

SIGNIFICANT UPDATE

iROBOT Corp. | NASDAQ: IRBT

INVESTMENT RESEARCH REPORT

"All Good Things Come To An End"

RECOMMENDATION: **Strong Sell**



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Executive Summary

Spruce Point Reiterates Strong Sell On IRBT And Sees 70% - 80% Downside Risk

Spruce Point has released a number of reports on iRobot (IRBT or “the Company”) highlighting impending competitive pressures and defensive distributor acquisitions designed to forestall revenue growth contraction and margin compression. We have evidence that the competitive forces which we foresaw are materializing, resulting in significant ASP declines, market share losses, and cash flow contraction. With the uplift benefit from distributor acquisitions set to lapse, and with punitive Chinese tariffs set to expand from 10% to 25% in 2019, we believe that iRobot’s is set up for significant revenue growth deceleration, margin contraction, and earnings headwinds next year. As a result, we see 70-80% downside risk.

Industry Competition Now On Even Footing With iRobot, Pressuring Market Share

- **Technological Advantages Dwindling:** As the first mover in the robot vacuum space, iRobot has until now enjoyed perceived technological dominance over other brands. That advantage has narrowed materially: more established consumer technology brands have entered the market, and consumers have taken notice that competitors meet or exceed Roomba’s technological capabilities.
- **Amazon Enabling And Promoting Aggressive Competition:** Amazon is becoming an increasingly important sales channel for iRobot: it was responsible for ~25% of iRobot sales in Q3, up from just ~10% in Q3 of the prior year. iRobot products generally do not receive preferential placement on Amazon search pages, due to both its high price tag and aggressive promotional activity among peers. Amazon also has less incentive to promote brands with high name recognition than do brick-and-mortar stores. Amazon enables a level of competition which undermines the importance of iRobot’s recognizable brand.
- **Industry Competition Dragging On Sales Prices:** Robot vacuums are classic deflationary pieces of technology: commoditized products which experience rapid industry catch-up with each incremental technological development, and which have little room for substantive differentiation (but which require consistent R&D spend nonetheless). iRobot has not been able to raise product prices materially for years, and is pushing sales by offering a wider range of products priced below its top-line vacuum. This strategy will drag on margins over time.

Troublesome Financial Developments Of Late And On The Horizon

- **SODT and Robopolis Acquisitions Set To Lapse:** iRobot annual sales growth had fallen to high single-digit levels prior to its acquisition of two distributors. New product releases may support somewhat stronger sales growth through 1H 2019, but growth is set to return to prior levels (or lower) as the acquisitions lapse. Management has said that it does not see additional acquisition opportunities on the immediate horizon.
- **Worrisome Cash Flow Developments:** iRobot’s net spending on working capital has ballooned in the wake of its distributor acquisitions – a concerning development resulting in YTD operating cash flow contracting by 21% YoY. We believe the financial strain was telegraphed in July when iRobot unexpectedly doubled its line of credit from \$75 to \$150m for no obvious reason, given that it has \$126m of cash on hand, and that it was on pace for \$50m+ of operating cash flow. Rising DSOs may be a signal of channel-stuffing at its own distributors. Massive inventory growth and record DIOs may also be both a signal of slowing sales growth ahead and a result of management accumulating lower-cost inventory in anticipation of tariffs.
- **Tariffs Potentially A Highly Significant Drag On Earnings:** Management has been dodgy about the potential impact of tariffs when asked about it on calls. Investors now have a better sense of the impact of a 10% tariff following the Q3 call, but management continues to avoid discussing the potential impact of the impending 25% tariff – perhaps in hopes that the tariffs are cancelled before it would have to do so. We expect iRobot to take a massive 70% hit to FY 2019 EPS should the 25% tariff to be instituted on Jan 1 remain in place through the year (barring the passing-on of tariffs cost increases to customers, which we feel iRobot has limited ability to do). Sell-side analysts are either ignoring tariff risks or entirely off on the potential magnitude of the impact.

Ongoing Concerns Regarding Management And Governance

- **Aggressive Company Promotion By Management:** Management is aggressive about pushing juicy headlines in the press, drumming up excitement over the business and inevitably driving enthusiasm among shareholders who believe that iRobot is truly a high-tech growth company. We saw this most recently when iRobot announced a “partnership” with Google: a titillating headline to a story with effectively no material content behind it – yet which catapulted shares up >10%, just days after Q3’18 financial results and tariff-related concerns rattled investors and sent IRBT’s share price down by ~10%. This isn’t the first time that news of a big partnership mysteriously appeared after iRobot’s shares were hammered after weak financial results. In July 2017 – shortly after we released our critical update in late June 2017 warning that Shark would enter its market, after which shares fell from over \$100 to close to \$80 – the press reported that Softbank had “reportedly” taken a <5% stake in iRobot that would not require regulatory disclosure, according to “people familiar with the matter.” To date, we can find no evidence that Softbank has aided iRobot in any strategic, financial, or operational capacity.
- **Insider Selling Is Exploding Out Of Control:** In our first report on iRobot, we noted that insiders were selling the stock aggressively: insider ownership fell from ~60% in 2005 to ~12% in 2013 – and then to 5% only a year later. Insiders have continued to be sellers through the last several years, and insider ownership is now at an all-time low of 3.5%. While iRobot appears desperate to dangle carrots to the press – in particular, partnerships with big name technology companies – its insiders have enacted a record amount of 10b5-1 stock sale programs. For example, in Feb 2017, only CEO Colin Angle had a 10b5-1 stock sale program in place, but by May 2018 a total of six directors and executives were unloading shares under similar stock sale programs.
- **Wasteful Capital Deployment For Share Repurchases:** We frequently warn investors to be careful when insiders sell stock while the company is buying back shares. iRobot approved a \$50m share repurchase in February 2018 and subsequently completed the purchase of 798,794 shares. So what benefit have shareholders received from this buyback? The answer: virtually nothing. IRBT’s YTD diluted share count is 28.6m vs. 28.7m a year ago, yielding effectively zero EPS benefit – perhaps due to aggressive insider selling. As a mature technology hardware company, we believe that iRobot would have better served shareholders with a dividend, synergistic acquisition, or more R&D spending to extend the Company beyond its one-trick-pony Roomba product. Instead, we believe management used capital for its own benefit as buybacks supported IRBT shares while executives dumped stock.

IRBT Shares Are A Poor Risk/Reward Proposition And Fully Valued At Current Levels Already Close To The Average Analyst PT Of \$100/Share

- **Share Price Above Even Lofty Sell-Side Targets:** IRBT shares have soared from ~\$60 in mid-2018 to close to \$100 today, and reached as high as ~\$115 ahead of CEO Angle’s much-anticipated presentation at the Disrupt SF conference – where, yet again, after years of hyping the Company’s potential in other home robotics categories, he failed to deliver anything new beyond the stagnant Roomba product. All sell-side analysts remain perennially bullish on the Company’s growth story, but the rapid rise in IRBT shares forced some analysts to issue downgrades on the basis of valuation alone. Long-term institutional shareholders continue to sell, while those buying classify IRBT under “consumer discretionary” and “homebuilding” and not technology!
- **High Valuation, Slowing Growth, Changing Distribution Model And Tariff Threat All Pose Risks To IRBT Shares:** We see up to ~50% downside in IRBT shares on valuation alone, even when taking consensus earnings estimates for granted. The prospect of slowing sales growth and margin compression would imply even more significant downside, and 25% tariffs would wipe out a large chunk of earnings for however long they remain in place. We can envision a scenario in which business deterioration and 25% tariffs wipe out all 2019 EPS. Given the fundamental threats to the business, current trading multiples, and the possibility that iRobot must bear 25% tariffs for an extended period of time, we value IRBT shares at \$20 - \$30/sh, 70%-80% below current levels.

IRBT Capital Structure And Valuation

Analysts remain overly-bullish on iRobot's sales and margin outlook, penciling in sustained 16%+ revenue growth and gross margins in the 49%-50% range. Accordingly, iRobot trades at a lofty 32x next year's earnings, far exceeding its long-term average of 22x. Our view is markedly different: we believe that its revenue growth rate will flatten towards its pre-acquisition run rate of 9%, while gross margins will compress materially from declining unit ASPs (a function of iRobot's increasing dependence on Amazon and online distribution more generally) and rising tariff costs. Ecovacs, iRobot's global competitor, achieves only 36% gross margins, which represents a good benchmark for where iRobot's margins may settle once the uplift from recent distributor acquisitions lapses.

\$ in mm, except per share figures

		Consensus Estimates (CY)	LTM	2018E	2019E	2020E
		EV / Sales	2.8x	2.3x	1.9x	1.7x
Stock Price Close (11/13/18)	\$91.32	EV / Adj EBITDA	25.1x	15.6x	14.9x	13.3x
Shares Outstanding	28.5	EV / FCF	72.3x	45.7x	40.5x	31.6x
Market Capitalization	\$2,603	Price / Adj EPS	48.0x	27.8x	25.4x	22.3x
Total Debt Outstanding	\$0	Price / GAAP EPS	38.9x	33.6x	31.8x	26.1x
Less: Cash and Equivalents	\$135	Growth and Margins	LTM	2018E	2019E	2020E
Enterprise Value	\$2,468	Sales Growth	34.5%	23.1%	16.8%	16.2%
		Adj EBITDA Margin	14.0%	14.5%	13.0%	12.6%
		Adj EPS Growth	28.8%	50.6%	9.1%	14.8%

Source: iRobot financials, Bloomberg market estimates





Competition More Pervasive And Of Higher Quality

SharkNinja RoboVacs Now Available Across Wide Array Of Distribution Channels, And Taking Share

In June 2017, our [report](#) warned that SharkNinja (“Shark”) was primed to come to market with a robot vacuum, citing a recent patent filing and recruitment of former iRobot employees, among other evidence. Shark later announced its entry into the market in September 2017. As we anticipated, Shark’s established relationships with distributors – both online and brick-and-mortar – appear to have allowed it to establish a strong foothold in the market within a short period of time. We noted in our previous report that Shark out-innovated competitors and took advantage of its distribution relationships to quickly establish a dominant position within the traditional vacuum market,¹ and it appears to be repeating itself in the robot vacuum space.

iRobot Distributors	Distributing Shark ION ROBOT Models				
	720	750	700	725	755
✓ Abt Electronics	✓	✓			
✓ Amazon	✓	✓	✓		
✓ Bed Bath & Beyond		✓			
✓ Best Buy	✓	✓			
Brandsmart		✓			
Hayneedle				✓	
✓ HomeDepot.com	✓	✓			
Jet.com				✓	
✓ Kohl's	✓	✓			
✓ Lowe's		✓			
✓ Macy's		✓			
Meijer		✓			
Navy Exchange		✓			
Nebraska Furniture Mart		✓			
New Egg	✓	✓			
QVC	✓	✓			✓
Sam's Club				✓	
✓ Sears	✓	✓			
Staples.com	✓	✓			
Sylvane	✓				
✓ Target	✓				
✓ Wal-Mart	✓	✓	✓		
Wayfair	✓	✓			
Zola	✓				

 Distribution partner identified in our last report
 Distribution partner identified after our last report

Shortly after Shark first announced its robot vacuum in September 2017, we identified 11 iRobot distributors which were carrying Shark’s new robovacs.

Since then, we have identified another 14 iRobot distributors which started to carry Shark robot vacuums. One of these distributors (BJ’s Wholesale Club) no longer carries iRobot products.

...and this all just one year after Shark first announced its robot vacuum.

Note that Shark grew from 1% of the U.S.’s traditional vacuum market in 2008 to 20% in 2014.¹ It’s not inconceivable that it could replicate its performance in the robot vacuum market.

1. How Shark Ate Dyson’s Lunch In America. Forbes. Dec 29, 2014. [Source](#).



Competitive Landscape Becoming More Crowded At All Price Points

We noted in each of our prior iRobot reports that increasing competition posed a threat to the Company, which once enjoyed an effective monopoly on the robot vacuum market, but which is now just one among many players. At the low end, low-cost Chinese products are not only becoming more common, but also more technologically-competent – and, importantly, more visible across distribution channels. At the high end, Samsung continues to sell well-regarded robot vacuums, and Dyson – whose first robot vacuum struggled to gain traction due to its high price point – announced in September that it is releasing its second-generation robovac in China at ¥5,490 (~\$800), about 15% lower than the price at which its original robot vacuum sold.¹

Low-End Competition

*“More recently, we’re getting more competition at our entry-level price point and a lot of that competition seems to be coming out of China, where the products have typically not been premium in nature, but **they are trying to move up the food chain and try to compete more aggressively at our entry-level price point.**”*

- Alison Dean – June 12, 2018

High-End Competition

*“...on the higher end, **Samsung** has consistently been trying to establish themselves in North America. **It’s a very aggressive program in Q4.**”*

- Colin Angle – Q1 FY 2018 Earnings Call

Dyson's 360 Heurist robot vacuum has night vision powers

And goes for longer between charges

[Source](#)

Speculative Competition

Technology

Amazon Is Said to Be Working on Another Big Bet: Home Robots

By Mark Gurman and Brad Stone

April 23, 2018, 7:00 AM EDT Updated on April 23, 2018, 11:22 AM EDT







The Vesta project originated a few years ago, but this year Amazon began to aggressively ramp up hiring. There are dozens of listings on the Lab 126 Jobs page for openings like “Software Engineer, Robotics” and “Principle Sensors Engineer.” People briefed on the plan say the company hopes to begin seeding the robots in employees’ homes by the end of this year, and potentially with consumers as early as 2019, though the timeline could change, and Amazon hardware projects are sometimes killed during gestation.

