

Raytheon Technologies	
Ticker Site BiG	RTX
Ticker BiGlobal Trade	RTX
Ticker BT24	RTX
Ticker BiG Power Trade	RTX
P/E Ratio 2020E	20,56
P/BV Ratio	1,21
EV/EBITDA	-

Source: BiG Research;

Price and Performance (Values in USD)	
Price	54,63
52 week high	93,45
52 week low	40,71
YTD	-38,2%
Average daily volume (un)	9.856.496
Market Capitalization (mn)	82.967
Beta	1,35
Dividend	2,94
EPS	6,48

Source: BiG Research;

Analysts Consensus (last 3 months)	
Buy	16
Hold	6
Sell	0

Source: BiG Research;

Financial Data	
Sales (USD mn)	77.046
EBITDA (USD mn)	13.469
Number of Employees	243.200
ROA	-0,4%
ROE	-1,2%
D/E	1,05
Dividend Yield	3,48%

Source: BiG Research;

Notes:

All quotes were updated in Bloomberg at 15h47 of June 2nd, 2020.

Relevant Information:

Use the following link to view our most recent publications:

<https://www.big.pt/InformacaoMercado/s/TradingIdeas/Index/-1>

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<https://www.big.pt/pdf/Newsletters/nld.pdf>

Analyst:

João Calado, CFA

With the contribution of:

Francisco Fonseca

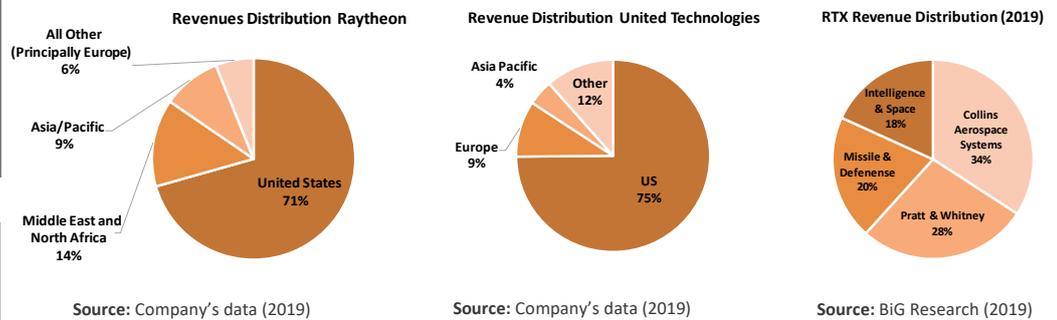
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Raytheon Technologies (Ticker: RTX US)

Description

Raytheon Technologies Corporation (RTX) is an aerospace and defense company that provides advanced systems and services for commercial, military and government customers worldwide. It comprises four industry-leading businesses – Collins Aerospace Systems, Pratt & Whitney, Raytheon Intelligence & Space and Raytheon Missiles & Defense. The company, formed through the combination of Raytheon Company and the United Technologies Corporation aerospace businesses, is headquartered in Waltham, Massachusetts. Raytheon Company operated essential in the defense sector and around 80% of sales were attributed to the US Government (robust performance even during crisis conditions). On the other hand, United Technologies (Collins and P&W at least) was mainly exposed to the commercial sector, which is being deeply impacted by the covid-19 pandemic. Raytheon Technologies trades in the NYSE with a market capitalization of USD 83 bn.



Source: Company's data (2019)

Source: Company's data (2019)

Source: BiG Research (2019)

Investment Points

Defense resilience: As oppose to the commercial industry, the defense side is extremely resilient. In this segment, contracts tend to have longer maturities and are less dependant on economic conditions. US is by far the largest customer in this field, and the company do not expect a material decrease in government spending on defense in the future (but growth can be flat to single digit negative until the economic condition remain uncertain).

Balance Sheet: By the end of September 2020, the company had USD 32.5 bn in debt and cash and equivalents of USD 10 bn. Given the current net debt position (USD 22.5 bn) and an average coupon of 4.3%, if the commercial industry remains highly distressed for the next years, the company will have to continue to focus on preserving cash.

Depressed commercial industry: In 2020, the aviation traffic fell drastically due to covid-19 pandemic. Unfortunately, Raytheon Technologies considers that it will take until 2023 for commercial traffic to recover completely. Thus, both Collins and Pratt & Whitney business (more than 50% of sales in 2019) will take at least 3 to 4 years to rebound.

Dividend: Raytheon Technologies is facing difficult conditions on the commercial segment, which will deeply impact the cash flow generation. Even though, the company is still committed to maintain its quarterly dividend of USD 0.4575 (yield higher than 3%), since the current cash flow generation, allied with a well distributed debt maturity, gives RTX the confidence to continue to do so.

