It's Time To Reconsider Chromebooks

by J. P. Gownder, July 29, 2013

KEY TAKEAWAYS

The Challenges With Chromebooks Are Similar To Those Of Tablets

I&O professionals' challenges with evaluating and deploying Chromebooks are similar to the ones they have with tablets. They've got to determine how to deliver legacy applications to a new platform. They have to embrace a new computing architecture. And they have to segment their workforces to determine which workers will benefit from them.

I&O Pros Should Re-Evaluate Chromebooks Today

Given the potential benefits of Chromebooks -- their low cost, manageability, excellence at collaboration, and portability -- I&O departments should ignore the negative publicity and make their own assessments about how Chromebooks could fit into their hardware portfolios. Corporate Gmail usage is only a prerequisite for companies considering deploying Chromebooks to their employees, but customer-facing scenarios (like kiosks or shared workstations) don't require Gmail.

Segmenting The Workforce Is Key To Chromebook Deployment

I&O professionals should fully expect to lead any Chromebook initiatives at their companies. The first step in the journey involves leaving behind one-size-fits-all hardware strategies and determining which classes of workers would gain value from Chromebooks.

It's Time To Reconsider Chromebooks

For Some Enterprises, Chromebooks Fill A Legitimate Computing Niche

by J. P. Gownder
with Christopher Voce and Thayer Frechette

WHY READ THIS REPORT

There's been a lot of negative press recently about Google Chromebooks claiming that, two years into their market availability, they're failing. However, while Chromebooks clearly aren't for every organization, or even for every worker within a given organization, they can fill valuable niches for particular use cases. Infrastructure and operations (I&O) leaders should ignore the negative publicity and make their own assessments. This report lays out the preconditions of Chromebook adoption, describing the size, vertical industry, and software environment of companies that should consider evaluating Chromebooks. It also identifies several deal killers in which Chromebooks just aren't a good fit. I&O pros should use this report to help build an end user computing hardware portfolio strategy for the future.

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Notes & Resources

Forrester interviewed seven vendor and user companies, including Ahold, Appirio, Google, Kaplan, Logitech, Mollen Immunization Clinics, and Quality Distribution.

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TWO YEARS IN, CHROMEBOOKS STILL SUFFER FROM IMAGE PROBLEMS

If you're in I&O, you might not have given much thought to Google's Chromebooks recently. They debuted over two years ago, promising inexpensive hardware as a gateway to a powerful cloud-based computing architecture. But the publicity around Chromebooks hasn't always been positive. Several issues have cast doubt on the future of Chromebooks, including:

- **Low overall market share.** In April, NetMarketShare concluded that Chrome OS, which powers Chromebooks, only accounts for 0.02% of web traffic — an almost undetectable portion.[1] Because the device is so dependent upon the cloud, the logical implication of that data is that sales have been low over the entire two-year lifetime of the category.

- **Questionable consumer sales.** The value proposition for early consumer market Chromebooks rested on their low price points. But Google did little to educate buyers on how they could use them. Although recent signs point to an upswing — and an expansion in consumer retail availability — Chromebooks didn't take the consumer market by storm the way, for example, Apple's iPad did.[2]

- **Legacy application heartache.** On the corporate front, most I&O professionals we spoke with cite challenges around legacy application delivery as a major hindrance to widespread Chromebook deployments. While the Google Chrome browser has become more common in enterprise settings, it remains a challenge, and many if not most legacy applications aren't optimized to be delivered via Chrome.[3]

- **Concerns about Google's commitment.** Whether it's Google Reader, Google Buzz, Google Wave, or scores of other services, Google is earning a reputation for having a short attention span with its product offerings.[4] The company's willingness to kill products it touted as "the next big thing" only a year or two prior isn't sitting well with I&O professionals, who worry about the long-term efficacy of any particular Google offering.

In Reality, The Challenges Facing Chromebooks Resemble Those Of Tablets

Chromebooks haven't exactly disrupted the enterprise or consumer computing markets, but they resemble a category of devices that has: tablets. I&O's journey to consider Chromebooks is similar (though not identical) to the one many are undertaking for tablets. Both categories of devices:

- **Require new delivery methods for legacy applications.** Deploying tablets — whether Apple's iPad, Samsung's Android Galaxy Tab, or even a Windows 8 device — requires adapting existing applications to a new form factor and, in many cases, to a new platform. I&O professionals leverage a mix of recoding (e.g., developing a native app for iOS), modern web technologies (e.g., redeveloping for HTML5), and virtualization (e.g., employing Citrix Systems or VMware solutions to project virtualized applications to a tablet). Similarly, deploying Chromebooks

requires recoding to modern web technologies and, potentially, virtualizing legacy applications and adapting them to Chrome.