[Source](#)

At every price tier, iRobot faces competitors offering similar products at lower prices

iRobot sells most expensive product at price tier, but does not have superior ratings. If anything, its product is rated lower than competing products.



 <p>This item iRobot Roomba 980 Robot Vacuum Cleaner with Strong Suction, for Low-pile Carpet, Hard floor, Wi-Fi Connected</p> <p>Add to Cart</p>	 <p>iRobot Roomba 970 Robot Vacuum Cleaner with Max Power Suction, Alexa Connectivity, App Controls, Self-Charging for Hard Surface Floors & Thin Carpets</p> <p>Add to Cart</p>	 <p>eufy Boost IQ Robotic Vacuum 115 (Slim, 1300Pa Strong Suction, Super Quiet, Self-Charging Robotic Vacuum Cleaner, Cleans Hard Floors to Medium-Pile Carpets (Black)</p> <p>Add to Cart</p>	 <p>iRobot Roomba 690 Robot Vacuum with Wi-Fi Connectivity, Works with Alexa, Good for Pet Hair, Carpets, Hard Floors</p> <p>Add to Cart</p>	 <p>eufy BoostIQ Robotic Vacuum 11+ (2nd Gen, Upgraded Bumper Suction, High Suction, Self-Charging Robotic Vacuum Cleaner, Fit for Pet Hair, Cleans Hard Floors to Medium-Pile Carpets</p> <p>Add to Cart</p>	 <p>iRobot Roomba 690 Robot Vacuum with Wi-Fi Connectivity, Works with Alexa, Good for Pet Hair, Carpets, Hard Floors</p> <p>Add to Cart</p>
\$1,911 ⁰² \$2,897	\$1,889 ⁰³	\$219 ⁰⁴	\$299 ⁰⁵	\$249 ⁰⁶	\$159 ⁰⁷
Harman's Jewels USA Inc.	Amazon.com	Eufy Home	Amazon.com	Eufy Home	Amazon.com
15 x 15 x 5.1 in	12.99 x 12.99 x 5.07 in	12.6 x 12.6 x 2.65 in	15 x 15 x 5.6 in	12.6 x 12.6 x 5.35 in	11.6 x 11.6 x 5 in
6.7 lbs	7.05 lbs	5.75 lbs	6.6 lbs	6.6 lbs	4.5 lbs
100 minutes	100 minutes	100 minutes	60 minutes	100 minutes	---
smartphone control	"smart phone" controls app alexa	BoostIQ	Powerful performance, Thorough coverage, 60-min runtime, Wi-Fi connected	---	cordless

¹ “Dyson's second robot vacuum isn't afraid of the dark,” [Engadget](#), Sept 2018



Competition Is Demonstrably Taking Share

By management's own admission, iRobot's market share has been steadily declining through the past several quarters – both in North America and globally. Interestingly, management did not provide specific market share data during the Company's most recent earnings call, which it very rarely fails to do.

88%

September 13, 2017

Alison Dean (CFO):

"We have 88% share currently in the U.S. market, and the only other competitor that we would see reported in the market data was a company called Neato."

December 5, 2017

Alison Dean (CFO):

"We think because the segment itself, we think is going to grow substantially, other competitors certainly will enter the market and I think there is growth opportunity for all of us. Would a share drop a little bit with new competition, probably, again when you're at 88%, there's probably only one way to go which is a little bit down."

February 8, 2018

No market share data disclosed

85%

June 15, 2018

Alison Dean (CFO):

"If you dive down now into the actual RVC segment, you can see that iRobot has maintained a very strong leadership position across all regions. We have an 85% share in North America of the RVC segment; about 71% in Europe; and 31% in APAC."

~80%

September 5, 2018

Colin Angle
(Chairman, CEO):

"In North America, about 10% of U.S. households currently have robot vacuums. iRobot has a very significant segment share in the robot vacuuming. In the U.S., it's over 80% of the robots sold were sold by iRobot."

(?)

October 24, 2018

No market share data disclosed



Tail Risk: Amazon Or Google Enters Robot Vacuum Market

In recent months, rumors have spread that both Amazon and Google are in the process of developing domestic robots as extensions of their home assistant products – Amazon Echo and Google Home, respectively. While neither is necessarily thought to be developing a robot vacuum, this hasn't been ruled out – and, even if they don't, the release of a domestic robot with the AI capabilities of Echo or Google Home would likely limit Roomba's potential to offer material added value as a broader home assistant.

Technology

Big Tech is Throwing Money and Talent at Home Robots

Alphabet and Huawei join Amazon in the race to build androids, the first of which could debut by 2020.

By [Mark Gurman](#)

July 24, 2018, 6:00 AM EDT Updated on July 24, 2018, 2:26 PM EDT

[Source](#)

Amazon

Technology

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By [Mark Gurman](#) and [Brad Stone](#)

April 23, 2018, 7:00 AM EDT Updated on April 23, 2018, 11:22 AM EDT

[Source](#)

The Vesta project originated a few years ago, but this year Amazon began to aggressively ramp up hiring. There are dozens of listings on the Lab 126 Jobs page for openings like "Software Engineer, Robotics" and "Principle Sensors Engineer." People briefed on the plan say the company hopes to begin seeding the robots in employees' homes by the end of this year, and potentially with consumers as early as 2019, though the timeline could change, and Amazon hardware projects are sometimes killed during gestation.

[Source](#)

Amazon's Project Vesta is overseen by Gregg Zehr, a veteran executive and a key leader at the company's Lab126 hardware division. Kenneth Kiraly, who helped develop the Kindle, helps run the show and has about doubled his team of engineers and developers to roughly 500 since the beginning of the year, according to people familiar with the effort. Now a top priority, Project Vesta has expanded from a single floor at the main Lab126 R&D office in Sunnyvale, California, to a larger, more secure facility, the people said. Amazon has moved people from other projects to the Vesta effort and canceled or pushed back other initiatives, they said.

[Source](#)

Google

Google stumbled in robotics — but evidence is mounting that it's getting ready for a big comeback, and it could take on Amazon

Greg Sandoval Sep. 1, 2018, 8:00 AM

In June, Google Brain brought back Ryan Hickman, who helped lead some of Google's earliest robotics efforts, going back to 2010. According to [Hickman's LinkedIn page](#), he's now in charge of product and operations "on a new robotics effort." And as far back as December, [X hired Liz Murphy](#), formerly an autonomous-robotics expert at Apple. Hickman and Murphy did not respond to questions from Business Insider about this story.

Meanwhile, in recent months, X, the experimental hardware lab and Google's sister company under Alphabet Inc., has posted a spate of new robotics-related positions on its site. Most of the ads start this way: "We believe there are many problems in the world in which robotics could play a significant role in making it easier, faster and safer for people to get things done."

[Source](#)

Increasingly Sophisticated Competitors Eroding iRobot's Perceived Premium Status

Management claimed at the Morgan Stanley conference (Sept 2018) that *“there really hasn’t been any major new competitive offering in the market.”* However, we observe that competing products within the premium robot vacuum category now offer technological features superior to Roomba’s. If there has been any justification for iRobot’s premium price in the past, it has been its (actual or perceived) technological dominance. In just a few short years, competitors have matched and surpassed the quality and level of technology featured in iRobot products.

Feature	Neato Botvac D7	Ecovacs Deebot 930	iRobot Roomba 980
Charge and Resume	Yes	Yes	No
Wi-Fi Connected	Yes	Yes	Yes
Virtual No-Go Zones	Yes	Yes	No (Not Native)
Side Brush	Yes	Yes	Yes
Multiple Floor Planning Map	Yes	No	No
Zone Cleaning	Yes	Yes	No
Manual Drive Remote Control	Yes	Yes	No
Laser Vision	Yes	Yes	No
Integrated Mop	No	Yes	No

Requires a Virtual Wall or Lighthouse to be placed in front of room to create virtual barrier ([\\$49.99 each](#)).



Roomba 980 uses a camera rather than lasers to map out routes. This results in poor performance in low-light or no-light environments ([source](#)).

iRobot Appears To Be Playing Technological Catch-Up

iRobot's newly-released Roomba i7+ offers a number of new features unavailable in previous iRobot vacuums. However, most of these features have been available in robot vacuums sold by other manufacturers for some time.

Management is notorious for over-hyping and over-promoting the Company's products and technology (see later slides). In reality, there is nothing revolutionary in iRobot's new vacuum: it is just another robot vacuum with features similar to those of other premium-tier robovacs.

Feature	Description	Notes
"First-of-its-kind" Clean Base Automatic Dirt Disposal	Roomba automatically empties dust bin into Clean Base after every cleaning. Clean Base can hold the equivalent of 30 dust bins.	<ul style="list-style-type: none"> Self-service station for robot vacuums first introduced by Karcher RC3000 in 2002 (source). Available for Ecovacs Deebot R98 since 2012 (link). Currently sells online (with self-service station) for less than \$450 (link - archived). Compare to all-in price for Roomba i7+ and stand of \$949.99.
Imprint Smart Mapping	On-board camera allows robot to map and remember floor area rather than clean in random patterns. Permits labeling of individual rooms and creation of room-specific cleaning schedules.	<ul style="list-style-type: none"> Already available on Neato D7, Ecovacs 930, and Dyson 360 Heurist. Was available in Dyson 360 Eye as early as 2015. Use of cameras rather than laser results in poor performance in low-light and no-light environments (source).
Direct Command To Clean Specific Rooms, Via Voice Or App	User can command Roomba to clean a specific room via Alexa or Google. Management claims iRobot to be the only robot vacuum company offering this feature.	<ul style="list-style-type: none"> Neato D7 supports room-specific voice commands via D7 Connected software (source). Ecovacs 930 supports room-specific commands via user input into app (link).

The Market No Longer Considers Roomba The Best Robot Vacuum

Despite iRobot's claims that Roomba is a premium, technologically-superior product, relatively few tech websites cite Roomba as their best-reviewed or recommended robot vacuum, whether on the basis of quality or value.

In fact, Roombas are consistently rated below other robot vacuums not just on value, but also on quality and technology. Not only are Roombas not a good value for their premium price, but they aren't necessarily technologically dominant even when price is disregarded.

Site	Top-Rated Robot Vacuum	Rating	Highest iRobot Rating	Rating	Source (Rankings As Of 2018)
Digital Trends	Eufy RoboVac 11S with Boost IQ	4/5	"Best Multisurface" (Roomba 980)	3/5	Source Archived
CNET	Neato Botvac Connected Robot Vacuum	8.6	2 nd (Roomba 880)	8.3	Source Archived
Tom's Guide	Samsung Powerbot R7070	4/5	-	-	Source Archived
Trusted Reviews	Dyson 360 Eye	-	-	-	Source Archived
Consumer Reports	Ecovacs Deebot M88	-	3 rd (Roomba e5)	-	Source Archived
PCMag	Ecovacs Deebot N79S	4/5	"Best For Deep Cleaning" (Roomba 960)	4/5	Source Archived
Wirecutter	Eufy RoboVac 11S	-	3 rd (Roomba 690)	-	Source Archived
Business Insider	Roomba 690	-	1 st (Roomba 690)	-	Source Archived
Independent	Dyson 360 Eye	-	5 th (Roomba 980)	-	Source Archived
Reviewed	LG Hom-Bot Turbo+	-	6 th (Roomba 980)	-	Source (Can't be archived)
Techradar	Roomba 980	-	1 st (Roomba 980)	-	Source Archived

Ineffective R&D Spending Produces No Secondary Products Of Material Value

In our prior reports on iRobot, we detailed management's struggles to expand the business beyond its signature Roomba product. Since our original report, the Company has not only failed to come to market with products which it has been planning to roll out for years, but it has failed to grow its other existing product lines to any significant extent, and has cut several products from its lineup. The Braava robot mop – iRobot's only other product line producing anything remotely close to material revenue – has also seen limited growth through the last few years.

Business Segment / Product	History	Status
Defense and Security Business	Launched in 1998. Provided battlefield robots to Department of Defense.	<ul style="list-style-type: none"> Sold to Arlington Capital Partners in 2016. Now does business as "Endeavor Robotics".
Looj (Gutter-Cleaning Robot)	Launched in 2008	<ul style="list-style-type: none"> Generally met with mixed to poor reviews (example) Discontinued in 2017
Mirra (Swimming Pool Cleaner)	Launched in 2013 as replacement for Verro pool cleaner product line	<ul style="list-style-type: none"> Currently responsible for less than 1% of iRobot revenue.
TelePresence	Released Ava 500 video collaboration robot in 2013 after years of planning and R&D	<ul style="list-style-type: none"> Currently responsible for less than 1% of iRobot revenue despite heavy promotion by management as a future source of growth (see our original report on iRobot)
Scooba (Floor-Scrubbing Robot)	Launched in 2006	<ul style="list-style-type: none"> Discontinued in 2016 in favor of Braava robotic mop
Braava (Robotic Mop)	Developed by Evolution Robotics (acquired by iRobot in 2012 for \$74M)	<ul style="list-style-type: none"> Responsible for less than 10% of iRobot revenue as of FY 2017 LTM growth in mopping units shipped: 2%
Terra (Robotic Lawnmower)	In development since mid-2010s. Applied for "Terra" trademark in 2014 (source). Received FCC clearance to sell lawnmowing robot against National Radio Astronomy Observatory challenge in 2015 (source).	<ul style="list-style-type: none"> Not available to consumers as of November 2018. Management continues to say that they intend to come to market with the lawnmower, but have refused to provide details or updates on earnings calls.



