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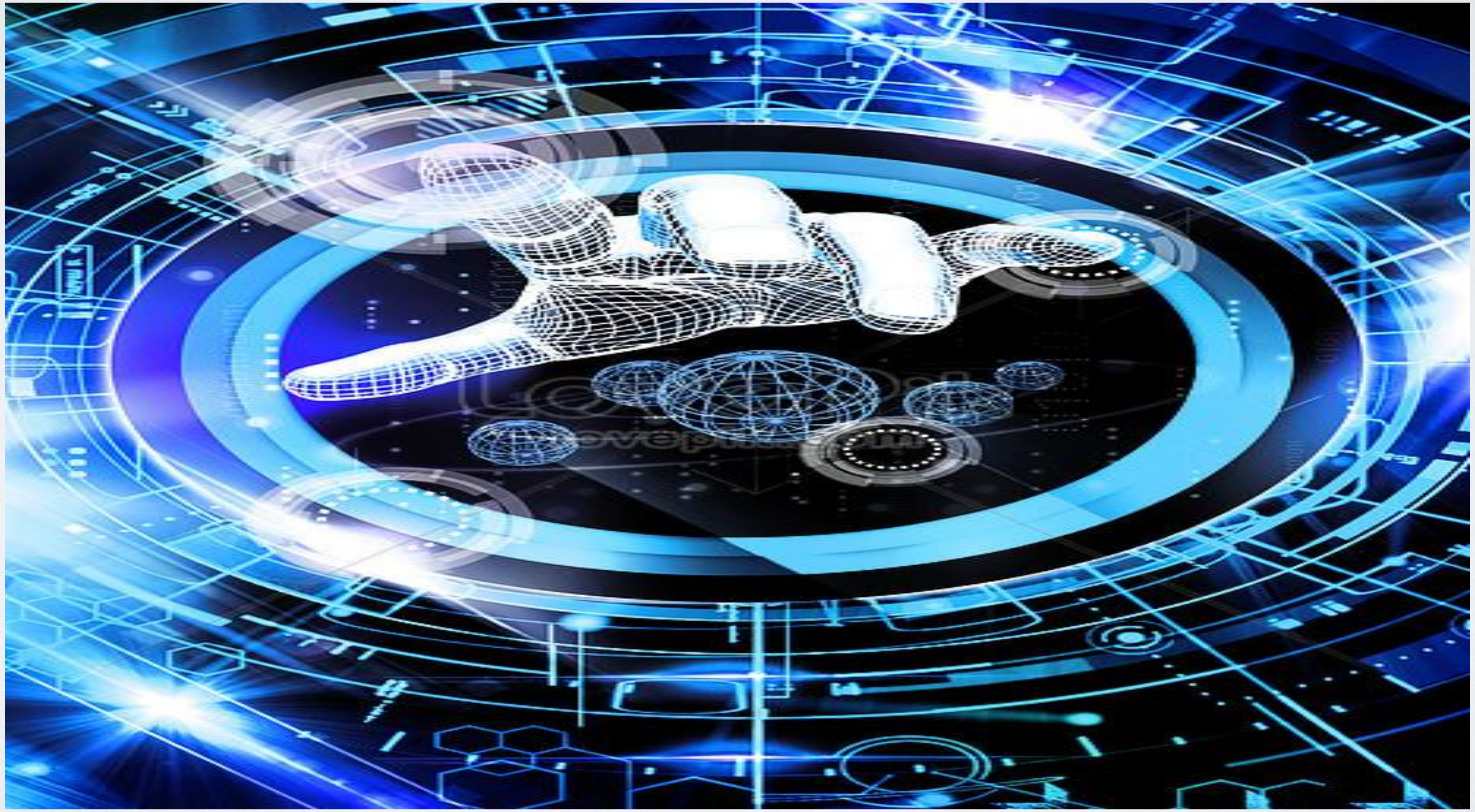
TOM SHEPHERD



NEW TECH SIG UPDATE

Topic for February Meeting

TOP TECH TRENDS THAT WILL TRANSFORM THE AUTOMOTIVE INDUSTRY IN 2021

THURSDAY FEB 18 3:30PM

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WE NEED IDEAS

ALL YOU HAVE TO DO IS SEND ME AN EMAIL ABOUT SOMETHING YOU WOULD LIKE TO LEARN MORE ABOUT AT

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3RD THURSDAY 3:30

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Today’s Topic

MICROSOFT
APPLE
INTEL
GOOGLE

WHAT ARE THEY PLANNING FOR 2021 ?

