Running is a rapidly growing industry. With its rise, assistive technologies have been developed to meet the new demand (See Exhibit 1). New-age runners are continually looking for new ways to navigate. Navilux offers the solution. Navilux is a seamless running environment for technology-inclined, dedicated urban runners that provides nondisruptive haptic notification and navigation, liberating users from needing to carry and look at their phones.

Navilux represents a new way for runners to receive their directional notifications. The product has two parts that interconnect to create the running experience. The primary offering is a pair of inserts that attach adhesively to the underside of the tongue of one's running shoes. These inserts have haptic actuators, allowing them to communicate by vibrating on top of a user's foot. The inserts then connect wirelessly with a user's phone and link to our app, the second part of our offering. Through the app, a user can select from a variety of routes that have already been rated and appraised by the community based on the distance they want to run. Once selected, the route will be wirelessly transmitted to the inserts, after which a runner can, but does not need to, carry their cell phone while they run. En-route, if the inserts, based on GPS data, detect a need to turn left or right, they will vibrate the corresponding shoe. The shoes also feature other notification mediums, such as a double vibration. Customizable in the app, a user can select notifications for pacing or milestone achievements. Finally, after the run, the user can use the app to recommend and rate the route. This experience allows runners to seamlessly pick new routes, navigate on the streets, and connect with their larger community in our Navilux ecosystem.

Navilux represents a revolutionary product that can target a wide range of audiences. However, our product will exploit the market of technologically-inclined, dedicated urban runners with our distinct value proposition. Our market segment is composed of long-time, committed runners who enjoy trying out new technologies. They also prefer to run long distances, between 5 and 10 miles daily, and have trouble remembering exact routing information. The segment is also unfamiliar with their city because they just immigrated or have not explored certain areas. This being said, at our very start, Navilux will more specifically target runners who are training for long-distance competitions like marathons. These runners run without headphones and prefer to not carry their cell phones (See Exhibit 2). They run long routes with many inflection points and deplore disturbances and distractions. This is the specific niche that Navilux will capitalize on initially, before expanding to our larger market.

Within our specific niches, our clients will be interested in Navilux because of our unique value proposition that is tailored to their needs. For example, Navilux provides non-disruptive navigational direction to our users. This liberates them from continually checking their phones for directions and ensures they miss fewer turns, allowing them to focus on running and not fiddle with directional softwares (see Exhibit 3). Our target runners are able to easily select routes with recommendations from the Navilux community and connect with their own ratings and comments. Moreover, runners training for long distance competition value Navilux because it allows them to navigate in their city without relying on cumbersome smartphones. Since these consumers value the running experience and abhor disturbances, Navilux's non-intrusive directions provide a perfect solution. Finally, our product emancipates these athletes from needing to memorize long routes, lowering the difficulty of trying different and more interesting paths each day. Navilux allows our runners to train anywhere and everywhere, transposing our curated experience to any trail in their unexplored cities.

Navliux's unique segmentation and value proposition allow our company to differentiate ourselves from the competition. Our technology features a multitude of advantages and characteristics that will allow us to dominate the running market. For instance, a major form of competition are smart wearables, many of which provide similar en-route directional services. However, Navilux has a distinctive advantage over such devices because it mitigates the need for runners to look down at a screen at each turn and is available offline. Just as smart wearables represent competition, we will also compete with pre-existing running apps such as Strava. Navilux, however, is distinct from these apps due to the integration between hardware and software. In Strava, a user has to connect a third party device or carry their cell phone while they run, increasing friction and creating a burden. Navilux, however, allows runners to seamlessly choose a route and begin running, eliminating third party applications and creating a closed-source, distinctly curated experience. In this way, Navilux can differentiate itself, providing a niche opportunity to dominate our blue-ocean running accessory market.