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Income Statement (USD mn)	2019 (9M)	2020 (9M)
Products	24.635	30.402
Services	9.020	9.766
Revenues	33.655	40.168
Product costs	19.897	26.571
Cost of services	5.585	7.219
R&D	1.784	1.872
General & admin expenses	2.672	4.189
Operating Expenses	29.938	39.851
Goodwill Impairment	-	3.183
Other Income	241	835
EBIT	3.958	-2.031
Interest expenses	1.174	1.017
Non-service pension (gain)	-658	-681
Taxes	465	753
Non controlling interest	147	112
EBT	2.830	-3.232
Discontinued Operations (gain)	-1.541	399
Net Income	4.371	-3.631
Earnings Per Share	5,09	-2,79

Source: Company's data

Free Cash Flow (USD mn)	2019 (9M)	2020 (9M)
Operational Cash Flow	4.496	2.964
Business Net Income	3.000	-3.143
Depreciation and Amortization	2.022	3.003
Changes in Working Capital	-613	262
Goodwill impairment loss	-	3.183
Others	87	-341
Investment Cash Flow	-1.732	4.152
Capex	-1.122	-1.172
Dispositions of businesses	134	2.575
Cash acquired in Raytheon Merger	-	3.208
Financial investments & others	-744	-459
Financial Cash Flow	-1.484	-2.056
Debt change	-610	-13.053
Decrease in short-term borrowings	-165	-2.060
Distribution from discontinued op.	-	17.207
Share buyback	-111	-47
Dividends	-1.830	-2.026
Net transfers (to) from discontinued c	1.256	-1.998
Others	-24	-79
Discontinued Op.	-46	-2.383
Net cash (used in) provided by oper	1605	-693
Net cash used in investing activities	-241	-241
Net cash used in financing activities	-1410	-1449
Forex	-65	-65
Change in free cash flow	1.169	2.612
Cash at the end of period	7.381	9.993

Source: Company's data

Balance Sheet (USD mn)	2019	20Q3
Assets	139615	162399
Cash & Equivalents	4937	10001
Receivables	8743	10115
Contract assets	4462	9617
Inventories	9047	9843
Assets related to discontinued operations	31823	56
Property Plant & Equipment	10322	14730
Intangible Assets & Goodwill	61082	95088
Other Assets	9199	12949
Liabilities	95289	92289
Short term Debt	3258	1307
Long term Debt	37701	31246
Contract Liabilities	9014	12208
Payables	7816	8143
Liabilities related to discontinued operations	14443	118
Future pension and postretirement benefit obligations	2487	14688
Other liabilities	20570	24579
Total Shareowner's Equity	44231	70080
Total Equity and Liabilities	139615	162399

Source: Company's data

Analyst:
João Calado, CFA

With the contribution of:
Francisco Fonseca

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Income Statement

- **Revenues:** On the first nine months revenues increased +23% yoy, nevertheless, that value does not picture the reality. Revenues of Raytheon Technologies in 2020 are being compared only against United Technologies (Collins Aerospace and P&W segments) revenues over the same period in 2019. Since Raytheon segments were reorganized in new ones, Raytheon Technologies do not provide previous results.

(dollars in millions)	Net Sales		Operating Profits	
	2020	2019	2020	2019
Collins Aerospace Systems	\$ 4,274	\$ 6,495	\$ 526	\$ 1,259
Pratt & Whitney	3,494	5,285	(615)	520
Raytheon Intelligence & Space	3,674	—	348	—
Raytheon Missiles & Defense	3,794	—	453	—

Source: Company's data

- **R&D:** Due to cash conservation in the first nine months of the year Collins and P&W reduced R&D costs in USD 300 mn. These expenses account for 5% of sales.
- **Goodwill Impairment:** In the second quarter of 2020, RTX evaluated the Collins Aerospace and P&W reporting units for goodwill impairment and determined that the carrying values of two Collins Aerospace reporting units exceeded the sum of discounted future cash flows, resulting in goodwill impairments of USD 3.2 bn.

Free Cash Flow

- The reductions in capital expenditures at Collins and P&W were more than offset by an increase in capital expenditures driven by the Raytheon Merger.
- The company is still **committed with its quarterly dividend** of USD 0.475 per share (yield 3.1%).
- RTX will **decelerate the repurchase program**, to conserve cash.
- Carrier and Otis assumed their respective debt after their spin-off.

(dollars in millions)	Raytheon Technologies March 31, 2020	Separation Transactions & Distributions April 3, 2020	Addition of Raytheon Company April 3, 2020	Raytheon Technologies April 3, 2020
Cash and cash equivalents	\$ 8,001	\$ (2,756)	\$ 3,208	\$ 8,453
Total debt	46,319	(17,606)	4,700	33,413
Net debt (total debt less cash and cash equivalents)	\$ 38,318	\$ (14,850)	\$ 1,492	\$ 24,960

Source: Company's data

Balance Sheet

- The fixed price **contracts** with US government establish that Raytheon Technologies shall receive around 80% and 90% of the amount of the contract based on performance goals or costs incurred. The remaining percentage is revenue which the client will pay upon completion of the contract. Consequently, the company recognizes these as revenues but the amount which is paid at the end of the contract is registered in the balance sheet as contract assets. Contract liabilities are payments made in advance in excess of revenues recognized.
- The company has USD 32.5 bn in debt, and a **net debt position of USD 22.5 bn**. A great portion of this debt is attributed to United Technologies, since Raytheon had a robust balance sheet.