The only non-Roomba product line currently producing material revenue for iRobot was developed from acquired technology. iRobot spends ~13% of its revenue on R&D – yet it has produced no secondary products of material value and has done little more than to help iRobot tread water with the technological level of the rest of the industry.



Aggressive Competitive Dynamics Driving Material Price Deflation

Amazon Becoming Increasingly Significant Distribution Channel – And Increasingly Competitive

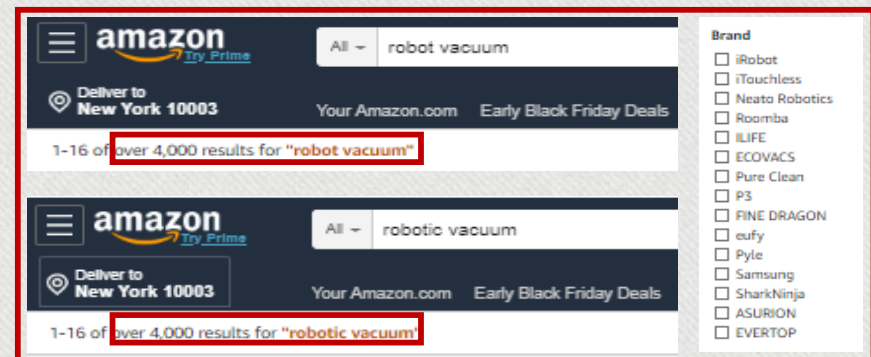
A significant share of iRobot sales growth has come via Amazon through the last several quarters (about 1/3 of Q3'18 sales growth). Recent filings indicate that sales via Amazon have grown 2-3x YoY through the last several quarters (possibly fueled in part by Prime Day), while growth through all other channels has steadily decelerated. Yet, at the Morgan Stanley conference (Sept 2018), CFO Dean said *"We don't really look at market share at Amazon"* when asked about its significance – a dodgy answer at best. iRobot last disclosed a domestic brick-and-mortar retailer as a significant customer in Q1'17, when it listed Bed Bath & Beyond as responsible for 10% of sales.¹ As management admits, Amazon is a highly competitive platform which facilitates competition from sellers which otherwise may have difficulty reaching customers through traditional retail channels, and which makes product comparisons relatively frictionless for customers. The growing importance of Amazon as an RVC distribution channel is a worrisome development.

\$M, except percentages	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
Total Sales	\$131	\$149	\$169	\$212	\$168	\$183	\$205	\$327	\$217	\$226	\$265
% of Sales via Amazon	7.8%	12.2%	10.2%	11.2%	6.4%	15.9%	11.0%	17.2%	11.3%	23.8%	24.8%
Sales via Amazon	\$10	\$18	\$17	\$24	\$11	\$29	\$23	\$56	\$25	\$54	\$66
Sales via Other Channels	\$121	\$131	\$152	\$188	\$157	\$154	\$183	\$271	\$192	\$172	\$199
Sales Growth via Amazon (YoY)					10%	61%	35%	133%	127%	85%	190%
Sales Growth via Other Channels (YoY)					30%	18%	20%	44%	22%	12%	9%

Amazon searches for "robot vacuum," "robotic vacuum," etc. generate over 4,000 results from 15 brands.

A customer would be lucky to find more than two brands of robot vacuums at a brick-and-mortar retailer (but iRobot would likely be one of them).

Amazon expands the customer's options and effectively increases competition in the space.



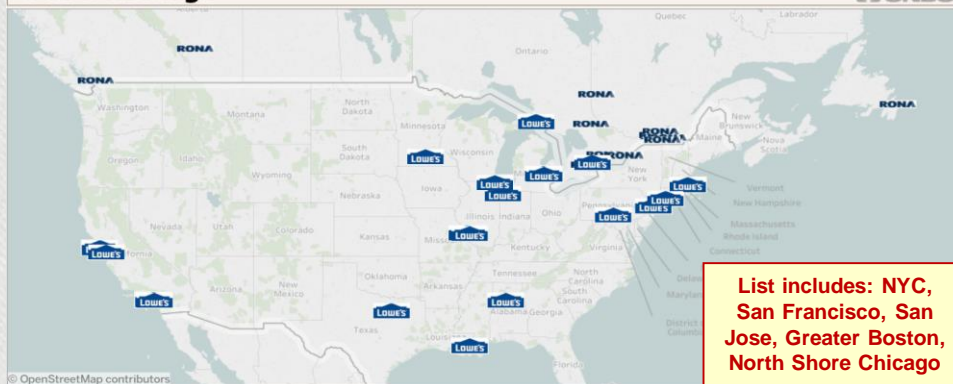


iRobot's Brick-And-Mortar Retailers Are Closing, Devaluing Its Premium Proposition

As iRobot loses its physical distribution footprint, its ability to connect with consumers in a tangible manner as a premium robotic vacuum erodes. Greater dependency on Amazon and online channels is a long-term negative for brand value.

Lowe's Is Closing Many Stores – Even In Affluent Neighborhoods

Store closings



Open until 10PM
North Bergen Lowe's

mylowes Sign in

Departments

Search for it here...

iRobot Vacuums

iRobot

Powerful Cleaning, Smart Living

The helping hand you need to keep your floors clean every day — all with the push of a button.

SHOP NOW

Bed Bath & Beyond Struggling – Share Price At 5yr Low

Bed Bath & Beyond could close 40 stores

By Louisa Hallett - 07/11/2018

Bed Bath & Beyond's turnaround plan apparently includes the possible closure of 40 stores.

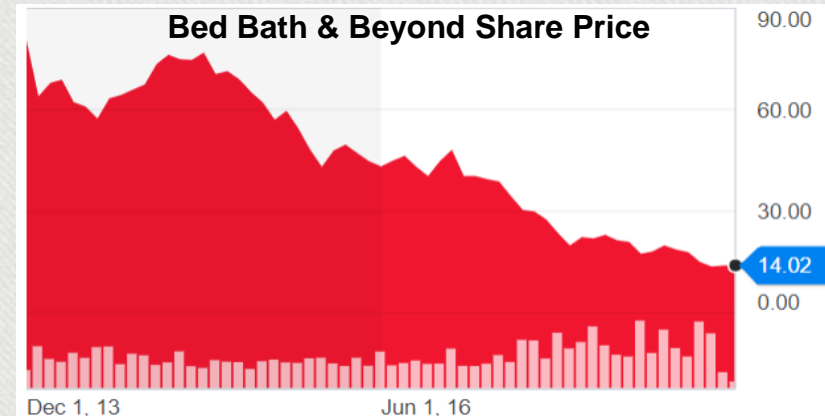
According to a 10-Q filing submitted to the Securities and Exchange Commission, the company has approximately 400 stores across its retail fleet that will come up for renewal at the natural lease expiration over the next two years, including approximately 270 BBB stores.



"In fiscal 2018, the company expects to close approximately 40 stores, u negotiate more favorable l landlords, and open appro. Market stores," the filing s related projects, including to the company's customer analytics and the contin

Bed Bath & Beyond's stores have been slammed as 'devoid of inspiration' and 'a mess.' We went shopping there and found it completely overwhelming.

Jessica Tyler Oct 25, 2018, 1:30 PM




Source: [Business Insider](#) and [Retail Leader](#)

Competitiveness Of The Amazon Platform Threatens Pricing And Margins

Competition for prime placement on Amazon landing pages is intense and puts downward pressure on margins. Until just several weeks ago, close to half of the top hits on an Amazon search of “robot vacuum” were sponsored results, indicating that robot vacuum manufacturers were aggressively paying for top spots on Amazon’s search results page. Amazon appears to have since cleaned up its search results (perhaps in anticipation of the holiday season), but about half of the top results prominently feature discounts of 10-20%.

Amazon's Choice




eufy Boost IQ RoboVac 11S (Slim), 1300Pa Strong Suction, Super Quiet, Self-Charging Robotic Vacuum Cleaner, Cleans Hard Floors to Medium-Pile Carpets (Black)
by eufy

~~\$219.99~~ **\$199.99** ✓prime
Get it by Wed, Nov 7
FREE Shipping on eligible orders
See newer version +

★★★★☆ • 667
Save \$20.00 with coupon
Product Features
... All-New RoboVac: Re-engineered to be the slimmest* RoboVac (2.85") but ...

9% Discount



eufy BoostIQ RoboVac 30, Upgraded, Super-Thin, 1500Pa Strong Suction, 13 ft Boundary Strips Included, Quiet, Self-Charging Robotic Vacuum Cleaner, Cleans Hard Floors to Medium-Pile Carpets
by eufy

~~\$269.99~~ **\$239.99** ✓prime
Get it by Wed, Nov 7
FREE Shipping on eligible orders
See newer version +

★★★★☆ • 221
Save \$30.00 (with coupon)
Product Features
... What You Get: RoboVac 30, 13 ft Boundary Strip, remote control (2 AAA ...


11% Discount

Expert Recommendations
Consumer Reports - Amazon Verified Expert

Robotic Vacuum Cleaners
3 product recommendations by Consumer Reports
April 24, 2018

Consumer Reports tested more than two dozen robotic vacuums, evaluating how well each removes debris on low-pile carpeting and bare floors, whether it could reach tight corners, and the length of time it took to clean a floor area designed to mimic typical bedroom and living room layouts. For each vacuum, half a gram of Maine Coon cat fur, 84 Cheerios, and 2 teaspoons of rice are distributed on the floor. Our engineers determine what the robot cleaned and what it missed or simply redistributed. Models that performed best and were also the easiest to set up, program, and clean earned “recommended” status. Many of the best models also have a lower profile—that is, they are shorter than others—so they have an easier time cleaning under beds and other low furniture.
Read full article


Recommended



Samsung POWERbot R706S Robot Vacuum, Works with Amazon Alexa
by Samsung

~~\$499.99~~ ~~\$599.00~~ **\$499.99** ✓prime
★★★★☆ • 64
More than powerful enough to clean surface debris from carpets and bare floors in a single pass... more +


Recommended



iRobot Roomba 890 Robot Vacuum Cleaner with Wi-Fi Connectivity...
by iRobot

~~\$399.00~~ ~~\$499.00~~ **\$399.00** ✓prime
★★★★☆ • 372
This midpriced vacaced all of CR's tests. It expertly senses debris and automatically adapts to... more +


Best Buy



eufy RoboVac 11, High Suction, Self-Charging Robotic Vacuum Cleaner...
by eufy

~~\$355.95~~ **\$355.95**
★★★★☆ • 3,185
This quiet, relatively inexpensive vac has no problem cleaning bare floors or low-pile carpets, or... more +

Home Gift Guide




iRobot Roomba 690 Robot Vacuum with Wi-Fi Connectivity, Works with Alexa, Good for Pet Hair, Carpets, Hard Floors
by iRobot

~~\$299.99~~ ~~\$374.99~~ **\$299.99** ✓prime
Get it by Wed, Nov 7
FREE Shipping on eligible orders
More Buying Choices
\$204.06 (16 used & new offers)

★★★★☆ • 2,046
Amazon Certified: Works with Alexa

Only two iRobot vacuums featured in top ten results, versus five eufy vacuums


Home Gift Guide



ILIFE V3s Pro Robotic Vacuum, Newer Version of V3s, Pet Hair Care, Powerful Suction Tangle-free, Slim Design, Auto Charge, Daily Planning, Good For Hard Floor and Low Pile Carpet
by ILIFE

~~\$159.99~~ **\$159.99** ✓prime
Get it by Tomorrow, Nov 6
FREE Shipping on eligible orders
More Buying Choices
\$109.99 (9 used & new offers)

★★★★☆ • 988




eufy RoboVac 11, High Suction, Self-Charging Robotic Vacuum Cleaner with Drop-Sensing Technology and High-Performance Filter for Pet, Designed for Hard Floor and Thin Carpet
by eufy

~~\$355.95~~ **\$355.95**
FREE Shipping on eligible orders
Only 3 left in stock - order soon.
More Buying Choices
\$100.00 (9 used & new offers)
See newer version +

★★★★☆ • 3,185
Product Features
... What You Get: eufy RoboVac 11, remote control (requires 2 AAA batteries ...

Home Gift Guide




eufy [BoostIQ] RoboVac 11+ (2nd Gen: Upgraded Bumper Suction Inlet) High Suction, Self-Charging Robotic Vacuum Cleaner, Filter Pet Fur, Cleans Hard Floors to Medium-Pile Carpets
by eufy

~~\$249.99~~ **\$249.99** ✓prime
Get it by Wed, Nov 7
FREE Shipping on eligible orders
More Buying Choices
\$215.00 (16 used & new offers)
See newer version +

★★★★☆ • 777
Save \$30.00 (with coupon)
Product Features
... Front bumper streamlines RoboVac's profile to glide effortlessly ...

20% Discount

Home Gift Guide



ECOVACS DEEBOT N79S Robot Vacuum Cleaner with Max Power Suction, Alexa Connectivity, App Controls, Self-Charging for Hard Surface Floors & Thin Carpets
by ECOVACS

~~\$199.99~~ ~~\$299.99~~ **\$199.99** ✓prime
Get it by Wed, Nov 7
FREE Shipping on eligible orders
More Buying Choices
\$185.00 (16 new offers)

★★★★☆ • 1,010
Amazon Certified: Works with Alexa

Next ten results: eufy (4), ECOVACS (1), ILIFE (1), iRobot (1), DEENKEE (1), PURE CLEAN (1), amarey (1)

Competition For Prime Placement On Amazon Encourages Aggressive Pricing And Promotion

iRobot management and other sources confirm that placement on Amazon landing pages is dynamic and depends not only on sales performance, but also on both price and “investment” – i.e. products which are priced more aggressively, and whose sellers pay for higher positioning, are featured higher or more prominently.

iRobot’s premium pricing thus weighs on its positioning on Amazon unless it pays for higher placement. Either way, competing for prime positioning on Amazon compresses margins, especially as Amazon becomes an increasingly important distributor for iRobot.

iRobot Investor Day – March 1, 2018

“when I go on Amazon.com and just filter by vacuum, you guys are seen in the 10th spot compared to a lot of other retailers where you're the first one to pop up. How do you work that relationship specifically with Amazon and get your gadgets to put number one vacuum when you search it, so the customers are getting introduced to the category and maybe not familiar with iRobot, you're the first ones on there.”