Navilux's revenue stream is based off a specific niche of runners that will appreciate our product most. These runners permeate the United States and offer a huge market for us. The basis of our revenue, a pair of Navilux inserts will be sold for $49.99. With 86% of runners using smart devices [2] and a total population of 2 million dedicated runners [1], our company has the potential revenue of $85,982,900. However, as Navilux will launch in Philadelphia, our initial

growth projections are limited to the 30,000 avid marathon runners in Philadelphia[5]. These runners will extract the most value out of Navilux, as their long routes require navigation and they value running flow. Thus, Navliux could be predicted to make $1,499,700 in our initial Philadelphia market segment. This revenue stream is combined with income from our in-app ads. With a projected user rate of 70 million visits per year and an advertising cost of $.03 per 100 impressions, our app will initially generate an additional $15,000 in revenue (based off Strava[8] and Google[3] data). Therefore, our revenue stream is driven predominantly by our sale of inserts, with an additional supplement and potential for growth provided by in-app advertisements. These revenue streams are balanced with our incurred costs. Our largest cost will be the price of manufacturing, which we estimate at $15 per pair of inserts. This will net us a gross revenue of $1,049,700. Other costs include salaries, facilities, machinery, and loan interest.

The final cost that is incurred is the cost of advertising. For our initial market penetration, we have designed a specific marketing strategy to raise awareness of our product and call our users to buy. Our marketing strategy will begin with direct sales calls at Philadelphia races, where we can find avid runners who live in the city. We will work with the organizations and be present and the beginning and end of each race, talking with the runners and selling our product. Although expensive and time consuming, this process is vital to building our brand and will provide proof of concept for future consumers and investors. After converting our first 1000 units, we will negotiate to sell our inserts in small boutique running shops, such as Philadelphia Runner, which attract more dedicated runners. Simultaneously, we will continuously be selling over Internet channels: both our own website and Amazon.com. As our customer base grows, so too will our advertising revenue, allowing us to employ targeted advertisements with GoogleAds.

The running market is rapidly growing, and with it comes new customer interest in novel wearable technologies (See Exhibit 4). We can capitalize on these trends with a strong marketing strategy and a scalable business model, gaining monetized value for all as more users employ our app services and buy our inserts. New users create a closer, larger community, thus increasing rating accuracy and relevance. This creates a positive feedback loop that results in lower churn, lower CACs, and higher CLVs for users, who will stay on the app for longer and attract others with viral marketing. Thus, Navilux is poised and positioned for unprecedented growth.