Debt

- RTX debt is well distributed (average maturity higher than 12 years), nevertheless, the average fixed coupon is 4.3%.
- The company is still far from being depressed, but the interest expenses are already higher than USD 1 bn annually.
- Only around USD 3 bn in debt will mature until 2023 (of which 2bn in 2022).

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Collins Aerospace

- Organic sales* down 33%
- Adjusted sales* down 34%
 - Commercial OEM down 44%
 - Commercial aftermarket down 52%
 - Military up 4% (up 8% ex-divestitures and FX)

Pratt & Whitney

- Organic sales* down 34%
- Adjusted sales* down 28%
 - Commercial OEM down 30%
 - Commercial aftermarket down 51%
 - Military up 11%

Raytheon Intelligence & Space

- Bookings
 - \$928M of classified bookings
 - \$176M to perform operations and sustainment for the U. S. Air Force's Launch and Test Range System (LTRS)
- 12 month trailing book to bill ratio 1.08
- Q3 book-to-bill ratio 0.85
- Backlog \$18.3B

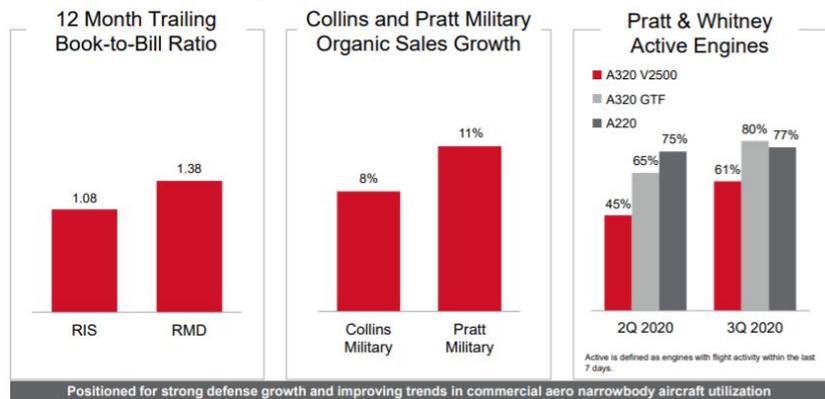
Raytheon Missiles & Defense

- Bookings
 - \$186M for AN/TPY-2 radar program for the Kingdom of Saudi Arabia
- 12 month trailing book-to-bill ratio 1.38
- Q3 book-to-bill ratio 0.69
- Backlog \$31.6B

▲ Last Results 3rd Semester 2020

Revenues: came as USD 14.7 bn, but there was a disparity between the commercial vs the defensive side. Collins Aerospace and P&W report a comparable sales growth of -33% yoy and -34% yoy, respectively. On the other hand, Raytheon segments remain robust, with a sales decrease of only -2% yoy.

Collins Aerospace				Pratt & Whitney			
(\$ in millions) Reported	3rd Quarter			(\$ in millions) Reported	3rd Quarter		
	2020	2019	% Change		2020	2019	% Change
Sales	\$ 4,274	\$ 6,495	(34)%	Sales	\$ 3,494	\$ 5,285	(34)%
Operating Profit	\$ 526	\$ 1,259	(58)%	Operating Profit	\$ (615)	\$ 520	(218)%
ROS	12.3 %	19.4 %		ROS	(17.6)%	9.8 %	



Profits: EPS came as USD 0.58 (vs est. USD 0,5)

Cash Preservation: RTX was able to achieve USD 700 mn cost saving and a total USD 1.9 bn of cash conversation.

FCF: RTX generated USD 1.2 bn of cash in FCF. Operational CF came as USD 1.6 bn.

Backlog: By the end of the semester, orders totaled USD 152.3 bn, of which USD 70 bn is attributed to defense and the remaining USD 82 bn to the commercial sector.

Guidance: For 2020, RTX predicts it can generate USD 2 bn in FCF, with a greater contribution from the defensive side.

▲ Earnings Call (2nd and 3rd Call in 2020)

Impact of covid-19 pandemic on the industry:

- “the **effects of the pandemic** on the economy and commercial aerospace has proven to be a lot **worse than what we originally projected even a few months ago**. And for that reason, we now would expect **it will take at least until 2023 for commercial air traffic to recover to 2019 levels.**”

EPS Guidance for second half of the year:

- “we would expect **Q3 to generally be in line with Q2** with some puts and takes, and then **a gradual recovery beginning in Q4**, as demand begins to return and more of our cost actions are realized.”