- Unidentified Participant

*“Okay. So it's unfortunate because you sort of – you're making comments, I'm guessing, based on recent searches, which isn't really indicative of our strategy or our normal placement on Amazon searches. But **Amazon results and their searches is highly a function of investment as well as performance.***

So, you are seeing a function of lower price points showing up initially in the rankings when you do your searches. But we do have a very comprehensive and aggressive media spend on Amazon's marketing platform that will normally show a lot of exposure and branding for iRobot as well as the category.”

- Jennifer Lichtenheim

Shopify: Product Listing Optimization

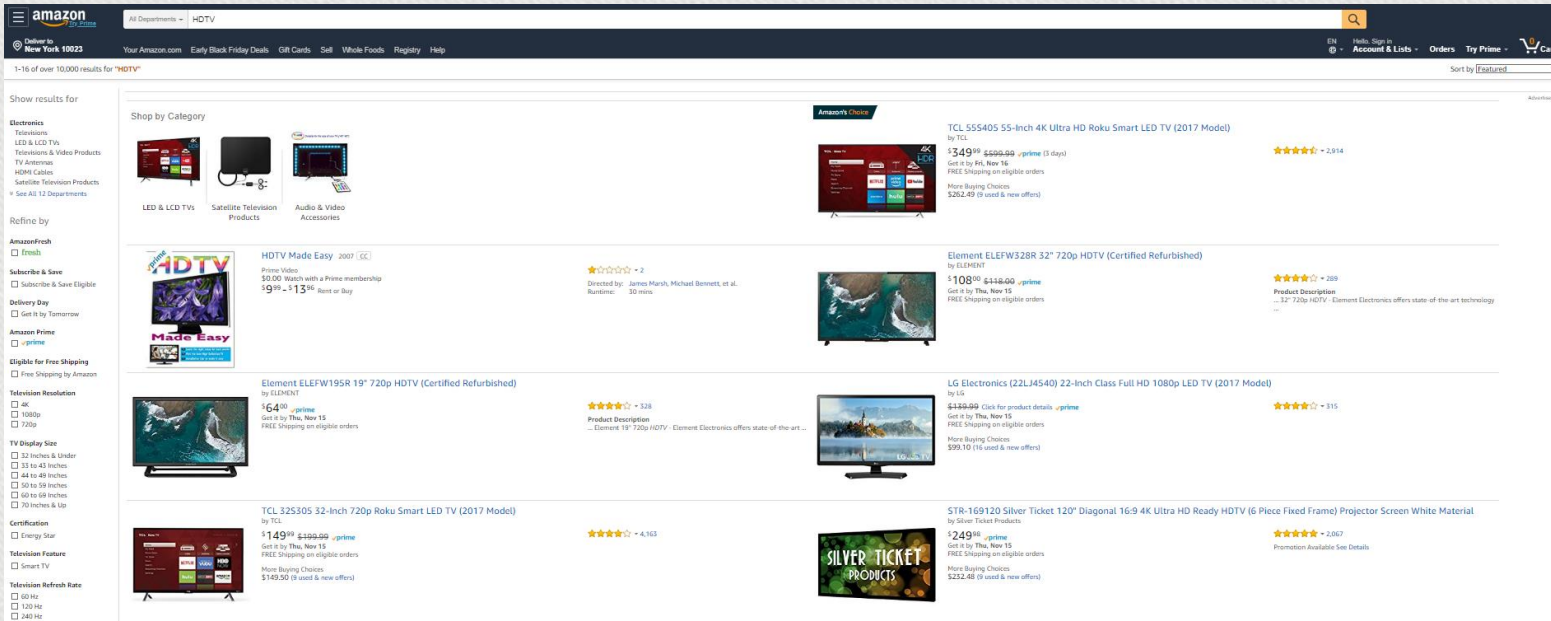
*“Finally, because the Best Seller Ranks and Search Algorithms are constantly updating, **you may drop in search results when you are not on sale, and increase when you are back on sale.** If this is the case, you are probably better off limiting the high-low model and moving to a stronger everyday price so that you can build momentum in your rankings over time and continue to gain more reviews.”*

- Shopify ([link – archived](#))

Competition For Prime Placement On Amazon Encourages Aggressive Pricing And Promotion

- **Brick-and-Mortar Stores:** Favor name-brand products over no-name brands due to limited shelf space to ensure customer interest, and promotes featured products to drive store traffic.
- **Amazon:** No pressure to feature only name-brand products due to effectively infinite “shelf space.” As an online marketplace with infinite shelf space, participates less in the manufacturer’s sales risk when committing space to its products, and therefore has less interest in promoting specific products or brands. No-name products may be featured first if they meet SEO criteria more closely – and they often do across many, many products. Can monetize competition for top spots on landing pages, benefitting from aggressive competition.
 - **Exercise For The Reader:** Go to Amazon now and search for a product: HDTV, headphones, winter coat, etc. What percentage of the first few brands listed do you recognize by name?

Example: HDTVs



The screenshot shows the Amazon.com search results for "HDTV". The page displays a grid of product listings with images, titles, prices, and ratings. The top results include:

- TCL 55S405 55-inch 4K Ultra HD Roku Smart LED TV (2017 Model)** by TCL. Price: \$349.99 (was \$699.99). Rating: 4.5 stars (2,814 reviews).
- Element ELEFW328R 32" 720p HDTV (Certified Refurbished)** by ELEMENT. Price: \$108.00 (was \$148.00). Rating: 4.5 stars (209 reviews).
- LG Electronics (22LJ4540) 22-inch Class Full HD 1080p LED TV (2017 Model)** by LG. Price: \$139.99 (was \$199.99). Rating: 4.5 stars (315 reviews).
- STR-169120 Silver Ticket 120" Diagonal 16:9 4K Ultra HD Ready HDTV (6 Piece Fixed Frame) Projector Screen White Material** by Silver Ticket Products. Price: \$249.99 (was \$299.99). Rating: 4.5 stars (2,067 reviews).

The page also includes a sidebar with filters for "Shop by Category", "Refine by", and "Television Resolution".

Top Results for “HDTV” Search:

- Element (4)
- TCL (2)
- Sceptre (2)
- Silver Ticket Products (1)
- U Must Have* (1)
- LG (1)
- Hitachi (1)

How many of these brands do you recognize?

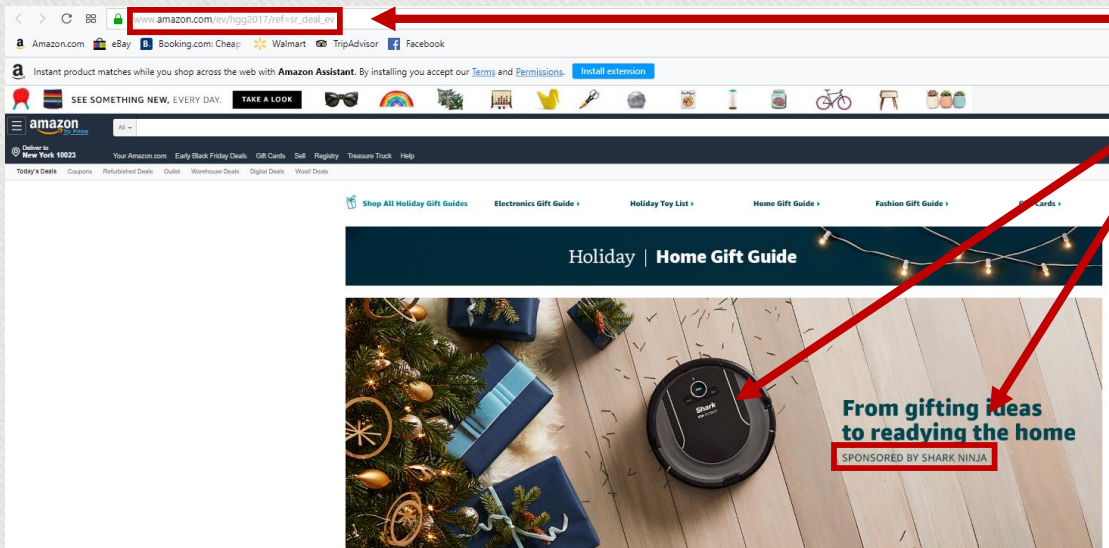
***Also listed as the category’s “Best Seller”**

The shift away from brick-and-mortar stores in favor of Amazon undermines much of iRobot’s name recognition advantage, and levels the playing field between it and smaller players.

Further Evidence That iRobot Does Not Stand Out On Amazon

As shown on previous slides, iRobot appears as but one among many robot vacuum competitors on Amazon: it does not have prime positioning on Amazon's landing pages, and its products are given fewer spots near the top than competitors. It is included as one of Consumer Report's "expert picks," but no more prominently than the others.

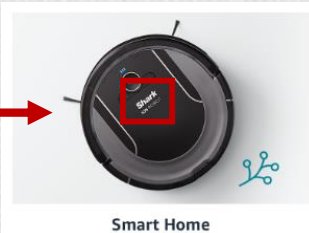
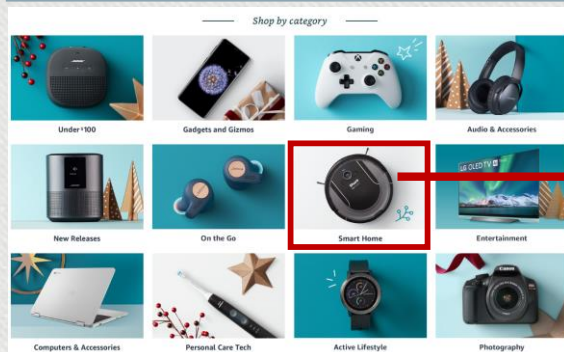
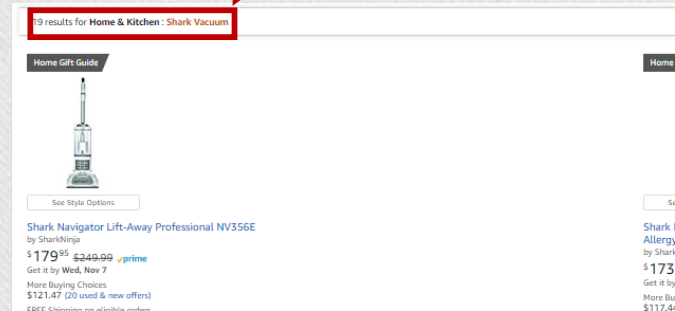
iRobot vacs are also outnumbered on Amazon's Home Gift Guide, the front page of which is prominently sponsored by Shark.



Holiday Home Gift Guide Home Page ([link](#), [archived](#))¹

Sponsored by SharkNinja.

Clicking anywhere in this large box leads to a page featuring exclusively Shark vacuums (including robot vacuums) ([link](#) – [archived](#)).



SharkNinja is also the featured image for the "Smart Home" gift category ([link](#), [archived](#)).

Within the first page of the "Smart Home" category, of a total of 35 featured products, 8 are robot vacuums: Neato (4), iRobot (3), and Shark (1) ([link](#) – [archived](#)).

The Moral Of The Story:

1. The channel on which iRobot depends most for growth is extremely competitive and promotional.
2. Any advantage that Roomba carries as a known, established player is weakened when comparable products are pushed aggressively through the same channel.

1. We recognize that this URL includes the string "hgg2017", suggesting that it links to last year's Holiday Home Gift Guide. However, as of November 5, 2018, the link to the Holiday Home Gift Guide from other pages on Amazon points to this page. The identical URL with "2017" replaced by "2018" points to an error page, indicating that the "2018" page does not exist.

Rising Industry Competitiveness Pressuring iRobot's Pricing

Consumer tech products which feature materially improved technology with each new release, or which benefit from customer stickiness / conspicuous consumption dynamics (think iPhones), can manage to support progressively higher prices in each successive generation.

Consumer tech products in which material technological advancement is slow, and which benefit less from customer stickiness / conspicuous consumption dynamics (think TVs), experience rapid price deflation.

Robot vacuums are much more like TVs than iPhones: they are effectively appliances with only so much room for material technological superiority within each product tier. Price deflation is inevitable and already apparent.

Product	Release Date	iRobot Website	Best Buy	Amazon	Avg Price (A)	Original Price (B)	Discount (B - A)	Discount %
Roomba i7+	Sep. 2018	\$949.99 ¹	\$949.99 ¹	-	\$949.99 ¹	\$949.99 ¹	-	-
Roomba e5	Sep. 2018	449.99	-	-	449.99	449.99	-	-
Roomba 980	Sep. 2015	-	699.99	698.90	699.45	899.66	200.22	22%
Roomba 960	Aug. 2016	599.99	549.99	548.75	566.24	699.99	133.75	19%
Roomba 890	May 2017	-	399.99	-	399.99	499.50	99.51	20%
Roomba 690	May 2017	349.99	349.99	304.99	334.99	349.99	15.00	4%
Roomba 675	2018	299.99	269.99	-	284.99	299.99	15.00	5%

New Products

Legacy Products

The newest Roomba is launching at a price just 5% higher than the launch price of the most advanced Roomba from three years ago – and the new price of the i7+ includes the Clean Base tower. iRobot is clearly experiencing significant price deflation, and the return on its R&D spend – the backbone of its purported technological advantage – is in progressive decline.

