right eyebrow.
Google has shown off video and crisp photos captured by trapeze artists, skydivers, and supermodels wearing Glass prototypes like those it first unveiled in April 2012. Recently the company posted a show reel in which people used voice commands to order Glass to take images and send messages.

But just how this R&D project might become a popular product and a significant contributor to Google's bottom line remains fuzzy. Clearly, anyone who can reinvent the mobile computing experience has everything to gain. Apple proved that with its iPhone and tablets.

Yet for Google to turn Glass into a similar commercial coup, the company will have to negotiate challenges in fashion, design, and human relationships that lie outside its previous experience. Google, which says it plans to start selling Glass this year, declined to comment for this article. Making Glass affordable to consumers will be the easiest part. The device may look unique, but it will mostly be a remix of compact electronic components now standard in smartphones, and it should cost about as much as a smartphone to make.

"We put the average prices of smart Glasses, not just Google's, at $400," says Theo Ahadome, an analyst with IHS Insight, which strips down phones, tablets, and other devices to estimate their costs.

Persuading large numbers of people to put the device on their faces will be a far bigger challenge. Blake Kuwahara, an eyewear designer who has created Glasses for Carolina Herrera and other fashion houses, says Google will have to reinvent its product to succeed as fashion, not just a computer for your face.

To judge from Google's prototypes, "it's clear that this device was designed by industrial designers," says Kuwahara. "To make this something that someone will want to wear full time, there need to be adjustments to the aesthetics and styling—it reads as a device and not a pair of fashion eyewear."

It also remains unclear what Glass's killer app will be. Google has floated some ideas—people could use the technology to get directions while traveling, or to share video of experiences such as roller-coaster rides with friends in real time. Those videos make for great TV coverage of Google's prototype, but the value to most people is uncertain, since most everything you can do with Glass you can do with a smartphone, and probably more easily.

Perhaps recognizing the dilemma, Brin has openly sought help generating more ideas for how to use the product, and he's also taken digs at the competition. During the TED conference in late February, he called smartphones "emasculating" because their users are "hunched up, looking down, rubbing a featureless piece of Glass." By contrast, Glass would "free your eyes," he said (see "Sergey's Android-gynous Moment").

Last June, Brin appealed to software engineers attending Google's annual conference for outside developers, inviting them to pay $1,500 for prototypes to experiment with (these early "Explorer" models have yet to ship). After signing nondisclosure agreements, some developers attended closed-door meetings last month in San Francisco and New York to get their first experience with the technology.

Hardly any software programmers have experience developing for something like Google Glass, and doing it well will require throwing out some fundamental conventions of today's computers, says Mark Rolston, chief creative officer at Frog Design, a design firm that has worked with many consumer technology companies.
Today, people treat mobile computers like tool boxes, says Rolston, digging out individual tools—applications—to achieve particular tasks. "If you're wearing a computer, that application model needs to go away," he says. "Instead, it needs to be cued by the outside world so it feels like natural life, not interacting with a computer."

Google's limited demonstrations of Glass suggest that the company agrees. The Glasses do have a touch pad on the side for scrolling through menus, but in Google's demonstrations, users are shown calling out "Okay, Glass" and then saying a command such as "Take a picture." Google's Android mobile operating system for smartphones has also been shifting away from an app-centric approach. Google Now, a core feature of the latest version of Android, offers live arrival and departure times when a person goes near a transit stop (see "Google's Answer to Siri Thinks Ahead"), an approach well suited to Glass.

Those same techniques may also be suited to mixing in targeted ads, although the leader of the Glass project, Babak Parviz, said in January that he had no plans for ads to appear on the device. The least predictable part of Google's task is to make Glass as acceptable to people who aren't wearing it as it is to those who are. Looks aside, the way people wearing Glass behave will be crucial, says Rolston. For example, talking with or even paying attention to other people while information streams directly into your field of view could be challenging.

"We'll have to learn the social boundaries [of] ignoring someone when it looks like you're engaged," says Rolston. "Normal cues like taking out your phone will go away."