■ **Involve embracing a specific computing architecture and platform.** The move to tablets often involves making bets on a platform and on an architecture: Companies such as General Electric (GE) that choose iOS, for example, invest in proprietary native app development for iPhones and iPads. Similarly, choosing Chromebooks carries a commitment to cloud-based, browser-based delivery of various business applications centered on Google's platforms.

■ **Reach the hands of particular classes of employees.** Tablets find their way into the hands of mostly roaming workers, such as traveling sales or field workers. They aren't necessarily useful for all employees, though — only 15% of IT decision-makers think tablets are appropriately deployed for *general* employee use.[5] Similarly, Chromebooks fill a computing niche for the segmented workforce — specific groups of employees whose roles are amenable to a cloud-oriented computing device.

WHY THE DOOR IS OPENING FOR CHROMEBOOKS IN THE ENTERPRISE

I&O leaders should ignore the negative publicity and undertake their own evaluation as to whether Chromebooks can add value to their end user computing hardware portfolios. Forrester does not recommend Chromebooks for all organizations, nor for all users, but we do recommend that I&O professionals who either have moved to Gmail or are thinking about it take another look.[6] Such an evaluation is merited because of:

■ **The prospect of moving away from the laptop maintenance business . . .** Imaging Windows PCs and deploying them to workers requires time and effort from I&O personnel. I&O leaders prefer less time spent in this area. "Instead of spending time installing software on laptops or creating images, I'd rather have my desktop services people work on implementation of technologies related to location awareness or 3D printing," said Sanjay Dhar, vice president of IT for Logitech. Chromebooks require very little imaging; pilot users say any given device can be configured for a new user in under 15 minutes.

■ **. . . and toward employee experience benefits.** From an information worker's perspective, the Chromebook maintenance pluses are fewer breakdowns and the easy process of moving from Chromebook to Chromebook should a problem arise. Employees also might appreciate the continuity and commonalities of their Chrome experience carrying over to other devices that use Chrome, such as smartphones, tablets, and PCs.

■ **The possibility of benefiting from new hardware economics.** Chromebook hardware prices are well known for being inexpensive — as low as $199 per device. The total cost of ownership of Chromebooks goes down further when you add the reduced staffing costs for imaging, deployment, maintenance, and help desk.

- **The growing clout of the Chrome browser.** With over 750 million active users, the Chrome browser is mainstream.[7] Today, 27.8% of global information workers report using Chrome "most frequently" as their browser.[8] Chrome is also available on Apple's Mac OS X and iOS devices and Android devices; Microsoft's Internet Explorer isn't. Chromebooks make more sense in a world in which the Chrome browser has gained widespread acceptance.

- **Potential synergies with Gmail and Google Apps . . .** For companies that move to Gmail — over 5 million globally — Chromebooks offer a technically optimized experience, according to Google.[9] Once the move to Gmail is complete, I&O professionals report grass-roots interest in the collaborative features of Google Apps such as Google Drive. IT leaders at Ahold, an international grocery company, told us that employees started using collaboration tools "organically and automatically" after the adoption of Gmail. Chromebooks offer a next logical step in empowering collaboration.

- **. . . while realizing an opportunity to capture the benefits of cloud computing.** Chromebooks promote a cloud-oriented architecture that offers numerous benefits to enterprises. For example, cloud can be a pillar of an effective business technology resiliency strategy.[10] Glenn Weinstein, CIO of Appirio, cites the time-saving benefit of Google's single-sign-in Okta feature, which allows multiple applications to be accessed from any device via Chrome browser with credentials entered just once.