AGENDA

- The four companies and their "theme songs" for 2021
  - Microsoft – "Still the One"
  - Apple – "Walking on Sunshine"
  - Intel – "What have I done to deserve this?"
  - Google – "I just want to be your everything"
- Wrapup
  - *Additional information about Microprocessors if we get to it*

“Still The One”

Current State of the Company

Microsoft had **another great year in 2020.** Revenues continued to grow as it did for the last several years, and in the 2020 fiscal year, Microsoft achieved **record revenue of $143bn** (14% annual growth).

Current State of the Company

The next few slides come from

KAMILFRANEK Business Analytics

Company Analysis | Other Posts | About | Contact

Kamil Franek

Business analytics professional | owner & chief analyst at kamilfranek.com

Prague, Czech Republic

Twitter

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Microsoft Annual Report: Financial Overview & Analysis 2020

On This Page

Current State of the Company

Microsoft's **revenue increased by $17.2bn in 2020** (14% growth), and **around 40% of this increase came from Azure and another 20% from Office for commercial customers.** Azure revenue grew by 56% in 2020, and it was the main reason why its "Server Products & Services" segment was growing by $8.8bn. The Office is currently far more significant revenue source than Azure, but because Office grew "only" by 12%, it was not enough to match Azure's revenue increase in dollar amount.

Significant Trends

Microsoft offers a wide variety of software products and cloud services.

Their unifying theme is that they are all focused on business customers.

Yes, it offers Windows and Office productivity tools to individual consumers too, but the consumer market is no longer the focus of the company.

Growth Areas

Microsoft Teams is a collaboration tool designed to improve internal communication.

It is a popular choice for businesses that use Microsoft 365 products.

It is packaged in with the Microsoft 365 suite and syncs up well with other Microsoft technologies.

Products for 2021

In **2021**, you'll be able to pay a flat price to get the **Microsoft Office** suite, instead of subscribing for a monthly fee to **Microsoft** 365

WINDOWS 10X

These next few slides come from

Windows Central

SUNNY TIMES AHEAD

2021 is shaping up to be a big year for Windows 10

Windows 10X, big UI and feature updates for desktop, and a new app streaming service are on the cards for 2021.

ZAC BOWDEN 24 Nov 2020 65

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WINDOWS 10X

In addition to refocusing its efforts on Windows 10, Microsoft is also planning to ship Windows 10X in the first half of 2021.

Microsoft has been working on Windows 10X behind closed doors for the last few years, and it aims to deliver a modern and lightweight version of the operating system for low and mid-range PCs, as well as flagship foldable PCs too.

WINDOWS 10X

Windows 10X will "RTM" in December, and Microsoft is hoping to start shipping the first Windows 10X devices in the spring of 2021.
These devices will be mid-range laptops and tablets, and designed to compete directly with the Chromebook market.

Windows 10X will ship without local win32 app support, but Microsoft is planning to push its new Cloud PC app streaming service to fill in that gap.

WINDOWS 10X

Windows 10X is now being positioned as Microsoft's "Chrome OS" killer, being a lightweight OS with excellent security, battery life, and performance but with the added ability of running Windows apps.