Supporting Document 5

How will Google make Glass cool? by keeping it out of your hands- Digital Trends

Author: Andrew Couts Published: 2nd November 2013 Date Accessed: 17th Feb 2014

Since Google Glass first debuted in April of last year, many have criticized Google for charging $1,500 for the wearable gadget – a price so high that, if it remains at that level for the public release next year, average consumers will be priced out. So, the theory goes, Google will have to cut the price of Glass down to something more affordable if it wants Glass to be a market success. That's what Google plans to do, right?

I doubt it – at least not anytime soon.

Google appears to be trying to make you think Glass is cool – despite the fact that the specs look, well, super dorky.

The Mountain View company's strategy for Glass thus far has been to make the augmented reality tech purposefully exclusive – a product by and for celebrities and elite members of the tech industry, not regular ol' people like you or me. In doing so, Google appears to be trying to make you think Glass is cool – despite the fact that the specs look, well, super dorky.

Slapping on a hefty price tag to manufacture a "cool" factor is nothing new or unique to Glass. Take the fashion industry, for example. Luxury brands like Louis Vuitton and others intentionally charge outrageous prices for their items to keep the riff raff from dirtying their brand image.

"When Gucci sells a plain white tee for hundreds of dollars, it is not because it is spun from gold but to make it exclusive to a certain group of people," says Cator Sparks, editor of Digital Trend's fashionable brother site, The Manual. "Same with a Tom Ford tie costing more than most. It's keeping it as a status symbol."

The car industry performs the same trick, says Nick Jaynes, Digital Trend's automotive section editor. For example, Cadillac's new ELR plug-in hybrid is priced at nearly $75,000 in an effort "to compete with the Tesla Model S," says Jaynes. And Kia's new luxury sedan, the K900, will put you as much as $70,000 in the hole – for a Kia. Are Cadillac and Kia as cool as Tesla, BMW, or Mercedes? Definitely not – but they want to make potential customers think they are by inflating the price of their products.

In addition to the cost of Glass itself, Google revealed this week that even Glass accessories will cost you and arm and a leg. Need to replace the Glass earbud? That'll be $50. Want a carrying pouch? That's 50 bucks. too. Or how about a clear eye shield? That's $75 – almost as much as an iphone 5C.

Of course, stratospheric pricing isn't the only way Google is boosting Glass' cool factor. When it launched in March, only hand-picked "influencers" would have the privilege of purchasing Glass. As of this week, Google has expanded the program to allow those who already own Glass to invite up to three friends into the Glass club. In other words, the Glass Explorer program is the very definition of manufactured exclusivity. Does this strategy allow Google to work out the kinks of Glass before a bigger launch? Yes -– but it also creates the sense that those who own Glass are special.

This marketing strategy is the exact opposite of the way Google has handled Android, which is to make the mobile operating system available to any company that wants it, for free. The result is a plethora of Android-powered devices, from high-end handsets like Nexus 5 to devices that carriers literally give away for free. There's nothing exclusive or special about Android, as a result. That hasn't stopped it from becoming the world's most popular mobile OS. But Google appears to be taking Glass in the complete opposite direction.

Google does, however, have a history of using manufactured scarcity to promote a product: Gmail, which was invite-only (a.k.a. in "beta mode") for ages. By requiring Web users to get an invite to Gmail from someone they knew, Google was able to make Gmail cool. (That's how it seemed to me, anyway.) It wasn't until eight years after its launch that Gmail became the Web's most popular email client – and it seems as though Google is taking a similar, long-view tact with Glass. (Google tried the same thing with Google Plus, briefly, but instead took that one the other direction – making everyone who uses Google's products have a G+ profile.)

If you're expecting to have access to a budget-friendly pair of Glass anytime soon, prepare to be sorely disappointed.

On top of Glass' price and the exclusive Explorer program, Google reportedly has plans to market Glass through a number of luxury showrooms, where upscale clients will have an opportunity to peruse Glass and other products created by the secretive Google X labs.

Guests will allegedly need to receive an invite to the showrooms, which are currently being constructed on barges in San Francisco and Portland, Maine. I say "allegedly" because Google has confirmed none of this, instead choosing to keep its showrooms a mystery, adding further mystic to the public's perception of Glass.

Eventually, of course, Google will make Glass available to everyone at a reasonable price – that's just common sense. And the product may be cool enough on its own to thrive without a $300 price tag. But if you're expecting to have access to a budget-friendly pair of Glass anytime soon, prepare to be sorely disappointed.