HOW TO DETERMINE WHETHER CHROMEBOOKS ARE RIGHT FOR YOU

Perhaps the best way to understand whether Chromebooks could fill a computing niche in your organization is to hear the stories of others. Among the I&O professionals we spoke with, several case studies stood out:

- **Healthcare provider Mollen Immunization Clinics empowers nurses.** Mollen, which offers flu vaccinations and other immunizations at more than 100,000 events (colocated in Wal-Mart and other retail stores, corporate offices, and schools), wanted to move its 200,000-plus field nurses from a paper- and scanner-based system to a digital system. After evaluating digital pens, tablets, and Chromebooks, it chose Chromebooks with Verizon 3G wireless service. Because using multiple (probably hundreds) of Wi-Fi networks would have created an auditing nightmare, it chose Verizon's network — yielding a single audit.

- **Tech company Appirio finds Chromebook interest among software engineers.** Appirio — a partner of Google in its cloud-based services — also employs Chromebooks internally in a hybrid environment dominated by Apple Macs. Appirio is a server-free company, consistent with its cloud-oriented approach to IT. Appirio CIO Glenn Weinstein told us, "I want to get out of the laptop business as much as I want to get out of the server business." He says that Chromebooks lower help-desk costs, a significant amount of which is devoted to end user laptop support.

- **The national school system of Malaysia deploys Chromebooks.** Over 10 million students, teachers, and parents in Malaysia have moved to Google Apps; the school system has bought an unnamed (but presumably large) number of Chromebooks for students as well. Educators and government officials cite the speed of the devices and their affordability as initial enticements. For itinerant users — students moving from grade to grade and Chromebook to Chromebook — the nearly zero-state status of the devices also offers value. And the collaborative tools of Google Apps suit the needs of teachers and students alike.

- **Transportation and logistics company Quality Distribution helps franchisees.** Quality Distribution gradually replaced Windows PCs with Chromebooks for some workers and franchisees. Having already moved to Google Apps, the company found Chromebooks economical and easy to manage. In addition, for desk workers, Chromeboxes have been deployed in lieu of desktops. The Chromebook strategy rests on a simple premise: easy access to all pertinent applications in remote places. There remain areas of the business — particularly finance — where Windows PCs remain important, particularly for Microsoft Excel use.

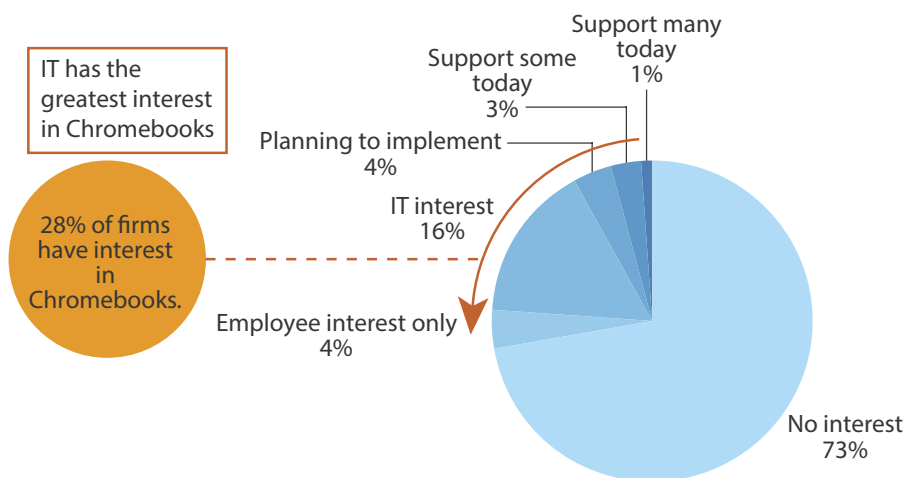## Chromebooks Suit Particular Enterprise Circumstances . . .

Overall, 28% of enterprises have some interest in Chromebooks (see Figure 1).[11] Note that when we ask the same question about tablets, the interest level is 82% — meaning that Chromebooks lag considerably behind tablets.[12] Yet, as we have seen, Chromebooks fill a legitimate computing niche for some companies. What are some of the indicators that Chromebooks might have a place at your company (see Figure 2)? Look at:

- **Your application environment.** If you intend to deploy Chromebooks to your employees, Gmail usage is a likely prerequisite, while full Google Apps usage turbocharges the addressability. If you've moved your application infrastructure to Chrome browser, you earn triple points. And if you have a Chromebook-friendly virtualization strategy in place (and don't have to budget for an additional per-user virtualization license fee), that will make the delivery of legacy applications easier.