Return to shareholders:

- “Despite all the uncertainty out there, we still remain **committed to return \$18 billion to \$20 billion of cash** to our shareholders in the **first four years after this merger.**”
- “we remain **committed to the dividend**”

Analyst:

João Calado, CFA

With the contribution of:

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Research:

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Employs reductions:

“We’re taking the difficult but necessary actions to reduce head count at both **Collins and Pratt**. We will reduce about **20% of our commercial aero head count**, that’s about 15,000 positions. We’re also taking out about 4,000 contractors. These are primarily engineering contractors, so a total reduction of roughly 19,000 folks. That of course on top of that, there is another thousand folks that will be leaving as a result of the merger synergies and that’s mostly corporate. **So about 20,000 positions have been eliminated.**”

Offices Space Reduction:

“We’ve got about 31 million square feet of office space. The original goal is to take about 10% of that out as part of the merger. We think we can more than double that (**20% to 25%**) with the kind of the new working arrangements that we’ve all become accustomed to. So the office of the future as we call it will be a **mix of both office** as well as people that will be **working remotely.**”

Q&A

“how are you going to use that balance sheet as we go into the recovery to your advantage? Pratt is sitting here with the strongest balance sheet in the industry, So how do you think about that?”

“1. Obviously, we were not going to go out and buy. **We don’t need to do any big M&A.** We will be opportunistic. There are a few things out there from a technology standpoint that you’ll see us doing here. But those are, I would say, relatively low dollar types of transactions.

2. The next opportunity I think is going to be, do we go **back to share buyback**. I think you will see that start up again next year. We think with the balance sheet that we’ve got, with the cash on hand, with the sale of Forcepoint now, there will be plenty of cash to start that back up next year.

3. we’re going to continue to **try and gain market share**. And I don’t mean to be reckless about it, but over the last year and a half or so, we picked up about 12 points of market share. **We went from 43% to about 55% on the A320 family.** And we think that’s a reflection both of the technology as well as the efficiency that you’re getting with the GTF engine.

4 we’re also going to **continue to invest**. And I think, Ron, as you know, this, **you have to invest for the long term. It takes 10 years to develop an engine.** It takes years and years to develop new radar systems, new weapon systems, and so we have to stay on the leading edge of technology.”

“Would you expect free cash flow to actually grow next year?”

We would expect 2021 cash to be better than this year. About CapEx, we have a goal to keep it on an operational basis similar levels as 2020. From a working capital point of view, we would expect or do expect improved turns in 2021 where we’re -- believe we’re going to be able to sustain current levels of working capital until we see the volume start to recover.

“any sort of update on the MAX, when do you expect to start to shipping there?”

“I think we have delivered all the black label software that’s all being installed now. We expect we’ll see here in the late November, early December, the US airlines start to return MAX to service. It’s not going to have a huge impact on Collins next year. It’s not going to have a huge impact on Collins next year. “

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“How do you see that growth sustainability playing out based on what’s in your backlog and pipeline. And then also, how is the company position to manage a potential defense recession?”

- So we remain very confident based upon the strength of the backlog, recalling that backlog, a little bit of a shift to longer duration, longer term programs. Combine that with the pipeline, our programs are well funded, the alignment to the national defense strategy, our continued strong position with classified bookings,
- we know defense spending is not going to be going up in the in the near-term, given the deficits that are out there, but we’re uniquely positioned because of the backlog at \$73 billion.
- In those areas where we have real strength, which is in the classified, in the cyber and in the space businesses. Again, we don’t expect we’re going to see much growth in the defense budget at all, but we still think defense is a strong national defense is a bipartisan issue.”

“after COVID-19, carbon emissions in aviation would still be an industry issue. How do you think of investments in capabilities like hydrogen powered aircraft, especially with Pratt's long history with hydrogen?”

“Hydrogen obviously is a zero emission fuel. It's got better power density than Jet A. It does have a little bit of a storage problem on aircraft. You can't put hydrogen tanks into the wings of an aircraft. So what you're talking about from a commercial aerospace standpoint is probably a 2035 or so entry into service of a hydrogen-powered aircraft. So, we're going to invest in hydrogen. We're also going to invest in hydrogen on the defense side”

“About the cost reductions, what you think is ultimately going to be permanent vs temporary actions to give you a real benefit when we think about exiting 2020?”

- “Some of that employee related costs will come back. Those are furloughs -- for those of -- us at the corporate office there’s a 10% furlough or 10% salary reduction with deferred merit.
- We need to **look at the more structural costs that we have in our aerospace organization**. That is cost in some high cost manufacturing locations. The guys are looking at it and it’s going to be some tough things to do, but I think this is the opportunity to alter the overhead structure of the commercial aerospace businesses.”

“It’s got to be especially a Pratt, tough conversations around cash management for most of the airlines. What it is that those customers are seeking to do to the extent that you’re collecting power by the hour, you have power by the hour arrangements?”