Exhibit 1: Running industry growth from 2006 to 2017. From *Statista 2017.*

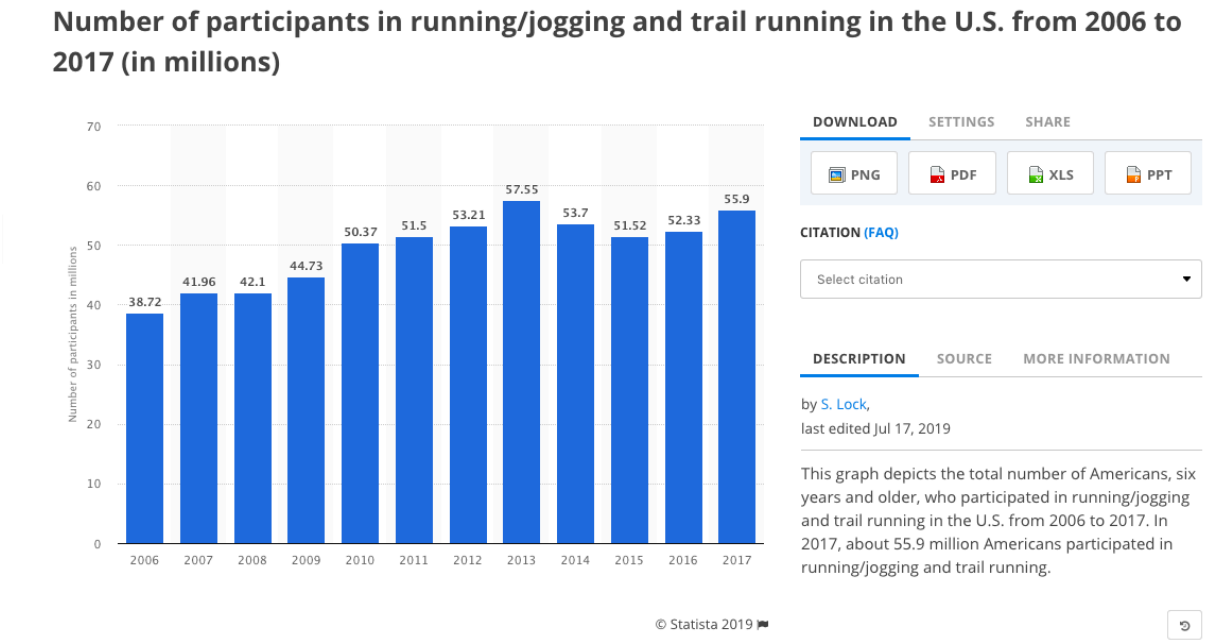

Exhibit 2: Excerpt from runtowin.com that describes the banning of audio equipment in marathons, which corresponds to runners using less headphones and smart phones while they train. From *Run To Win*.

The main reason that you'll never see elite runners wearing headphones is because the USATF bans any sort of electronic device that an athlete can use to communicate with somebody not on the course, such as their coach. There's no real way for them to know whether a device is capable of receiving, or is just some thing that can be used for playback.

The rule was changed slightly at the end of 2008 during the USATF Annual Meeting. Previously, no electronic devices (other than a predefined list of approved items such as wrist chronometers) were allowed, and in 2006 there was a big push to make sure iPods and other music players were banned at all USATF certified races.

Now, rule 144.3(b) specifically addresses the issue of iPods and other mp3 devices as it relates to all runners:

> "The visible possession or use by athletes of video, audio, or communications devices in the competition area. The Games Committee for an LDR event may allow the use of portable listening devices not capable of receiving communication; however, those competing in championships for awards, medals, or prize money may not use such devices."

Exhibit 3: Pie Chart from Navilux customer research. Shows reaction and annoyance of runners to disturbances from their phone notifications while they run. From *Navilux*.