- **The deployment purpose of the Chromebooks.** While workers' usage of Chromebooks likely requires use of Gmail, customer-facing scenarios probably don't. If you are buying these devices to be used exclusively by customers — as kiosks or as shared workstations — you don't have to use Google Apps internally.

- **The size of your company.** Interest levels rise to 34% among enterprises with 1,000 or more employees (see Figure 3). In larger enterprises, several conditions make Chromebooks more attractive. First, the workforce is sizable enough to segment; there are classes of workers for whom Chromebooks fit the necessary computing model. Second, the scalability of deployment solves problems for IT, such as decreasing the time required to reimage PC after PC.

■ **Your company's vertical industry.** Regulation, application needs, the types of workers, and other factors mean that Chromebook interests vary considerably by vertical (see Figure 4). For example, interest in Chromebooks is low at media and leisure companies where rich client computing experiences (think tablets) are critical to the experiences they create for their customers.

■ **The behaviors of different segments of workers.** If your company has mobile workers who move from desk to desk, Chromebooks are more likely to fill a need. By contrast, mobile workers who don't move from desk to desk probably need to use tablets — think field engineers. High-turnover end users are also great candidates (like students, who move from grade to grade or classroom to classroom). Collaboration-oriented workers are the final group who might benefit from the use of Google Apps.

■ **Your key departmental goals.** If your I&O department holds specific goals, such as lowering support costs, simplifying deployment of devices, ensuring device uptime, or projecting software changes quickly into the workforce, Chromebooks can help support those initiatives. By contrast, if your goals were, let's say, empowering rich customer-facing computing scenarios, tablets might be a better device choice.

Figure 1 Chromebooks Haven't Generated Widespread Demand Yet

"What are your firm's plans to support the following technologies or initiatives related to the PCs that your firm purchases?"

IT has the greatest interest in Chromebooks

28% of firms have interest in Chromebooks.

Support many today 1%

Support some today 3%

Planning to implement 4%

IT interest 16%

Employee interest only 4%

No interest 73%

Base: 1,282 global PC decision-makers implementing, planning, or interested in deploying web-browser-only computers, such as the Google Chromebook/box

Source: Forrsights Hardware Survey, Q3 2012

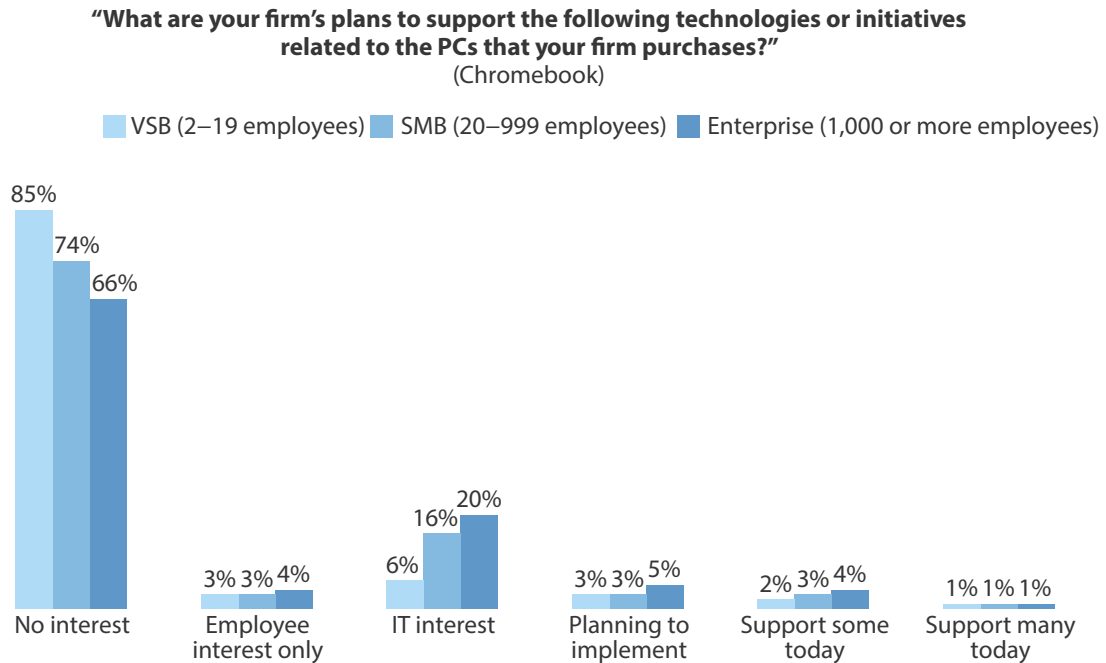97181   Source: Forrester Research, Inc.