- We’re working with each one of our customers to **make sure they’ve got the financial flexibility to stay in business for the long-term**
- some of the receivables out there, probably, are not collectible, because of where the industry is today.
- So if you think about most of the power by the hour contracts like **80% of the GTF powered aircraft are under a long-term maintenance agreement** of power by the hour.
- I think what’s important though is, as we think about Pratt’s customer base. Of all the GTF powered A-320s out there, 65% of those are flying today, 75% of the A-220s are flying, that is the OC series. **Those contracts remain in place and people are flying the airplane.**

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Management Team

Gregory J. Hayes (CEO):



Gregory J. Hayes
Chief Executive Officer, Raytheon Technologies

- Hayes became CEO of Raytheon Technologies after the merger between United and Raytheon. He was previously CEO of United Technologies where he has been for 21 year. During that time period Hayes held several senior leadership roles across finance, corporate strategy and business development, culminating with his **appointment to CEO in 2014**. As CEO, Hayes **led the reshaping of UTC from industrial conglomerate to focused aerospace company**. Beginning with the divestiture of Sikorsky Aircraft in 2015 and the acquisition of Rockwell Collins in 2018, Hayes continued to focus the business with the spinoffs of Otis Elevator Company and Carrier Corporation in 2020. Hayes then led the merger of UTC's remaining aerospace businesses, Pratt & Whitney and Collins Aerospace Systems, with the Raytheon, to form the new Raytheon Technologies in April 2020.
- Hayes, who joined UTC in 1999 through its merger with the Sundstrand Corporation, also served as UTC's **CFO from 2008-2014**.
- Hayes holds a bachelor's degree in economics from Purdue University and is a CPA.

Glassdoor Rankings

Overall	★★★★★	3.7
Culture & Values	★★★★★	3.5
Diversity & Inclusion	★★★★★	3.8
Work/Life Balance	★★★★★	3.8
Senior Management	★★★★★	3.2
Compensation and Benefits	★★★★★	3.7
Career Opportunities	★★★★★	3.6



Approve
of CEO



Gregory J.
Hayes
114 Ratings

Pros

"Work life balance - especially for working parents" (in 441 reviews)

"9/80 schedule, you get every other Friday off (standard in Defense Contractors)" (in 335 reviews)

Cons

"Finding a work/life balance can be difficult to find unless you are firm with setting boundaries" (in 103 reviews)

"Lack of Communication from supporting departments to upper management" (in 92 reviews)

Thomas A. Kennedy (Chairman):



Thomas A. Kennedy
Executive Chairman, Raytheon Technologies

- Thomas A. Kennedy is the executive chairman of the company. He brings nearly 40 years of aerospace and defense and leadership experience, including expertise in strategic planning, operations, cybersecurity, engineering and technology, and international business.
- Dr. Kennedy became chairman in 2020 upon the closing of the merger between Raytheon and United Technologies, and before that, he was chairman and CEO of Raytheon. Throughout his career he held numerous executive and leadership positions at Raytheon, growing its international business and driving key technological innovations.
- He is a member of the President's National Security Telecommunications Advisory Committee, the Rutgers School of Engineering Industry Advisory Board, the UCLA Engineering Dean's Executive Board and the Massachusetts Institute of Technology Presidential CEO Advisory Board.
- Dr. Kennedy holds a Ph.D. in engineering from the University of California, Los Angeles, and bachelor's and master's degrees in electrical engineering from Rutgers University and the Air Force Institute of Technology, respectively.

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Main segments

Raytheon Technologies has four market-leading segments focused on high-priority areas for customers:

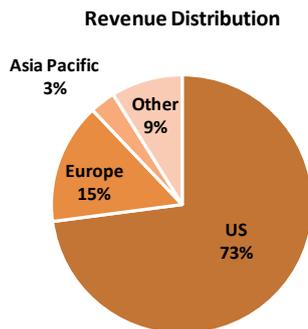


Source: Company's data

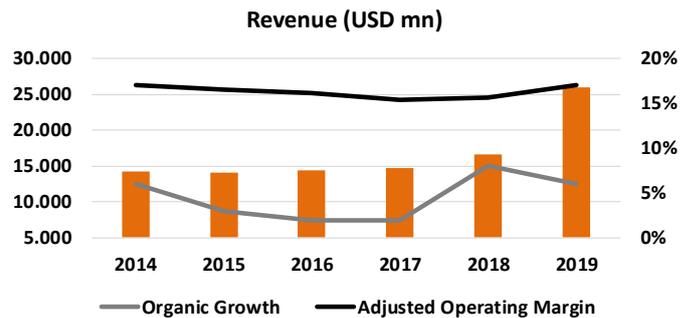


Collins Aerospace Systems (net sales USD 26 bn, op. margin 16%)

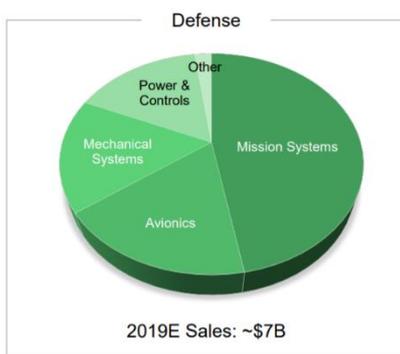
Specializes in aerostructures, avionics, interiors, mechanical systems, and power controls that serve customers across the commercial, regional, business aviation and military sectors. Aftermarket services include spare parts, overhaul and repair, engineering and technical support, training and fleet management solutions, and information management services.