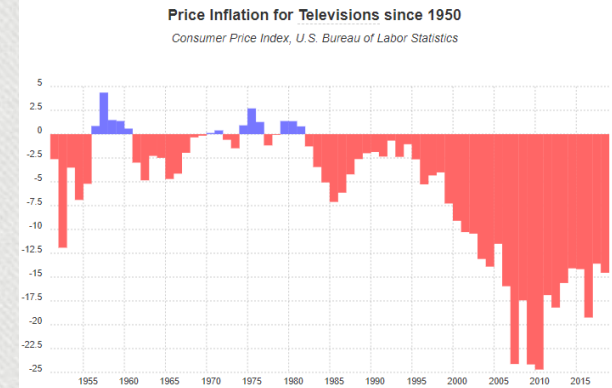
Meanwhile, iRobot is helping to drive growth by offering significant discounts on legacy products, which bring its vacuums more in line with pricing across the rest of the space. Driving growth by cutting prices will depress margins over time.

Industry Commoditization And Aggressive Competition Driving Material Price Deflation

Aggressive pricing across the industry, combined with the continued commoditization of robot vacuums, is driving rapid price deflation among iRobot products. Prices across iRobot vacuums are down as much as 22% between March and September 2018 – a span of just six months. This was perhaps due in part to iRobot lowering prices in anticipation of the release of the Roomba i7+ and Roomba e5, but it's notable that prices were down anywhere between 5% and 15% months before the new products were to be released (even outside of promotional dates such as Father's Day).

	Mar-18 Price	Apr-18 Price	May-18 Price	Memorial Day Price	Father's Day Price	Jul-18 Price	Aug-18 Price	Sep-18 Price	Current Price
Roomba 980									
iRobot website	899.99	799.99	899.99	799.99	699.99	899.99	699.99	707.99	na
Amazon	884.95	799.00	870.00	800.11	699.00	797.00	699.99	707.99	698.90
Best Buy	899.99	799.99	899.99	899.99	699.99	799.99	699.99	799.99	699.99
Target	899.99	799.99	899.99	na	699.99	799.99	699.99	707.99	na
Walmart	888.95	799.99	899.99	899.99	699.00	800.11	699.99	730.99	699.00
Average	894.77	799.79	893.99	850.02	699.59	819.42	699.99	730.99	419.58
Discount Since March 2018		(11%)	(0%)	(5%)	(22%)	(8%)	(22%)	(18%)	(53%)
Roomba 960									
iRobot website	699.99	599.99	699.99	629.99	529.99	699.99	529.99	599.99	599.99
Amazon	699.00	599.00	699.00	629.99	529.00	587.00	539.99	549.99	548.75
Best Buy	699.99	599.99	699.99	699.99	529.99	699.99	529.99	549.99	549.99
Target	699.99	599.99	699.99	na	529.99	699.99	529.99	na	549.99
Walmart	699.00	599.99	699.99	629.99	529.00	699.00	529.99	569.00	549.00
Average	699.59	599.79	699.79	647.49	529.59	677.19	531.99	567.24	559.54
Discount Since March 2018		(14%)	0%	(7%)	(24%)	(3%)	(24%)	(19%)	(20%)
Roomba 690									
iRobot website	374.99	324.99	374.99	299.99	374.99	349.99	349.99	349.99	349.99
Amazon	299.00	299.00	302.88	299.99	299.00	299.00	279.99	299.00	304.99
Best Buy	324.99	299.99	324.99	299.99	299.99	299.99	279.99	299.99	349.99
Target	299.99	299.99	324.99	299.99	299.99	374.99	279.99	349.99	299.99
Walmart	374.00	374.00	374.00	324.70	329.99	349.00	249.00	349.00	329.99
Average	334.59	319.59	340.37	304.93	320.79	334.59	287.79	329.59	326.99
Discount Since March 2018		(4%)	2%	(9%)	(4%)	--	(14%)	(1%)	(2%)

Reminds us of this...




See link [here](#). Source of data: U.S. Bureau of Labor Statistics.

Average Gross Selling Price Contraction Reflects Continued Price Deflation


YoY average selling price changes were generally negative until iRobot's recent acquisition of two distributors, with which average selling prices jumped markedly – something of which we are suspicious. However, QoQ ASP changes have been negative outside of acquisition years, suggesting ongoing price deflation when acquisition effects are netted out. This held true in Q3 2018 despite iRobot's new product launches. Management attributed recent QoQ price declines and Q2 YoY sales growth deceleration to “typical fluctuations” – a poor explanation in our view.

The Robopolis acquisition will anniversary within the next two quarters. While the new product launches may stave off the full force of deflation to some extent in the near term, investors should watch for YoY growth in ASPs to revert to its prior trend following the anniversary, barring additional M&A. Management has said that “*there is no real low hanging fruit*” for future acquisitions in any case.


	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Average Gross Selling Price	\$257	\$241	\$229	\$268	\$258	\$275	\$249	\$305	\$309	\$285	\$276	TBD	TBD
Y/Y Change	8.0%	-2.4%	-9.1%	6.8%	0.4%	14.6%	8.7%	13.8%	19.8%	3.6%	10.8%	We Expect Negative Trends	
Q/Q Change	2.4%	-6.6%	-4.6%	17.0%	-3.7%	3.6%	-9.5%	22.5%	1.3%	-7.8%	-3.2%		




SODT
(Japan)
Acquisition




Robopolis
Acquisition




SODT
Acquisition
Anniversaries




Full Impact of
SODT
Anniversary




Doubles
Line of Credit



i7+ and e5
product launch



Robopolis
Acquisition
Anniversaries



Full Impact of
Robopolis
Anniversary

Note that QoQ average selling prices have continued to contract through the last two quarters despite management communicating that promotional activities had not been as aggressive as planned.

How drastic will the price declines be when management has to resort to more aggressive promotional activity?



Revenue, Cash Flow, Quality Of Earnings, And Tariff Impact

Revenue Growth Slowing Across Geographies Ex-One Offs

iRobot's performance in recent quarters demonstrates clearly that both domestic and international growth are slowing. International revenue growth was largely flat before the tailwind from the Company's two recent acquisitions, and has since trended back towards mid-teens levels even before the Robopolis acquisition is anniversaried. Annual domestic sales growth had also fallen from ~35-50% to mid-teens levels before the i7+ and e5 were released in Q3. Domestic sales growth numbers will likely normalize over the coming quarters.

\$M, except percentages	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
Total Revenue	\$131	\$149	\$169	\$213	\$169	\$183	\$205	\$327	\$217	\$226	\$265
Y/Y Growth	11%	-0%	17%	3%	29%	23%	22%	54%	29%	24%	29%
Domestic Revenue	\$63	\$67	\$66	\$124	\$85	\$97	\$88	\$183	\$107	\$112	\$127
Y/Y Growth	56%	27%	13%	47%	24%	46%	34%	47%	26%	15%	45%
International Revenue	\$65	\$82	\$103	\$88	\$84	\$86	\$118	\$144	\$110	\$115	\$137
Y/Y Growth	-8%	-4%	30%	-3%	29%	5%	15%	64%	32%	34%	17%
Non-Consumer	3	1	1	0	0	-	-		-	-	-

**SODT
(Japan)
Acquisition**

**Robopolis
Acquisition**
**SODT
Acquisition
Anniversaries**

**i7+ and e5
product launch**

Management fighting negative revenue growth trends with one-off actions such as acquisitions and new product launches. Growth rates will normalize to much less attractive levels when these events are anniversaried over the next several quarters. Notably, the Robopolis acquisition will anniversary after Q4 2018.

Cash Flow In Consistent Decline, Driven By Growing Working Capital Spending

iRobot cash flow has declined year-over-year in five of the last seven quarters. This has largely been due to changes in working capital: CFO before changes in working capital actually grew year-over-year in all but one of these quarters, but outsized spending on working capital ultimately drove Net CFO contractions. Cash spending on working capital has increased on a year-over-year basis for five straight quarters, and for six of the last seven quarters.

Perhaps telegraphing financial strain, iRobot unexpectedly increased its line of credit from \$75m to \$150m in July 2018. The last time iRobot increased its facility was in 2011 when it increased from \$40m to \$75m¹ The decision to increase the line of credit is unusual given that the Company has \$126m of cash on hand, and was on pace for \$50m+ of operating cash flow. Management has also said there are no obvious near-term acquisition targets. DSOs have grown on an annual basis for four straight quarters in conjunction with this trend. This is particularly concerning in the wake of iRobot's recent acquisition of two distributors, which gives management opportunities to manipulate performance through channel-stuffing with related parties, etc.

\$ in mm	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
CFO Before Changes in Working Capital	\$11	\$12	\$31	\$15	\$24	\$14	\$30	\$25	\$34	\$24	\$49
Y/Y Gain (Loss)	0	(3)	9	(5)	14	2	(1)	10	9	9	18
Net Working Capital Spend	\$38	(\$25)	0	\$34	\$2	\$8	\$12	\$0	(\$4)	(\$27)	(\$35)
Y/Y Decrease (Increase)	41	(15)	14	48	(35)	17	(12)	(34)	(6)	(19)	(23)
Net Cash From Ops	\$49	(\$13)	\$31	\$49	\$27	\$6	\$18	\$25	\$30	(\$4)	\$14
Y/Y Gain (Loss)	41	(17)	23	43	(22)	19	(13)	(24)	3	(10)	(4)

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
DSO	20	36	37	32	26	19	35	40	29	30	38
Y/Y Change	-31%	-10%	-25%	-32%	29%	-49%	-7%	27%	13%	62%	11%

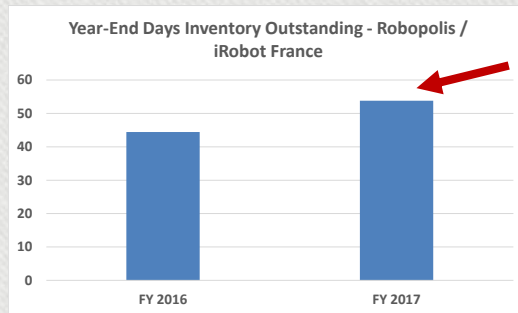
Management has blamed this trend in working capital on its recent acquisitions. However, as we demonstrate on the next slide, it is unlikely that the acquisitions are responsible for the majority of the growth in working capital spending.

1) iRobot increases Resolving Line of Credit to \$150m and \$75m (2011)

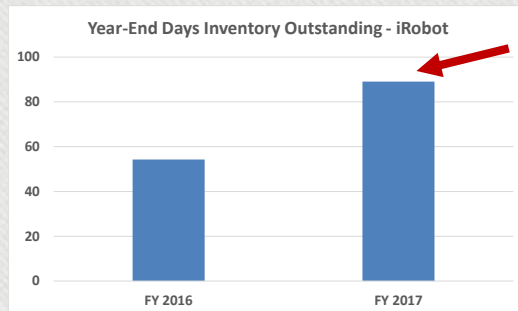
Inventory Ballooning At A Rapid Pace

Of iRobot's growing working capital spend, its investment in inventory stands out the most. For much of the past five years, iRobot's DIO has ranged between 45-70. Through the last three quarters, its DIO figure has exploded to close to 120.

Again, management blamed the growth in inventory on its recent acquisitions of distributors and new product launches, and guided to 100 DIO during the later half of last year. However, according to records filed by iRobot France (formerly Robopolis), year-end DIO at the subsidiary was just 44 and 54 in 2016 and 2017, respectively. iRobot has also never demonstrated inventory growth of this magnitude in front of new product launches before. We do not believe that the acquisitions or new products can account for the explosive growth in iRobot's inventory.

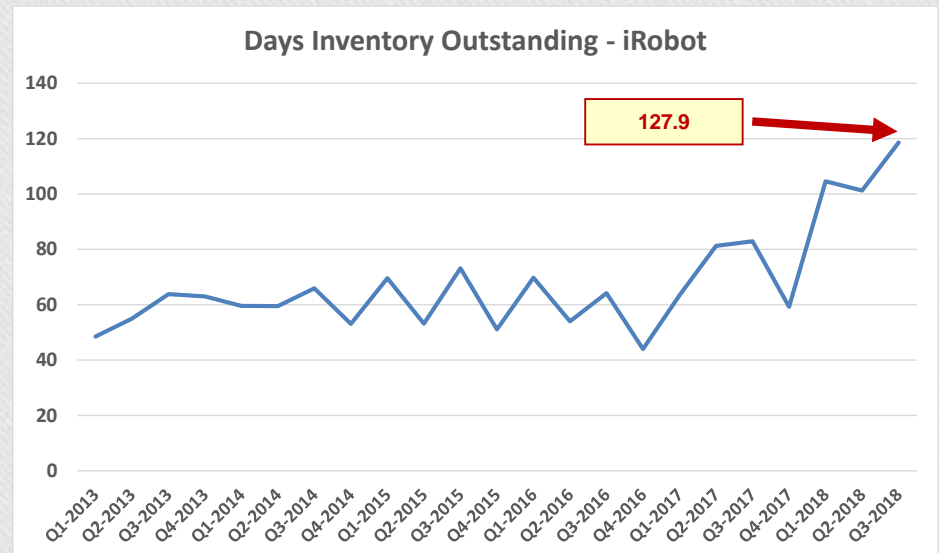


Source: [Infogreffe](http://infogreffe.fr)



Source: iRobot filings

How did these two combine to produce this level of inventory growth?