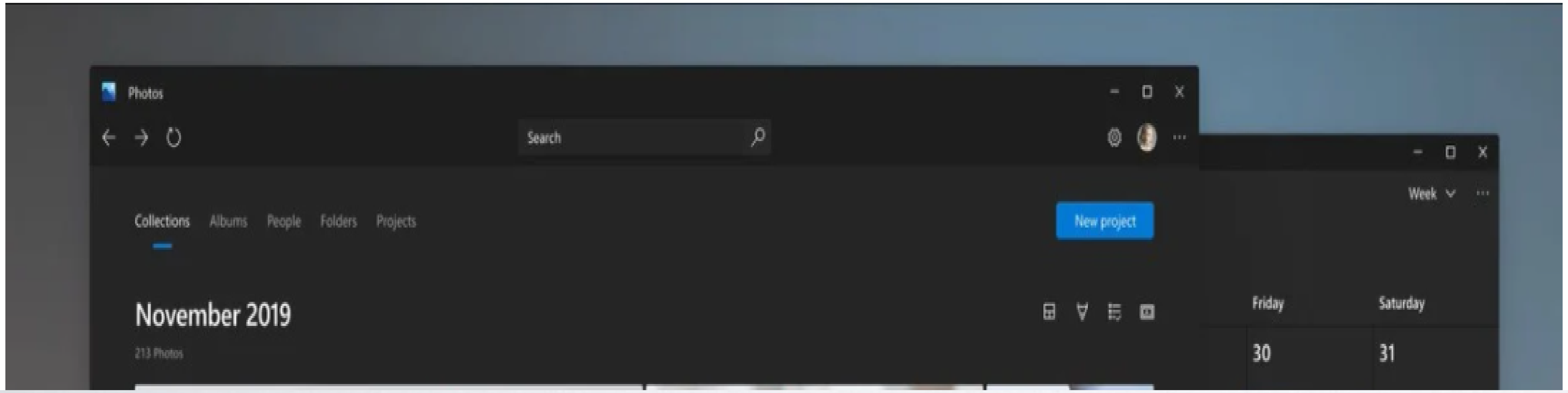
In the future, Windows 10X will be able to run Win32 apps locally, but I'm told that capability won't ship until 2022 when it launches on foldable PCs too.

CAN MICROSOFT PULL THIS OFF?

Microsoft plans big Windows 10 UI refresh in 2021 codenamed 'Sun Valley'

Microsoft wants to 'reinvigorate' the Windows 10 user interface next year.

ZAC BOWDEN 28 Oct 2020



Microsoft is preparing a major OS update for Windows 10 in 2021 that sources say will bring with it a significant design refresh to the Windows UI. I'm told that Microsoft is planning to update many top-level user interfaces such as the Start menu, Action Center, and even File Explorer, with consistent modern designs, better animations, and new features.

This UI project is codenamed "Sun Valley" internally and is expected to ship as part of the Windows 10 "Cobalt" release scheduled for the holiday 2021 season. Internal documentation describes the project as "reinvigorating" and modernizing the Windows desktop experience to keep up with customer expectation in a world driven by other modern and lightweight platforms.

“Walking on Sunshine”

Apple will gain another 32% on bullish outlook for the iPhone 12 and 5G technology supercycle, Wedbush says

Shalini Nagarajan

Dec. 15, 2020, 02:39 PM

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Your Market View

APPLE HOLIC

By Jonny Evans, Computerworld | JAN 7, 2021 6:51 AM PST

About

Appleholic, (noun), æp·əl-hɑl·ɪk: An imaginative person who thinks about what Apple is doing, why and where it is going. Delivering popular Apple-related news, advice and entertainment since 1999.

FEATURE

A glance at Apple's plans for 2021

Apple is pressing forward with even more big plans for 2021; here's the current speculation about what's coming.

Just as it did last year, Apple is pressing forward with even more big plans for 2021. Here's what we think you can expect from the company this year.

Macs and Apple Silicon

Apple has really accomplished something with its move to Apple Silicon inside Macs. These machines have generated incredibly positive reviews, and the company will inevitably address any rough edges moving forward.