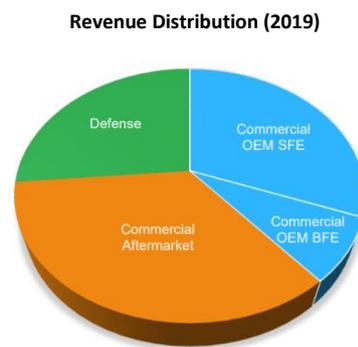
Source: Company's data



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Source: Company's data



Source: Company's data

- SFE: standard equipment which makes up the bulk of the hardware installed on an aircraft.

- BFE: optional equipment chosen during the production of the aircraft and is commercially managed between the airline and the BFE suppliers

Main Products:

- **Commercial and Business (Jet):** Seating Products, Galley Systems, Structures and Integrations (Crew Rests, Monuments, Lavatories, Honeycomb Panels), Lighting & Integrated Systems, Oxygen & PSU Systems, Water & Waste Systems, Thermal and Power Management, Electronic Systems.

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- **Military:** Aerostructures, Avionics, Cargo Handling, Communications, Displays & Controls, Electronic Systems, Electronic Warfare, Exteriors, Interiors, Landing Systems, Navigation, Optronics, Oxygen & Passenger Service Unit Systems, etc.

Clients: Collins Aerospace Systems works mainly to aircraft manufacturers, airlines and to the US and foreign governments. The largest customers are **Boeing** and **Airbus** (around 30% of sales) and the **U.S. Government** (around 20% of sales).

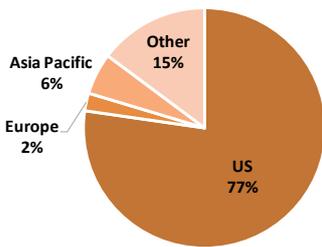
Rockwell Collins Acquisition: In the third quarter, RTX achieved another USD 40 mn of synergies, which brings the total over USD 130 mn YTD and over USD 430 mn since the deal closed in November of 2018 (target: USD 600 mn in synergies)

Pratt & Whitney (net sales USD 21 bn, op. margin 8%)

Pratt & Whitney designs, develops, produces and maintains families of large engines for wide- and narrow-body and large regional aircraft in the commercial market and for fighter, bomber, tanker and transport aircraft in the military market. P&W provides fleet management services and aftermarket maintenance, repair and overhaul services. Pratt & Whitney Canada (P&WC), each is integrated within the P&W business, is one of the world's leading suppliers of engines powering for general and business aviation, as well as regional airline, and utility airplanes, and helicopters. PWC has a world mandate for small and medium aircraft engines while P&W's US operations develop and manufacture larger engines.

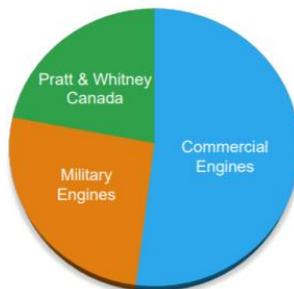


Revenue Distribution



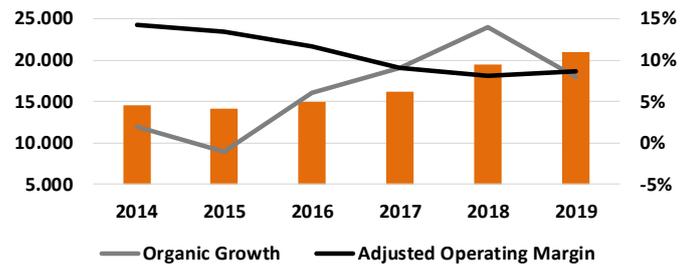
Source: Company's data

Balanced portfolio



Source: Company's data

Revenue (USD mn)



Source: Company's data

Main Products:

Commercial Engines

- **GTF Engines**

- o **PW1000G Geared Turbofan engine family** (+850 aircrafts in service) power the **Airbus A220** passenger aircraft and **Embraer's E-Jet E2** family of aircraft and have been selected to power the new **Mitsubishi SpaceJet**, and the new **Irkut MC-21** passenger aircraft, which are scheduled to enter service in 2020 and 2021, respectively.