Note: Graph depicts DIO on average period inventory. DIO on period-end inventory was 118.5 as of Q3 2018.

We believe that the growth in inventory could potentially be attributed to efforts by management to ameliorate the immediate impact of tariffs (see subsequent slides) and forestall gross margin erosion.



Inventory Building At Extreme Pace Not Justified By Distributor Integration

iRobot's inventory as a percentage of sales has historically ranged between 30-40% on a quarterly basis, compared to ~40% for Robopolis. Yet management tells us that the recent inventory build to >60% of quarterly sales – close to double historical levels – can be justified by iRobot's integration of its distributors.

Robopolis / iRobot France averages ~10% inventory as a % of sales on an annual basis, or ~40% on a quarterly basis

IROBOT FRANCE

③ COMPTE DE RESULTAT DE L'EXERCICE

N°2052 - 2018

Exercice clos le 31/12/2017

Néant

	France		Exportations et livr. intracomunitaires		Total		31/12/2016
Ventes de marchandises	FA	32 913 937	FB	79 991 04	FC	112 905 041	97 566 328
Production vendue :							
- biens	FD		FE		FF		
- services	FG	84 013	FH	4 584 32	FI	4 668 995	2 611 154
Chiffre d'affaires nets	IF	32 997 950	IK	84 576 06	IL	117 574 036	100 177 482
Production stockée					IM		
Production immobilisée					IN		
Subventions d'exploitation					IO	10 864	2 023 000
Reprises sur amortissements et provisions, transferts de charges (9)					IP	367 519	452 848
Autres produits (1) (11)					IQ	262	19
Total des produits d'exploitation (2) (1)						117 952 680	102 653 347

Matières premières, approvisionnements	BL		BM				
- de biens	BN		BO				
En cours de production :							
- de services	BP		BQ				
Produits intermédiaires et finis	BR		BS				
Marchandises	BI	13 998 472	BU	220 186		13 778 286	9 476 983
Avances et acomptes sur commandes	BV		BW				7 597
Clients et comptes rattachés (3)	BN	29 541 907	BV	9 626		29 532 281	26 827 093
Autres créances (3)	BZ	1 974 962	CA			1 974 962	2 272 796
Capital souscrit appelé, non versé	CB		CC				
V.M.P. (dont actions propres)	CD		CE				
Disponibilités	CF	12 602 688	CG			12 602 688	22 108 587
Charges constatées d'avance (3)	CH	38 740	CI			38 740	69 113
TOTAL III		58 156 768	CK	229 812		57 926 956	60 762 169

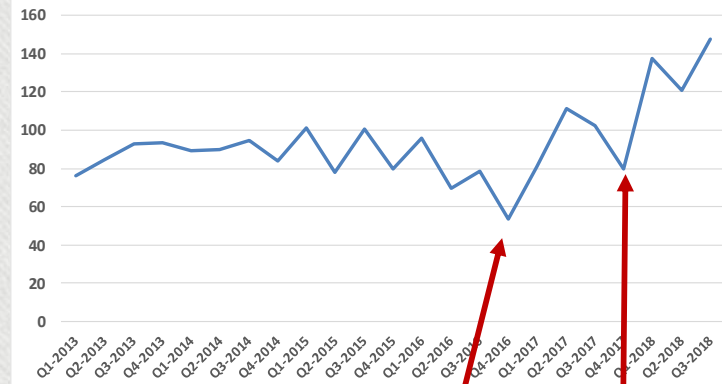
Source: [Infogreffe](#)

Sales

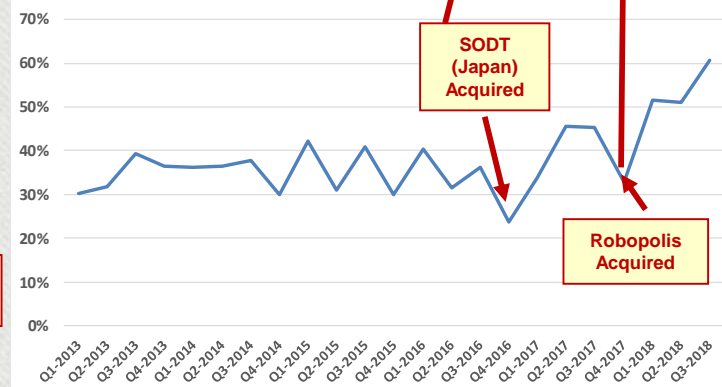
Inventory

How did these figures produce this trend?

Inventory per Unit Shipped - iRobot



Inventory as a % of Quarterly Sales - iRobot



We are skeptical of management's justification for its recent inventory build, and suspect that this claim is being used as cover so as not to provoke concern among investors regarding the potential effect of tariffs – for which the Company may have been preparing by accumulating lower-cost pre-tariff inventory.



Management Growing Inventory To Delay The Effect Of Tariffs On Margins?

Through the past several months, Spruce Point has observed that many companies with exposure to Trump administration tariffs – both those placed on raw materials and those placed on Chinese imports – have shown inflated DIO through the last two to three quarters. We suspect that some of these firms brought forward inventory spending in anticipation of import cost hikes – perhaps to accumulate lower-cost inputs, but perhaps to delay the date on which tariffs hit firm margins, or to hold out from realizing these costs in hopes that the administration would soon reach a new trade deal with China and cancel tariffs.

Vacuums were included on the list of goods to which the Trump administration applied a 10% tariff in late September. Nearly all of iRobot's COGS associated with vacuums sold in the U.S. are subject to this duty, which is to increase to 25% on January 1.

Management has been cagey on the potential impact of tariffs on Company's margins and earnings. Analysts now have more visibility on the impact of a 10% tariff, but management continues to avoid discussing the potential impact of a 25% tariff – which would probably spook the market at least as much as the 10% tariff did (shares cratered by over 10% following the Q3 earnings call). We believe that the impact may be drastically more significant than the market currently anticipates.

Q2 2018 Earnings Call

"Our current full-year 2018 financial expectations do not reflect any impact from the proposed tariffs."

"There's a lot of remaining questions as to exactly what's going to happen and how we will react. At this point, we're looking at all alternatives."

- Colin Angle, CEO

"I'm not going to speculate as to the financial impact of those tariff changes. As we've said, our guidance assumes no impact on the tariffs at this point."

- Alison Dean, CFO

Management itself is not quite sure how it is going to treat the tariffs going forward (perhaps just hoping that the administration scuttles them?) – and, as a consequence, analysts are not quite sure how to model it in.

We believe that this lack of consensus regarding the tariff impact has contributed to the recent volatility in IRBT shares.

Q3 2018 Earnings Call

"Yes, **we really can't comment on 2019 or beyond gross margins at this point**, Jim. But one thing I think it's worth clarifying is that for Q4 2018, we fully took on the burden of those tariffs. That's \$5 million we need moving ourselves without any price increases going out in 2018. **We're accepting a lot of different scenarios about how to tackle the 25% tariffs if they do take into effect on January 1.** And a lot of those scenarios do assume some level of potentially passing some of those pricing on to the consumers. But **we haven't exactly settled on the final answer yet there.** But it is likely that our expectations that we said in February was not assumed that we carry the full burden of the tariff increases."

- Alison Dean, CFO

"I think that some costs reductions, I mean, are continuous and would impact in '19. Longer term things would involve looking at where we manufacture. And it looks like we're in this for the long haul. We have options on that front as well."

We would not materially be able to move manufacturing, and avoid tariffs in 2019. It would be beyond that before you see a material impact."

- Colin Angle, CEO

We Expect iRobot To Miss FY 2019 EPS Consensus Estimates By 66% Due To The Impact Of Tariffs

In aggregate, sell-side analysts currently assume little to no material impact from tariffs in their FY 2019 estimates, largely due to management's lack of clarity in quantifying the potential impact of tariffs on FY 2019 results, as well its oblique discussion of potential mitigants – all of which, in reality, would be difficult to implement. As a result, analysts are not being diligent about assessing the potential magnitude of the FY 2019 tariff impact, and have left their FY 2019 estimates largely unchanged even following management's tariff-related guidance adjustment for Q4.

We therefore believe that IRBT is set up for a significant earnings miss in FY 2019 should tariffs remain in place as scheduled.

\$M, except percentages and per share values	FY 2019E, No Tariff / Consensus	FY 2019E, Tariff	% Change
Revenue	\$1,271	\$1,271	-
Tariff	-	72	-
COGS	646	646	-
Gross Profit	\$625	\$553	-11%
Operating Expenses	517	517	-
EBIT	\$108	\$36	-66%
Adjustments, D&A	50	50	-
Adjusted EBITDA	158	86	-45%
Tax Rate	24%	24%	-
Tax Expense	26	9	-65%
Net Income	\$82	2\$8	-66%
Diluted Shares	29	29	-
GAAP EPS (Diluted)	\$2.88	\$0.97	-66%

Tariff Calculation – Max Full-Year Impact	
\$M, except percentages	FY 2019E
COGS (Ex Non-Cash Items)	\$610
Tariff (First 45 Days)	10%
Tariff (Thereafter)	25%
% of Sales into U.S. (Roomba)	50%
Total Tariff	\$72

Margin Comparison		
	FY 2019E, No Tariff	FY 2019E, Tariff
Gross Margin	49%	44%
Adj. EBITDA Margin	12%	7%
EBIT Margin	8%	3%
Net Margin	6%	2%

Note: Some discrepancies exist due to rounding error

Management needs to stop being evasive in response to analyst questions regarding the potential impact of a 25% tariff. The Company is very aware of the threat posed by tariffs, as it recently added a risk factor regarding tariffs to its filings. iRobot needs to be more transparent regarding these risks, and the sell-side should be more rigorous about assessing the potential tariff impact and resulting downside risk.

Estimate Assumptions And Explanations

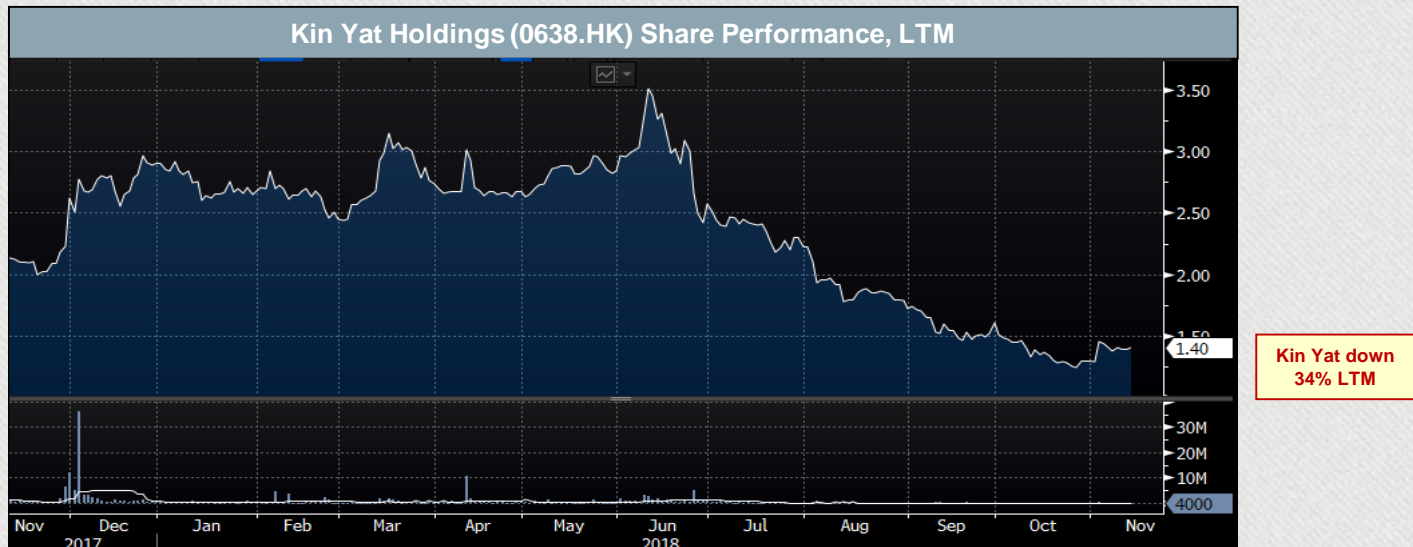
Topic	Assumption and Explanation
Tariff Timing	<ul style="list-style-type: none"> Given DIO between 100 and 120 – with some but not all of this attributable to the impending product launches – and given that some of this inventory was accumulated prior to the date on which the 10% tariff was implemented, IRBT had approximately 45-60 days' worth of tariff-free inventory on its balance sheet as of the beginning of Q4. IRBT will feel the full force of the 10% tariff about half-way through Q4 and will have inventory subject to the 10% tariff on its books going into Q1 FY 2019. <ul style="list-style-type: none"> Inventory expensed in first half of Q1 FY 2019 will have been accumulated during CY 2018 and will be assessed a 10% tariff Inventory expensed in second half of Q1 FY 2019 will have been accumulated after Jan 1 and will be subject to a 25% tariff
Inventory Subject to Tariff	<ul style="list-style-type: none"> ~50% of company sales are into U.S. and subject to tariffs on Chinese inputs Per management, effectively 100% of Roombas sold into U.S. are sourced from China. Therefore, IRBT pays tariff on roughly 50% of COGS. IRBT will not shift its supply chain out of China during FY 2019 <ul style="list-style-type: none"> During the Q3 FY 2019 earnings call, management said that it would assess its supply chain for cost savings opportunities, but insinuated that changes to its supply chain could not be implemented in the near term <ul style="list-style-type: none"> <i>"...that's another thing that we will look at the timeframe to implement new actions as a result of supply chain initiatives are a little. They're not as immediate. But that is definitely another piece of the puzzle that we're assessing."</i> – CFO Alison Dean As documented elsewhere in this report, IRBT is far too dependent on its Chinese supplier, Kin Yat, to be able to shift its supply chain within the coming year
Ability To Mitigate Impact Through Price Increases?	<ul style="list-style-type: none"> IRBT will not be able to pass on material share of tariff costs to customer <ul style="list-style-type: none"> Management suggested that it may attempt to increase prices if tariffs extend into 2019, but was noncommittal. We believe that, given the competitiveness of the industry, it would have a difficult time raising prices materially without sacrificing material volume.
Consensus Estimates	<ul style="list-style-type: none"> Current consensus estimates, in aggregate, do not include material tariff impact in FY 2019 <ul style="list-style-type: none"> About half of sell side analysts assume no tariff impact in FY 2019 due to lack of clarity from management on the potential magnitude of tariff costs Of those who do acknowledge FY 2019 tariffs, most have either minimized their impact due to lack of clarity from management, assumed material price increases to pass on tariff costs, assumed lower operating expenses due to supply chain adjustments, or some combination thereof The aggregate consensus estimate will ultimately have to adjust by the full effect of the tariff should the tariff remain in place into FY 2019