Figure 2 Who Should Consider Chromebooks?

Characteristic	Description
Type of company	**Peer enterprises showing the most interest in Chromebooks**
Larger enterprises	Companies that can segment their workforces into different classes of users
Educational institutions	Companies and nonprofit institutions in the education vertical
Other key verticals	Companies in the healthcare, construction, retail, finance, or high-tech verticals, or in the public sector
Class of workers	**Segmenting the workforce to identify the right workers for Chromebooks**
Desk-roaming employees	Companies with mobile workforces who use desks
High-turnover computing	Companies with rotating workforces or institutions whose users move from device to device (like students)
Collaboration centricity	Companies for whom collaboration—on documents, for example—is central to their strategy
Application environment	**Software and applications usage most conducive to Chromebooks**
Google apps usage	Companies using Gmail and/or Google Docs for primary productivity computing
Chrome-optimized applications	Companies whose application infrastructure can be delivered via the Web on Chrome browser
Virtualization strategy	Companies with an existing virtualization strategy in place
Key I&O goals	**Goals held by infrastructure and operations departments that are supported by Chromebooks**
Lowering IT support costs	I&O departments with an imperative to lower their IT support costs
Simplifying deployment of machines	I&O departments with a need to deploy new machines quickly and at low cost
Ensuring device uptime	I&O departments for whom uptime of individual devices is critical
Projecting software changes quickly	I&O departments that need to quickly push out changes to a large, diffuse workforce

97181   Source: Forrester Research, Inc.

Figure 3 Enterprises Lead The Way In Chromebook Interest

"What are your firm's plans to support the following technologies or initiatives related to the PCs that your firm purchases?"

(Chromebook)

■ VSB (2–19 employees) ■ SMB (20–999 employees) ■ Enterprise (1,000 or more employees)

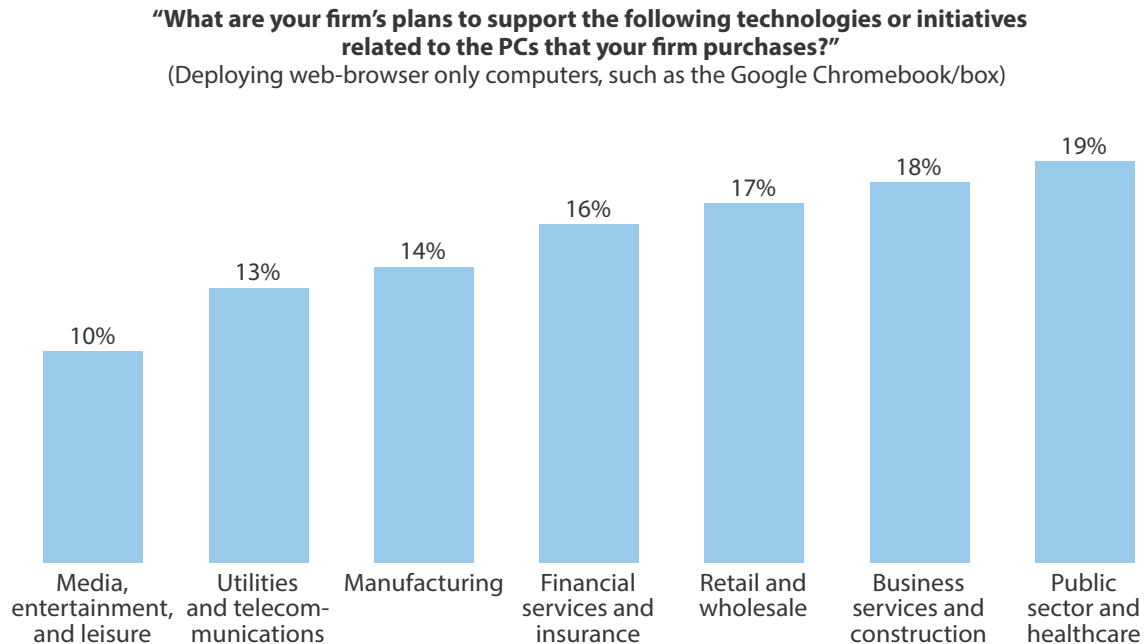Base: 1,282 global PC decision-makers

Source: Forrsights Hardware Survey, Q3 2012

97181   Source: Forrester Research, Inc.

Figure 4 Interest In Chromebooks Varies By Industry

"What are your firm's plans to support the following technologies or initiatives related to the PCs that your firm purchases?"
(Deploying web-browser only computers, such as the Google Chromebook/box)