- **PW1100G-JM** (since 2016) - demonstrated a significant reduction in fuel burn and noise levels and lower environmental emissions when compared to legacy engines. The PW1100G-JM engine is offered on the Airbus A320neo family of aircraft.
- There is also the **PW1200G, PW1700G, PW1900G and PW1400G**

PW1200G
POWERING THE MITSUBISHI SPACE JET M90

PW1400G-JM
POWERING THE IRKUT MC-21

PW1900G
POWERING THE EMBRAER E-JETS E190-E2 & E195-E2

PW1700G
POWERING THE EMBRAER E-JETS E175-E2

PW1100G-JM
POWERING THE AIRBUS A320NEO FAMILY

PW1500G
POWERING THE AIRBUS A220

OPERATION

850
AIRCRAFT IN SERVICE

49
OPERATORS

PERFORMANCE

6.6M+
FLIGHT HOURS

1.8M+
FLIGHTS

Source: Company's data

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- **V2500** (A319, A320, A321, Boeing MD-90): The V2500 engine is designed and manufactured by International Aero Engines, a global partnership of aerospace leaders including Pratt & Whitney, Japanese Aero Engine Corporation and MTU Aero Engines.
- **GP7200** (A380): GP7200 entered service in 2008 with the world's largest A380 fleet, Emirates. Since entering service, the GP7200 has achieved a 99.9% departure reliability rating without experiencing a single in-flight shutdown. Manufactured by The Engine Alliance, a 50/50 joint venture between General Electric Aviation and Pratt & Whitney. Airbus has announced it no longer intends to manufacture the A380 after 2021.

Business Engines

- **PW800** power exclusively **Gulfstream's** new G500 and G600 business jets and the new Falcon 6X business jet by **Dassault Aviation**, which is scheduled to enter in service in 2022.

Military Engines

- **F135**: Contract with the **U.S. Government's** F-35 Joint Program Office to produce and sustain the F135 engine to power the single-engine F-35 Lightning II aircraft (commonly known as the Joint Strike Fighter) being produced by Lockheed Martin.
- Contract to build **engines** for the **U.S. Air Force's** B-21 long-range strike bomber and for the development of next-generation adaptive engines for the U.S. Air Force.

Pratt & Whitney's military engines include the F135 engine for the 5th generation F-35 Lightning II, the F119 for the F-22 Raptor, the F100 family that powers the F-15 and F-16, the F117 for the C-17 Globemaster III, the J52 for the EA-6B Prowler, the TF33 powering AWACS, Joint STARS, B-52, and KC-135 aircraft, as well as the PW4062 for the KC-46A Pegasus.

Clients: aircraft manufacturers, airlines and other aircraft operators, aircraft leasing companies and the U.S. and foreign governments. **Airbus** (+30% of sales) and the **US government** (+25% of sales) are the main ones.

Engine Shipments to Customers

	2019					2020		
	Q1	Q2	Q3	Q4	FY	Q1	Q2	Q3
Military	39	58	53	65	215	48	72	59
Large commercial*	189	173	165	219	746	211	92	114
Pratt & Whitney Canada**	524	593	607	631	2,355	466	393	379

Source: Company's data

Deliveries:

Even considering covid-19 impact, military deliveries remain robust, however, the number of deliveries for largest commercial clients fell -46% yoy in the second semester. Considering the engine delivers (P&WC), the fall was close to -35% yoy in the second quarter.

Collaborations (revenues, costs and risks are shared):

- RTX holds a 61% program share interest in the International Aero Engines collaboration with **MTU Aero Engines** and **Japanese Aero Engines Corporation**. Pratt & Whitney sells the PW1100G-JM engine for the Airbus A320neo family of aircraft and the PW1400G-JM engine e for the Irkut MC-21 aircraft through IAE LLC.
- Pratt & Whitney has a 50% ownership interest in Engine Alliance, a joint venture with **GE Aviation**, which sells and provides maintenance services for the GP7000 engine for the Airbus A380 aircraft, which Airbus has announced it no longer intends to manufacture after 2021.

Competitors: Pratt & Whitney's major competitors in the sale of engines are GE Aviation, Honeywell, Safran Helicopter Engines, and CFM International.

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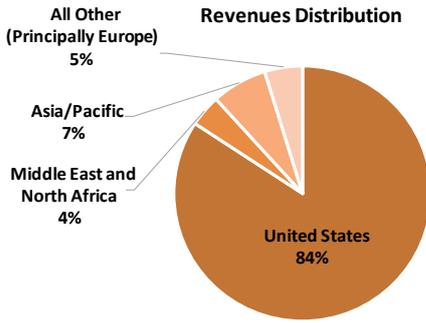
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Raytheon Intelligence & Space (net sales USD 18 bn, 2019)