Questionable Managerial Decisions And Governance Concerns

iRobot Highly Dependent On A Single Chinese Supplier

iRobot procures over half of its robot vacuums from a single Chinese supplier, Kin Yat Holdings, and it is estimated iRobot accounts for 40% of Kin Yat's total revenues. We question whether it is wise for iRobot to depend so heavily on a single supplier, which introduces significant risk into its supply chain. Given the closeness of the relationship between iRobot and Kin Yat, we also doubt that iRobot would be able to shift its supply chain out of China within a reasonable timeframe, and without considerable resistance from Kin Yat. During its Q3 earnings call, management suggested that it may be able to reorganize its supply chain in response to longer-term tariffs, but that it wouldn't be able to do so immediately. Many sell-side analysts interpreted this statement to mean that the Company does, in fact, have some latitude to shift its supply chain out of China, and subsequently altered their forward estimates to reflect lower operating expenses – even though management explicitly said that it would not be able to alter its supply chain within FY 2019. We believe that any such shift in its supply chain would likely take several years to accomplish – perhaps longer than the tariffs are expected to last. Accordingly, we doubt iRobot will seriously pursue this route at all.



Kin Yat shares have underperformed the Hang Seng Index by a substantial margin through the last twelve months, with all of these relative losses coming since the Trump administration announced its current tariff policy. The market clearly anticipates that demand for Kin Yat products will be down, that its customers will search for other suppliers, or some combination thereof. iRobot, however, is unlikely to be able to find another supplier in the near-to-medium term. IRBT investors should be concerned that the market is signaling expectations of depressed demand for Kin Yat products.

Beware: Evidence Points To Promotional “News”, At Convenient Times Post Sell-Offs

iRobot aggressively pushes promotional press releases with little material content. As a high-growth “tech” company, buoyant announcements often get material traction among investors. However, there is little substantive content behind most of them.

Two recent news stories catch our attention in particular. In July 2017 – shortly after shares fell from over \$100 to close to \$80 following our report warning of SharkNinja’s entry into the RVC market – rumors spread that Softbank had “reportedly” taken a <5% stake in iRobot that would not require regulatory disclosure, according to “people familiar with the matter.” We have no way of confirming whether this investment was in fact made, and wonder why SoftBank would want to drive its cost of acquiring shares higher if it hadn’t already purchased them. To date, we can find no evidence that Softbank has aided iRobot in any strategic, financial, or operational capacity.

More recently, on October 31 of this year – just a week after shares plunged >10% on Q3 earnings – iRobot announced a collaboration with Google through which the companies would “seek additional ways to integrate their platforms.” There was no material content to this announcement aside from this entirely speculative message – nor any suggestion of how this partnership might be monetized – yet shares jumped ~10% on the release, and have continued to climb since.

iRobot Share Price



BUSINESS INSIDER | TECH | FINANCE | POLITICS | STRATEGY | LIFE | ALL | PRIME | INTELLIGENCE

SoftBank reportedly took a stake in Roomba's maker iRobot

Shoma Ghosh | Jul 26, 2017 5:16 AM

[Source](#)

Google wants to improve your smart home with iRobot's room maps

The two companies are working together to leverage spatial data generated by iRobot's robovacs

By James Vincent | @jvincent | Oct 31, 2018, 9:00am EDT

[Source](#)

Why iRobot Corporation Could Be a Gold Mine for Growth Investors

The company behind the successful Roomba vacuum-cleaner robots could deliver huge returns if it maintains a forefront position in its industry.

Kaith Noonan (TMFNews) | Mar 4, 2018 at 5:10 PM

[Source](#)

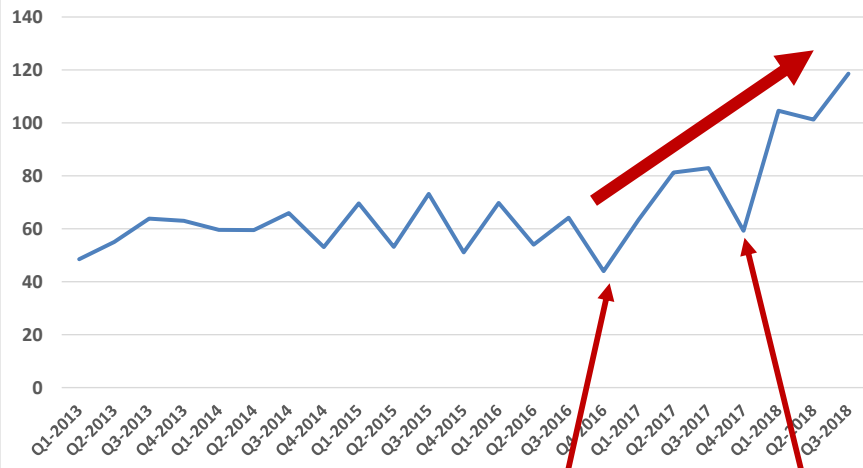
At best, growth-oriented IRBT shareholders are extremely responsive to speculative, yet empty, news stories which superficially bode well for the Company. At worst, we wonder whether management uses the press as a means to support investor sentiment.

Distributor Acquisitions Look Increasingly Suspicious In Light Of Cash Flow Developments

As noted, iRobot's acquisition of two of its distributors give management potential opportunities to engage in related-party transactions which flatter performance figures. For example, management could engage in channel-stuffing to inflate sales figures, or could artificially raise prices on sales to its distributors to inflate ASPs.

For this reason, we have become increasingly suspicious of iRobot's recent acquisitions in light of the Company's recent cash flow and ASP developments. Why did ASPs suddenly spike in the two quarters during which iRobot's acquisitions were completed, only to continue their downward trend in each quarter thereafter? Why have DSOs grown since the acquisitions were completed? Why have inventory levels ballooned so precipitously? Again, management blames the latter on new product launches, but against the backdrop of DSO expansion and ASP inflation immediately following the distributor acquisitions, we question this explanation.

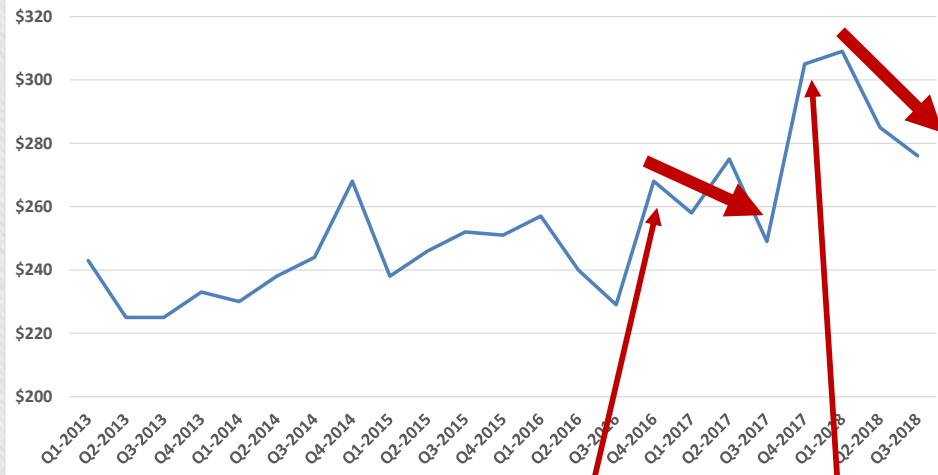
Days Inventory Outstanding - iRobot



**SODT
(Japan)
Acquired**

**Robopolis
Acquired**

Average Gross Selling Price



**SODT
(Japan)
Acquired**

**Robopolis
Acquired**



Increased Insider Selling With Pre-Arranged Programs Since Our Last Report

iRobot insiders have shown a general disregard for our pointed criticisms, and could have reacted by purchasing shares to increase its commitment to the business. Instead, management has continued to sell stock at an accelerated pace. The Company's 10b5-1 safe harbor statement (buried at the bottom of its SEC 10-K/10-Q filings) has gradually expanded since February 2017 – when it included only CEO Colin Angle – to include CFO Alison Dean and three other insiders, revealing that the number of insiders who have been disposing of shares is growing.

Heavy Insider Selling Since Spruce Point Warned Of Intensifying Competition In 2017



Source: Bloomberg

Rapid Growth Of Insiders Reporting 10b5-1 Stock Sale Programs – Details Buried At The Bottom Of SEC Filings

Just The CEO Colin Angle: 2016 [10-K](#)

ITEM 9B. OTHER INFORMATION

Our policy governing transactions in our securities by our directors, officers, and employees permits our officers, directors, funds affiliated with our directors, and certain other persons to enter into trading plans complying with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended. We have been advised that certain of our officers and directors (including Colin Angle, Chief Executive Officer) of the Company have entered into trading plans (each a "Plan" and collectively, the "Plans") covering periods after the date of this Annual Report on Form 10-K in accordance with Rule 10b5-1 and our policy governing transactions in our securities. Generally, under these trading plans, the individual relinquishes control over the transactions once the trading plan is put into place. Accordingly, sales under these plans may occur at any time, including possibly before, simultaneously with, or immediately after significant events involving our company.

One Quarter Later – Three Insiders: Q1 2017 [10-Q](#)

Item 5. Other Information

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One Year Later – Five Insiders: Q1 2018 [10-Q](#)

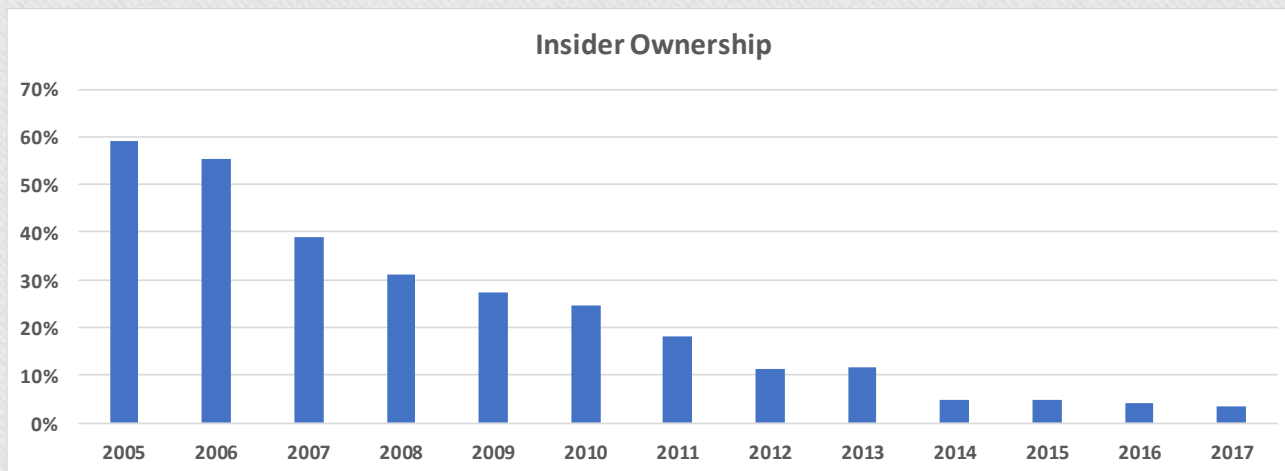
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Insider Ownership Now Lowest On Record

In 2014, we noted that insider ownership had declined precipitously since the Company first went public in 2005 – particularly between 2013 and 2014, when insider ownership fell from 11.8% to 4.9%. Insider selling has continued since then, and is now down to a record low of just 3.5% as of March 2018.

Millions of Shares	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insider Ownership	13.5	12.7	9.2	7.2	6.2	5.2	3.7	2.2	2.3	0.8	1.0	0.7	0.6
Options & Restricted Stock	0.6	0.7	0.4	0.5	0.6	1.0	1.0	0.9	1.1	0.7	0.5	0.5	0.4
Total Insider Ownership	14.1	13.3	9.6	7.8	6.8	6.2	4.8	3.1	3.4	1.5	1.5	1.2	1.0
Common Shares Outstanding	23.3	23.4	24.2	24.6	24.9	25.2	26.3	27.4	28.0	29.4	29.6	27.7	27.6
Diluted Shares	0.6	0.7	0.4	0.5	0.0	0.0	0.0	0.0	1.1	0.7	0.5	0.6	1.2
Total Diluted Shares	23.8	24.1	24.6	25.1	24.9	25.2	26.3	27.4	29.1	30.1	30.1	28.3	28.8
Insider Holdings / Total Dil. Shares	59.1%	55.3%	39.0%	31.0%	27.1%	24.5%	18.1%	11.4%	11.8%	4.9%	5.0%	4.2%	3.5%





Valuation And Downside Case

Shareholder Confusion: What Is iRobot? Long-Term Holders Are Selling...