Apple will continue to develop its M-series chips; 16-core, 24-core and 32-core chips will appear across the Mac range over the next couple of years as the company moves toward Macs based on a 3-nanometer (nm) process architecture.

[Keep up on the latest thought leadership, insights, how-to, and analysis on IT through Computerworld's newsletters.]

Upcoming Apple Products Guide: Everything We Expect to See in 2021 and Beyond

Monday January 4, 2021 10:04 AM PST by Juli Clover

First Half of 2021

There are rumors that Apple will hold an event in March early in the year, where we could perhaps see new iPads and Macs that are rumored for release during the early months of 2021. All of these devices are rumored for release in the first half of 2021, but there's no guarantee they'll come in March.

- **Refreshed iMac** - Apple refreshed the 27-inch iMac in August, but there are still rumors of a 23 to 24-inch iMac with "iPad Pro design language" and thinner bezels similar to the bezels on the Pro Display XDR, which could come in late 2020 or early 2021. This iMac is also expected to have an Apple Silicon chip and an Apple-designed GPU.
- **AirPods 3** - Apple is said to have been planning to release new AirPods in March, but an event didn't take place and the AirPods were delayed. There have been rumors suggesting Apple is working on AirPods that have the same design as the AirPods Pro, but without Active Noise Cancellation, allowing Apple to sell them at a lower price point.
- **iPad Pro** - Apple is working on a new version of the 12.9-inch iPad Pro that will feature a mini-LED display and perhaps a 5G chip. Most of the iPad Pro rumors have focused on a 12.9-inch model, but there may also be an 11-inch model coming too.

Next Article

Qualcomm to Acquire Chip Startup Nuvia, Founded by Ex-Apple Chip Designers, for $1.4 Billion

Fall Event

- **iPhone 13** - We're expecting four iPhone 13 models in the same sizes as the iPhone 12 models, and Apple is planning to use the same general design. Rumors suggest that one model could perhaps be portless, relying on wireless charging. 120Hz ProMotion displays are expected, as are camera improvements, an A15 chip, and faster 5G. We could also see a smaller notch, though that's not guaranteed.
- **iPhone SE "Plus"** - Apple is rumored to be developing a "Plus" version of the iPhone SE that has a full-screen design, no Face ID, a Touch ID power button, and a 5.5 or 6.1-inch screen size.
- **Apple Watch Series 7** - Apple introduces new Apple Watch models on a yearly basis, but we don't yet know what to expect from the Series 7. We could perhaps get new health sensors, but there are no definitive rumors at this point.

Products Coming in Late 2021

- **MacBook Pro** - Apple is developing redesigned MacBook Pro models that could come in 14.1 and 16.1-inch screen sizes, replacing the existing 13.1 and 16-inch MacBook Pro models. Both models could have slimmer bezels for more screen real estate. There have been rumors that the new MacBook Pros will have mini-LED displays, which could bring some major improvements in display quality.

Next Article

Qualcomm to Acquire Chip Startup Nuvia, Founded by Ex-Apple Chip Designers, for $1.4 Billion

“What have I done to deserve this ?”

Presenting the Best of CES 2021 winners!

1h ago

Watch the ASUS CES 2021 keynote in 8 minutes

1h ago

Intel CEO Bob Swan steps down after just two years on the job

Intel veteran and VMWare CEO Pat Gelsinger (pictured) will replace him.

Daniel Cooper, @danielwcooper
7h ago

6 Comments

131 Shares

Intel failed to deliver its first 10-nanometer chips on time in 2016 because of falling yields -- the number of functional chips it could make in a production run. Ever since then, it has struggled to maintain pace with its rivals, and TSMC began boasting that it could now make a 5-nanometer chip. Of course, not all chips are equal, but in the PC space, AMD is now able to outperform Intel chips in a number of scenarios.

Swan's tenure also saw the high-profile departure of Apple as one of Intel's customers as the company moved to use its own silicon. The iPhone maker was not a big buyer of Intel's silicon, and its size relative to the rest of the PC industry was small, but the optics of losing such a client were pretty big. As *CNBC* reports, activist investors had been pushing for Intel to make a change, adding that Swan's critics saw him as a business-and-finance guy, at odds with Intel's engineering-led culture.