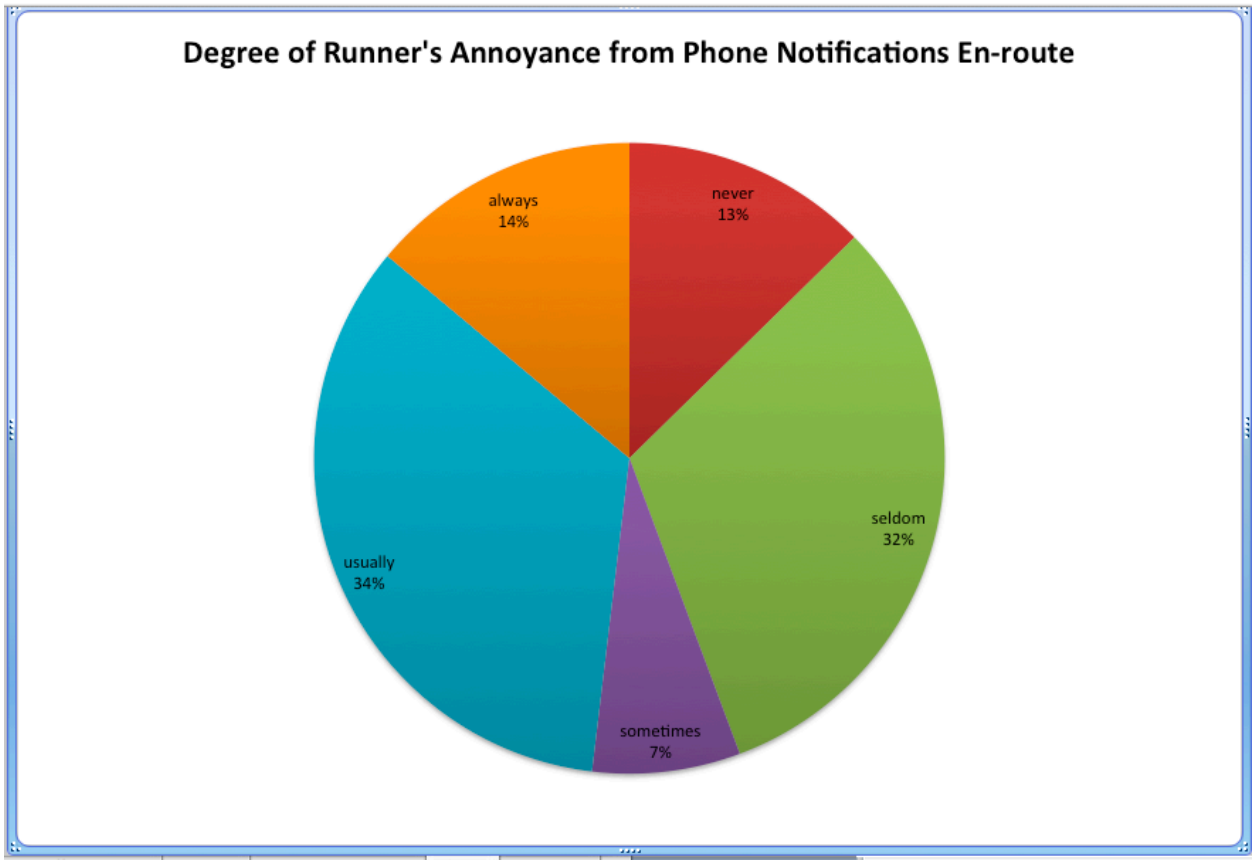
Degree of Runner's Annoyance from Phone Notifications En-route
always
14%
never
13%
seldom
32%
usually
34%
sometimes
7%

Exhibit 4: Excerpts from Accuracy and Adoption of Wearable Technology Used by Active Citizens: A Marathon Event Field Study. From *MIR MHealth and UHealth.*

"This study investigated several aspects of how citizens use smart technology for exercise activities. It was a follow-up study of previous research [1]. The primary study aim of the 2017 field study was to examine (a) reasons for use of wearable technology and (b) privacy concerns associated with the use of wearable technology. A secondary aim was (c) to study the current smart technology adoption within the running community in Germany and (d) to compare it with previous results from 2016…

Table 5

Devices (D) used by category in 2017 compared with 2016 (n=653 devices used by 845 runners). Values in brackets denote the relative proportion of each category. Note: some runners (4.2%, 36/845) used more than one device.

Category	2017 (N=881), n (%)
D_1–Smartphone and app	158 (24.2)
D_2–GPS[a]-equipped sports watch	392 (60.0)
D_3–Heart rate monitor	25 (3.8)
D_4–Smart watch	22 (3.4)
D_5–Wristband activity tracker	33 (5.1)
D_6–Other devices	23 (3.5)
No device	228 (27.0)

Open in a separate window

[a]GPS: Global Positioning System.

…With respect to the second aim of the study, the analysis of adoption rates of wearables showed that 3 out of 4 runners used tracking technology. This is in line with our findings from the previous edition of the Trollinger Marathon study (see [1]). Most runners preferred to use a GPS-enabled sports watch (D2: 60.0%), followed by mobile phones with apps (D1: 24.2%). Smart watches (D4: 3.4%) and wristband activity trackers (D5: 5.1%) were less frequently used even though their relative share increased slightly compared with 2016. Overall, 76.8% of these runners stated that they always trust the tracking data of their personal device."

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