Base: 1,282 global PC decision-makers
(% represents employee interest only, IT interest, planning to implement, support some today, and support many today for Google Chromebook/box)

Source: Forrsights Hardware Survey, Q3 2012

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Source: Forrester Research, Inc.

. . . But A Few Situations Are Chromebook Deal Killers

Our interviews with CIOs and I&O professionals revealed the following Chromebook deal killers:

■ **A big presence in China.** A strong presence in China should disqualify an organization from deep Chromebook adoption. "Gmail and Google Apps simply don't work in China — period," said one CIO who wished to remain anonymous. Google's famed clashes with the Chinese government mean that its presence there is weighted down by government-managed security and censorship.

■ **Windows applications are business-critical.** In situations where Windows applications are central to the computing experience, virtualization strategies can't overcome the limits of user experience.

- **Employees in finance and accounting.** Nearly universally, I&O professionals report that financial and accounting workers — alongside other heavy Excel users — can't be moved to Chromebooks. Google Apps doesn't offer all the features of Excel, many of which are critical to financial workers' jobs.

- **Offline employees.** Locations where Wi-Fi or 3G/4G wireless aren't abundant (like on some airplanes) don't work for Chromebooks.

- **Highly portable scenarios.** Tablets often are a better choice than Chromebooks for highly portable scenarios, like the GE field engineers who climb tall wind turbines for maintenance with Apple iPads in tow. In hyper-portable situations of this sort, tablets can yield better on-site planning, higher service-visit efficiency, and better problem resolution.[13]

RECOMMENDATIONS
CONSTRUCT A HYBRID DEVICE STRATEGY TO DEPLOY CHROMEBOOKS

Chromebooks are not for every company, nor for every employee, but they can be a valuable piece of your workforce computing portfolio for some types of organizations. And even for the companies where they'll play a role, Chromebooks are a subset of devices, generally in a hybrid environment with Windows PCs (plus Macs and tablets). The first steps you should take to test the waters with Chromebooks include:

- **Identify classes of workers for pilots.** Understanding the needs and behaviors of the employees at your company and then creating segments so that you can provision the right technology is a critical component in any workforce computing strategy.[14] Developing this understanding and segmenting the workforce is critical for seeing how Chromebooks might help — and this involves working with business leaders and workers to understand the computing requirements and scenarios workers already perform.

- **Construct a portfolio-oriented device strategy.** Chromebooks will not replace all Windows PCs or Apple Macs or iPads in the vast majority of enterprises. As part of your segmentation exercise, develop a point of view on each type of device's relative contribution to the overall device portfolio, and stress test that mix against your management capabilities.

- **Allow a measure of worker choice.** About half of the Chromebook scenarios we researched allowed a measure of employee choice. (Those that didn't — like Mollen Immunization Clinics or the government of Malaysia — involved very specialized computing scenarios.) Embedding Chromebooks in a choice-based worker computing strategy will drive acceptance.

WHAT IT MEANS

CLIENT-SIDE COMPUTING ISN'T DEAD — NOT BY A LONG SHOT

Chromebooks have potential, but even with improving adoption they won't kill client-side computing (where processing power sits at the endpoint rather than entirely in the cloud). Google itself exhibits inconsistent behavior around client-side computing: While Chromebooks fit its long-term, cloud-oriented philosophy, hundreds of millions of Android devices enjoy far more popularity, driving their own ecosystem of native applications.

Indeed, the usage cases for Chromebooks for the next few years will be narrow in scope, appropriate for particular classes of workers at only some types of organizations. Meanwhile, tablets of multiple operating systems, Macs, and, yes, Windows PCs, will greatly outsell Chromebooks over the next three years. Client-side computing remains central to an overall end user computing strategy and will continue to be — albeit across multiple, messy platforms — for years to come.