Intel took the time at CES to offer a preview of its *next* major chip release: its hybrid Alder Lake chipsets, which — like its Lakefield predecessor — will utilize an approach similar to Arm's BIG.little technology, using high-performance and high-efficiency cores in a single package to maximize both power and efficiency.

But where the Lakefield chips were largely focused on mobile devices, Intel says that Alder Lake will help serve as the foundation for future desktop and mobile processors instead, with the first products using this "most power-scalable system-on-chip" set to arrive in the second half of the year.

Intel moving into Graphic Processing Units (GPU)

“I just want to be your everything”

3 Catalysts for Google in 2021

An antitrust case won't be one of them next year.

Nicholas Rossolillo (TMFnrossolillo)
Dec 23, 2020 at 8:15AM
Author Bio

Alphabet's (NASDAQ:GOOGL)(NASDAQ:GOOG) Google has been under fire. In spite of its work organizing the world's data and being a "helpful" tech company, it was a tough year for online advertising because of the pandemic. An antitrust lawsuit was also filed, claiming Google has taken part in anticompetitive activity to maintain its lead in internet search.

The trial isn't expected to occur until the autumn of 2023, though, which means it's more or less business as usual for Google in 2021. Here are the three catalysts that will dictate whether the stock can continue its relentless rise in the next 12 months.

1. An easy lap for ad sales

Advertising often takes a hit during recessions, and 2020 was no exception. In the midst of the lockdown to halt the spread of COVID-19, many businesses hit the brakes on marketing campaigns. Google's digital ad empire wasn't immune. Ad sales have slowed in the last year and even declined year over year during the spring -- though they quickly snapped back to growth mode over the summer.

Period	Google Ad Revenue	Year-Over-Year Increase (Decrease)
2019	$135 billion	16%
Q1 2020	$33.8 billion	10%
Q2 2020	$29.9 billion	(8%)
Q3 2020	$37.1 billion	10%

DATA SOURCE: ALPHABET

Google is a massive business. Its sheer size alone should dictate slower growth in its primary ad business. However, digital advertising overall is still in the process of replacing traditional marketing and could reach some $1 trillion in global annual spending by 2030 (up from some $320 billion expected in 2020).

Though Google is coming under increased pressure from competition and regulatory scrutiny, its core business still operates in a growing industry. As it laps effects from COVID-19 -- especially in the first half of 2021 -- Google's ad-sales growth rates could accelerate.

2. Playing catchup to its public cloud peers

Google isn't just about ads anymore, though. It's also a fast-growing player in the cloud-computing market. Cloud revenue made up 7.5% of Google's total revenue during Q3 2020, although it trails behind leaders **Amazon** (NASDAQ:AMZN) and **Microsoft** (NASDAQ:MSFT) in size.

But at current growth rates, Google could play a serious catch-up game in 2021. Cloud grew 45% year over year in Q3 to $3.44 billion, and the company hasn't been shy about wanting to keep that trajectory going. Amazon's AWS segment hauled in $11.6 billion in Q3 2020 but grew "only" 29% year over year. In its comparable quarter, Microsoft's "Intelligent Cloud" segment (which includes Azure) grew 20% to $13 billion. Google is clearly making some headway expanding its presence in modern IT infrastructure and services.

More important than the growth, though, is profitability for Google Cloud. Company CEO Sundar Pichai said Cloud will be reported as a stand-alone segment starting in the fourth quarter of 2020.

3. Other and moonshot businesses start to pay off

Something similar could take place with Google's "Other Bets" collection of start-ups. For clarification, this is different from "Google Other," the large and growing segment (revenue of $5.48 billion, up 35% in Q3 2020) including YouTube TV and Music subscriptions, Pixel and Nest hardware, and Google Play store app sales. "Other Bets," by contrast, are small operations attempting to disrupt big industries.