Long-time fundamental owners such as Lord Abbett, Oppenheimer, and Columbia Wagner are selling, while IRBT is increasingly owned by passive and index investors who seem confused about how to classify it. Primecap, IRBT's largest owner, has a non-conviction 2% fund ownership position and classifies shares as "consumer discretionary"; meanwhile, State Street buckets iRobot as a play on the homebuilder ETF and not as a technology growth stock. If that's the case, flashing red flags for a slowdown in home remodeling and housing starts should be a "strong sell" indicator.¹

Long-Term Buyers

Long-Term Sellers

Asset Manager	Share Ownership ~1 Year Ago	Share Ownership Today	% Change In Shares	Orientation
Primecap	--	4.1m	100%	Diversified mutual fund . Has IRBT as only a 2% position, listed as "consumer discretionary" and not technology.
Blackrock	3.3m	3.9m	26%	Index/Quant
Vanguard	2.9m	3.2m	10%	Index/Quant
Fidelity	0.6m	2.4m	300%	Fundamental. Once owned 3.8m shares (14.5% of the Company) in 2011 . Has recently added to its position.
State Street	0.6m	1.0m	62%	Index/ETF driven. Owns IRBT in the homebuilder ETF , not the technology ETF.
Columbia Wagner	1.4m	0.5m	-60%	Fundamental mutual fund, purchased in Q4'15 .
Oppenheimer	1.1m	0.9m	-17%	Fundamental. Has been selling down over time. Owned 2.5m shares (10% of the Company) in 2009 .
Dimensional Fund	1.0m	0.7m	-27%	Index/Quant
Lord Abbett & Co	0.7m	0.3m	-63%	Fundamental. Owned 1.5m shares since 2014 but has recently been exiting its position.

Fund holding information and Bloomberg

1) "Slower Growth Anticipated In Home Remodeling", Oct 2018, [Harvard Center for Housing Studies](#) and "Housing Starts Lurch Lower In Another Weak Month For Residential Construction", Oct 2018, [Marketwatch](#)

With Just 9% Implied Upside, IRBT's Shares Are A Terrible Risk/Reward

IRBT shares have had a schizophrenic year, trading down significantly after the Q4 FY 2017 call on disappointing FY 2018 guidance and after the Q3 FY 2018 call on tariff-related concerns. Shares have since traded up nonetheless, primarily on the Company's announcement of new products which are not materially more advanced than the competition, and on its announcement of a nebulous, potentially unmonetizable partnership with Google. As previously discussed, many analysts have also failed to take the potential magnitude of the FY 2019 tariff impact into account – and some have even raised FY '19 estimates due to their outsized confidence in the mitigating strength of management's price and cost levers.

Shares have risen so drastically over the course of the year that a number of sell-side analysts have been forced to revise their recommendations from "Buy"/"Outperform" to "Neutral"/"Market Perform" simply because the market caught up to their lofty price targets. None have taken a materially lower view on their respective outlooks for the Company going forward.

Research Firm	Recommendation	Price Target	Implied Upside
Sidoti & Company	Buy	\$118.00	28%
Canaccord Genuity	Buy	115.00	25%
Northland Securities	Outperform	115.00	25%
Needham & Co	Buy	95.00	3%
Piper Jaffray	Neutral	82.00	-11%
J.P. Morgan	Neutral	77.00	-16%
Dougherty & Company	Neutral	-	
Raymond James	Market Perform	-	
AVERAGE	-	\$100.33	+9%

Analyst Rating Distribution	
Rating	Count
Buy / Outperform	4
Neutral / Market Perform	4
Sell / Underperform	0
Total	8

"Our model for 2019 and 2020 remains unchanged, as we would like to hear management's mitigation plan for tariffs, which is likely to include modest price increases and cost reductions."

- Sidoti & Company – October 24, 2018

"The CEO expects tariffs to put moderate pressure on the overall RVC category, and IRBT is aligning its product mix and pricing accordingly. We had previously believed that IRBT would look to increase US pricing by the full amount of the tariffs in 2019, essentially passing on the tariff cost to the customer; however, based on management commentary, we believe that is just one of several options.... We now look for FY19E GAPP EPS of \$2.90 on revenue of \$1,207mm, up slightly from \$2.88/\$1,195mm previously...."

- J.P. Morgan – October 24, 2018

Despite the sell-side's highly positive outlook on iRobot fundamentals, the stock appears fairly valued against sell-side price targets.

The market is pricing in very strong Company performance going forward, and is not sufficiently adjusting for potential tariff outcomes.

iRobot's Valuation Comparisons

As we discuss in our original report on iRobot, we believe that it should be valued against other consumer electronics and household product companies. While iRobot has grown at a faster pace than has its peer set, and while it shows relatively higher margins, we believe that neither its growth rate nor profitability is sustainable through the near term, for reasons given throughout this report.

Despite this, IRBT shares trade at a 65-100% premium to peers across various valuation metrics. We do not believe that this premium is justified.

iRobot's Valuation Relative To Technology Hardware Companies

\$ in mm, except per share figures

Name (Ticker)	Stock	Ent. Value	'18E-'19E			Enterprise Value						Price/ Book
	Price		Sales Growth	EPS Growth	Gross Margin	P/E		EBITDA		Sales		
	11/14/2018					2018E	2019E	2018E	2019E	2018E	2019E	
Logitech (LOGI)	\$35.32	\$5,689	8.4%	14.0%	36.1%	20.8x	18.2x	16.4x	14.4x	2.0x	1.9x	5.9x
Plantronics (PLT)	\$53.70	\$3,558	20.9%	46.5%	49.3%	12.2x	8.4x	11.6x	8.1x	2.1x	1.7x	2.2x
Ecovacs (603486 CH)	\$6.56	\$2,549	25.9%	33.3%	37.7%	35.9x	26.9x	26.0x	20.1x	3.0x	2.4x	12.2x
FitBit (FIT)	\$5.76	\$808	4.2%	NM	41.5%	NM	NM	NM	NM	0.5x	0.5x	1.9x
GoPro (GPRO)	\$5.34	\$672	5.2%	NM	32.6%	NM	21.0x	NM	7.6x	0.6x	0.6x	4.3x
Control 4 (CTRL)	\$22.45	\$510	10.4%	7.2%	53.2%	15.7x	14.7x	11.7x	10.4x	1.9x	1.7x	3.3x
Zagg (ZAGG)	\$10.82	\$311	2.7%	8.5%	33.5%	7.8x	7.2x	4.0x	3.8x	0.6x	0.5x	2.1x
		Max	25.9%	46.5%	53.2%	35.9x	26.9x	26.0x	20.1x	3.0x	2.4x	12.2x
		Average	11.1%	21.9%	40.6%	18.5x	16.1x	13.9x	10.7x	1.5x	1.3x	4.6x
		Min	2.7%	7.2%	32.6%	7.8x	7.2x	4.0x	3.8x	0.5x	0.5x	1.9x
iRobot (IRBT)	\$91.32	\$2,468	16.8%	9.1%	50.2%	27.8x	25.4x	15.6x	14.9x	2.3x	1.9x	5.2x

Source: Company financials and Bloomberg consensus estimates

Note: Plantronics results include acquisition of Polycom

IRBT Should Trade At A Discount To Ecovacs

Some will argue that IRBT should trade on par with Ecovacs – arguably its closest comp – and that this justifies IRBT’s premium valuation against other consumer technology hardware companies listed on the prior slide. However, we note several important differences between iRobot and Ecovacs, which suggest that IRBT should trade at a relative discount. The market should not anchor IRBT to Ecovacs, which it may currently be doing.

\$ in mm except per share figures	Valuation		'18E-'19E			P/E		EV/EBITDA		EV/Sales	
	Stock Price	EV	Sales Growth	EPS Growth	Gross Margin	2018E	2019E	2018E	2019E	2018E	2019E
Ecovacs (903486 CH)	\$6.56	\$2,549	25.9%	33.3%	37.7%	35.9x	26.9x	26.0x	20.1x	3.0x	2.4x
iRobot (IRBT)	\$91.32	\$2,468	16.8%	9.1%	50.2%	29.2x	26.7x	15.6x	14.9x	2.3x	1.9x

iRobot's Growth Profile Lower Than Ecovacs'

iRobot's Gross Margin Advantage Unsustainable In An Increasingly Commoditized Industry

1. iRobot's Growth Profile Is Lower Than Ecovacs'

- As a dominant player in Asia and a lower-priced alternative in North America, Ecovacs is growing at a much faster pace than iRobot. Ecovacs is taking global share by iRobot's own admission.
- Meanwhile, iRobot's underlying sales growth is closer to a high single-digit rate, the growth rate that it posted prior to its recent distributor acquisitions. We expect iRobot's growth rate to revert to this level over the coming quarters.

2. iRobot's Gross Margin Advantage Unsustainable In An Increasingly Commoditized Industry

- As noted throughout this report, the robot vacuum industry has shown material price deflation through the past several years – a pattern which should continue. iRobot's premium price will inevitably fall closer to Ecovacs' current price level.
- iRobot's alleged image as a "premium" product is only so durable when product features across brands are so similar, and when technological catch-up between competitors is so quick. Consumers will inevitably gravitate to lower-priced options when products are technologically similar (recall the rise of non-premium branded TV companies like Vizio through the late 2000s and early 2010s).
- Ecovacs has structural cost advantages: not only is its manufacturing based in China, but so is the rest of the company and its personnel.

We See Significant Downside In IRBT On Valuation Alone, And Regardless Of Tariff Outcome

We see close to 50% downside on IRBT from current levels on valuation alone: even if consensus estimates are correct, multiples on FY '19 are far higher than they should be. Valuing IRBT at its peer group multiple on consensus estimates, less full-year tariff costs, implies a share price 83% below current levels. At the extreme, when we take tariffs into account on our own FY '19 projections for IRBT, we arrive at an estimated \$0 EPS for the year: a full year's worth of scheduled tariffs would wipe out all IRBT earnings.

However, though we believe that some analysts are not taking the threat that tariffs last through the year seriously, and though we believe that tariffs *should* be taken into consideration when valuing IRBT, we also acknowledge that tariffs will likely not last forever – and, even if they did, iRobot would inevitably adjust its supply chain accordingly. We feel comfortable valuing IRBT between our “No Tariff” valuation and our “Half Year Tariff” valuation, using our own estimates for the business.

Valuation Using Consensus Estimates

\$M unless noted	A: Consensus FY19 No Tariff	B: Consensus FY19 Half Year Tariff	C: Consensus FY19 Full Year Tariff
Sales	\$1,271	\$1,271	\$1,271
Growth	17%	17%	17%
Adj. EBITDA	158	131	86
Margin	12%	10%	7%
EBIT	108	81	32
Margin	8%	6%	3%
Net Income	82	62	24
Dil. Shares	29	29	29
GAAP EPS	\$2.88	\$2.17	\$0.97
Multiple ¹	17x – 22x	17x – 22x	17x – 22x
Share Price	\$48.96 – \$63.36	\$36.89 – \$47.74	\$16.49 – \$21.34
Downside	-31% – -46%	-48% – -60%	-77% – -82%

Valuation Using Our Estimates

\$M unless noted	D: Our FY FY19 No Tariff	E: Our FY19 Half Year Tariff	F: Our FY19 Full Year Tariff
Sales	\$1,167	\$1,167	\$1,167
Growth	9%	9%	9%
Adj. EBITDA	117	92	50
Margin	10%	8%	4%
EBIT	67	42	0
Margin	6%	4%	0%
Net Income	51	32	0
Dil. Shares	29	29	29
GAAP EPS	\$1.80	\$1.12	\$0.00
Multiple ¹	17x – 22x	17x – 22x	??
Share Price	\$30.60 – \$39.60	\$19.04 – \$24.64	??
Downside	-57% – -66%	-73% – -79%	??

We value IRBT at \$20 - \$30 per share, or approximately 70% - 80% downside as 2019 approaches and the tariff risk comes closer to reality.

How We Think About IRBT's Multiple

Valuing IRBT at close to \$30 per share may seem extreme given the stock's current price. However, we remind investors that IRBT traded at close to this level for nearly four years before the stock ran up suddenly and precipitously in 2016. iRobot was of course a smaller company then, but it demonstrated much stronger organic top-line growth, its growth trajectory was much clearer, and the sustainability of its gross margins was less in doubt. At present, iRobot's normalized top-line growth rate is closer to high single-digit levels when acquisition effects are netted out, and margins are coming down from pricing pressure as a result of increased online (Amazon) sales and tariffs.

IRBT has historically traded at around 22x one-year-forward EPS – at the high end of our comp range, but within the comp range nonetheless. We therefore give IRBT some benefit of the doubt in our valuation and value it in a range between 17x (the midpoint of our comp range) and 22x (its historical forward earnings multiple, and the high end of the comp range).

IRBT Traded In The \$20 to \$30 Range For Years Before Its Rapid Run-Up



Source: Bloomberg

IRBT Has Historically Traded At A Forward P/E of Approximately 22x