SUPPLEMENTAL MATERIAL

Methodology

Forrester's Forrsights Hardware Survey, Q3 2012 was fielded to 2,330 IT executives and technology decision-makers located in Canada, France, Germany, the UK, and the US from small and medium-size business (SMB) and enterprise companies with two or more employees. This survey is part of Forrester's Forrsights for Business Technology and was fielded from June 2012 to August 2012. LinkedIn Research Network fielded this survey online on behalf of Forrester. Survey respondent incentives include gift certificates and research reports. We have provided exact sample sizes in this report on a question-by-question basis.

Each calendar year, Forrester's Forrsights for Business Technology fields business-to-business technology studies in more than 17 countries spanning North America, Latin America, Europe, and developed and emerging Asia. For quality control, we carefully screen respondents according to job title and function. Forrester's Forrsights for Business Technology ensures that the final survey population contains only those with significant involvement in the planning, funding, and purchasing of IT products and services. Additionally, we set quotas for company size (number of employees) and industry as a means of controlling the data distribution and establishing alignment with IT spend calculated by Forrester analysts. Forrsights uses only superior data sources and advanced data-cleaning techniques to ensure the highest data quality.

We have illustrated only a portion of survey results in this document. To inquire about receiving full data results for an additional fee, please contact Forrsights@forrester.com or your Forrester account manager.

Companies Interviewed For This Report

Ahold

Appirio

Google

Kaplan

Logitech

Mollen Immunization Clinics

Quality Distribution

ENDNOTES

[1] Source: Ed Bott, "First real-world usage figures suggest Chromebooks are struggling," ZDNet, April 16, 2013 (http://www.zdnet.com/first-real-world-usage-figures-suggest-chromebooks-are-struggling-7000014102/).

[2] Recent reports suggest an upswing in consumer Chromebook sales. Source: Brian Womack, "Google Chromebook Under $300 Defies PC Market With Growth," Bloomberg, July 10, 2013 (http://www.bloomberg.com/news/2013-07-10/google-chromebook-under-300-defies-pc-market-with-growth.html).

[3] For more information on browser usage in the enterprise, see the April 22, 2013, "Navigating Diversity In Operating Systems And Browsers" report.

[4] Source: Chris Kirk and Heather Brady, "The Google Graveyard," Slate, March 15, 2013 (http://www.slate.com/articles/technology/map_of_the_week/2013/03/google_reader_joins_graveyard_of_dead_google_products.html).

[5] Source: Forrsights Hardware Survey, Q3 2012.

[6] Here, we are referring to deployments to employees. For customer-facing scenarios like kiosks, Gmail isn't a prerequisite.

[7] Source: Seth Fiegerman, "Google Chrome Now Has 750 Million Active Users," Mashable, May 16, 2013 (http://mashable.com/2013/05/15/google-chrome-750-million-active-users/).

[8] Source: Forrights Workforce Employee Survey, Q4 2012. For more information on browser usage in the enterprise, see the April 22, 2013, "Navigating Diversity In Operating Systems And Browsers" report.

[9] Source: Frederic Lardinois, "Gmail Now Has 425 Million Users, Google Apps Used By 5 Million Businesses And 66 Of The Top 100 Universities," TechCrunch, June 28, 2012 (http://techcrunch.com/2012/06/28/gmail-now-has-425-million-users-google-apps-used-by-5-million-businesses-and-66-of-the-top-100-universities/).

[10] Cloud architecture plays a role in empowering business technology resiliency. See the February 15, 2013, "Master The Eight Disruptors That Will Transform Business Technology Resiliency In 2013" report.

[11] Source: Forrsights Hardware Survey, Q3 2012.

[12] Source: Forrsights Hardware Survey, Q3 2012.

[13] For more information on how tablets are effecting business efficiency, customer engagement, and empoloyee productivity, see the December 18, 2012, "The Business Impact Of Mobile Engagement" report.

[14] To truly understand what an employee needs, you have to go straight to the source. Although interviewing IT stakeholders can help validate hypotheses on the right approach, a survey yields invaluable data about not just the tools or behaviors of employees, but also how they cluster into segments. Forrester has developed a methodology called the Forrester's Workforce Technology Assessment to support this effort. See the May 10, 2013, "Habitat For Engagement: Unleash Workforce Potential With Agile Enablement" report.

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