Some of these start-ups are well-known, like autonomous-vehicle company Waymo and life-sciences researcher Verily. During the third quarter, Other Bets generated just $178 million in revenue but racked up $1.1 billion in operating losses. It's a big number that Google is able to absorb, thanks to its highly profitable search-based ad bread and butter.

However, some of these moonshot companies could be nearing more mainstream commercialization -- like, for example, self-driving vehicles and life-science research. If these companies start to make that transition from start-up to viable business, Google could experience further transformation from internet search ad company to a more diversified technologist.


Welcome to Google Nest.
Build your helpful home.
70

Nest Audio

Chromecast with Google TV

Nest Thermostat

Google Wifi

Nest Wifi

Nest Learning Thermostat (3rd Gen)

Nest Hello

Our products work even better together.

Audio Entertainment packages

Stream your favourite music, podcasts, and more to fill your home with rich sound.[Δ]

Learn more ›

Home Security packages

From cameras to doorbells and more, get peace of mind when you're home or away.[ΔΔ]

Learn more ›

Video Entertainment packages

Stream your favorite movies, shows, and live TV so all your entertainment is a cinch.[Δ]

Learn more ›

What is Google TV? Here's what you need to know about Google's new streaming interface

Dave Johnson Dec 4, 2020, 3:42 PM

- The software combines all content from multiple streaming channels into one searchable interface, and makes viewing recommendations based on your history and searches.

- It's currently available in just a few devices, like the new Chromecast with Google TV and Android phones via the Google TV app, but will grow over time.

Starting in 2021, Google TV will start showing up on set-top boxes, dongles, and full smart TVs from Google’s current Android TV partners while regular Android TV devices can also hit the market.

By 2022, all Android TV retail devices will be using the new platform.

Currently available Android TV devices will also either be updated to the new experience or adopt some of its features over time.

Google Nest will release a new line of security cameras in 2021

Abner Li - Jan. 5th 2021 5:46 pm PT @technacity

FEATURE

Google Nest Hub review:

Google's Nest Hub smart display is still great

Andrew Gebhart | Oct. 29, 2020 10:04 a.m. PT

Google Nest Hub
(Part #: GA00515-US)

WHERE TO BUY SEE ALL

$69.99	Best Buy	SEE IT
$69.99	Adorama	SEE IT
$89.99	Crutchfield	SEE IT
$84.99	Monoprice	SEE IT


THE VERGE

GOOGLE NEST AUDIO REVIEW: THE SWEET SPOT

Google's latest smart speaker has good sound and an attractive price

By Dan Seifert | @dcseifert | Oct 5, 2020, 8:00am EDT

Four years is an eternity in the modern tech product world, but that's exactly how long it's been since Google's first smart speaker, the Google Home, was released. Since then, Google has expanded the range both above and below it, with the compact and ubiquitous Nest Mini and the powerful and gargantuan Home Max.

Google CEO promises exciting hardware for 2021 as Q1 2021 flagship Pixel rumours emerge

Google has exciting hardware in the works for 2021, according to company representatives. One of these devices could be a flagship Pixel smartphone, which will reputedly launch as early as March 2021.

Alex Alderson, *11/01/2020* *PT FR ...* Android Google Pixel Smartphone

The Pixel 4a (5G) and Pixel 5 may be joined early next year by a flagship Pixel smartphone. (Image source: Google)

Google has had a rather subdued year in the scheme of things, with no flagship smartphone release or showstopping product. The company has announced some Nest and Chromecast hardware, but there has been no follow-up to the Pixelbook Go, for example, or the release of a new product category. However, company representatives

Additional information

“Why are companies (Apple) changing direction and want to “build” their own Microprocessors

Microprocessors

There are two primary microprocessor architectures today

Complex Instruction Set Computer (CISC)
The microprocessor is more complicated

Reduced Instruction Set Computer (RISC)
The microprocessor is less complicated

Microprocessors

There are two primary implementations today

Complex Instruction Set Computer (CISC)
X86

Reduced Instruction Set Computer (RISC)
ARM (Advanced RISC Machines)

ARM

The industry is moving from X86 to ARM
Why ?

ARM microprocessors generate less heat, use less power, are less expensive and can be manufactured more quickly

ARM

ARM-based processors are used in the vast majority of the world's smartphones and tablets, and countless other devices from routers to TV sets to cars.

They are also expected to be widely adopted for Internet of Things devices, where the combination of low power consumption and low prices makes ARM chips attractive.

ARM

What does this trend mean?

This is a big impact to Intel as many of their customers are

Moving to ARM technology

“Building” their own unique chips

SoC

SoC stands for system on a chip.

This is a chip/integrated circuit that holds many components of a computer—usually the CPU (via a microprocessor or microcontroller), memory, input/output (I/O) ports and secondary storage—on a single substrate, such as silicon.

Having all of these components on one substrate means SoCs use less power and take up less space than their multi-chip counterparts.

SiP

A **system in a package** (**SiP**) or **system-in-package** is a number of integrated circuits enclosed in one or more chip carrier packages that may be stacked using package on package.

The SiP performs all or most of the functions of an electronic system, and is typically used inside a mobile phone, digital music player, etc.

A SiP is like a system on chip (SoC) but less tightly integrated and not on a single semiconductor die.

SoC

Apple-designed processors

From Wikipedia, the free encyclopedia

Apple-designed processors, collectively marketed by Apple as **Apple silicon**, are system on a chip (SoC) and system in a package (SiP) processors designed by Apple Inc., mainly using the ARM architecture. They are the basis of Apple's iPhone, iPad, and Apple Watch platforms, and of products such as the HomePod, iPod touch, Apple TV, and AirPods.

As of 2021, Apple is currently moving its Macintosh computers from Intel processors to its own processors. This switch was announced at WWDC 2020 on June 22, 2020,[1][2] and the first of the ARM-based Macs, using the Apple M1 processor, were unveiled on November 10, 2020.

Is Apple really going to be “building” their own chips ?

Short Answer is No

Apple designs

and

Somebody else builds

That somebody else is called a “Foundry”

What is a Foundry?

A semiconductor foundry (commonly called a fab; also known as a semiconductor fabrication plant) is a factory where devices such as Integrated Circuits (IC) are manufactured.

Intel

Intel takes the “soup to nuts” approach

They architect, design, test the microprocessors

They also manufacture the microprocessors

They call their manufacturing locations “Fabs”

Foundries

Now the trend is for companies that specialize in only the manufacturing

They build microprocessor based on the designs and specs they are given

They build for many companies

These are now called “Foundries”

July 20, 2020 //By Peter Clarke 0 Comments

tsmc

Foundry Taiwan Semiconductor Manufacturing Co. Ltd. has become the world's largest chip company by market capitalization, according to a list produced by Yonhap News Agency.

This is based on share values on Thursday July 16, when TSMC's market capitalization measured US$306.3 billion. This eclipsed second-ranked Samsung Electronics Co. Ltd. Samsung's market

1
2
3
4
5
6
7
8

TSMC

Build these chips to the designs of other companies

tsmc has the expertise and the capital to build huge plants

tsmc has been able to “out manufacture” Intel over the last few years

The top Foundries and their largest customers

Tsmc – Apple, Huawei

Samsung – Samsung itself

Global Foundries – AMD, Qualcomm

Intel – Intel itself

Why do companies like SoC and SiP and making their own processors

Gives them control over the “stack” i.e.
they design and own both the hardware and the software of their products

This allows companies to design into their hardware particular features that their software can exploit (and vice-versus)
“Exclusives”

Why do companies like SoC and SiP and making their own processors”

This also allows companies to be more “leading edge” and bring their products to market sooner
because
They know what is coming in the hardware (and/or software) much sooner than other, 3rd party companies, that may want to write apps for their system

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