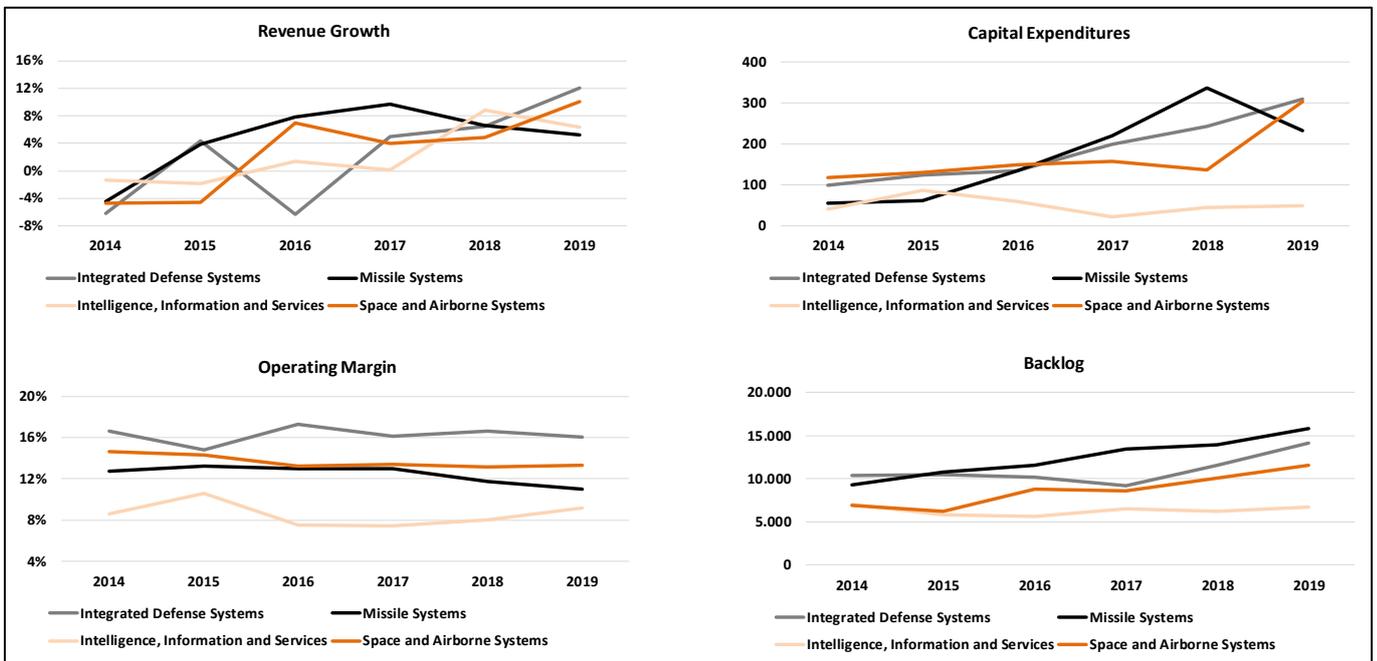
Specializes in developing advanced sensors, training, and cyber and software solutions. After the merger, the following segments were included in this division:

- **Intelligence, Information and Services (Raytheon)**
Provides technical and professional services to intelligence, defense, federal and commercial customers worldwide. Main sub-segments: Cybersecurity and Special Missions; Global Training Solutions; Navigation, Weather and Services; Global Intelligence solutions; and Mission Support and Modernization.
- **Space and Airborne Systems (Raytheon)**
Sub-segments: Intelligence, Surveillance and Reconnaissance Systems; Secure Sensor Solutions; Electronic Warfare Systems; Integrated Communications Systems; Space Systems; Advanced Concepts Technology.



Source: Company's data

Forcepoint was also included in this segment, but RTX already found a buyer for the business. RTX expects the deal to be closed in the beginning of 2021 and the gross proceeds from that transaction should be about USD 1.5 billion.

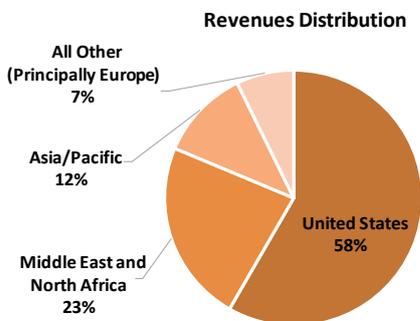


Source: Company's data

Raytheon Missiles & Defense (net sales USD 16 bn, 2019)

Provides the industry's most advanced end-to-end solutions to detect, track and engage threats. After the merger, the following segments were included in this division:

- **Integrated Defense Systems (Raytheon)**
Leader in integrated air and missile defense. Provides also radar, cyber and intelligence solutions. Includes also naval combat and ship electronic and sensing systems. Sub-segments: Mission system and sensors; Integrated air and missile defense; Sea power capability systems; and Advanced Technology
- **Missile Systems (Raytheon):**
Develops and supports a wide range of advanced weapon systems including missiles, smart munitions, close-in weapons, projectiles, kinetic kill vehicles, directed energy effectors and advanced combat sensor solutions



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Outlook for 2020:

Sales (\$ billions)	RTX Q2-Q4 Outlook (Prior)	RTX Q2-Q4 Outlook (10/27/2020)
RIS	11.0-11.3	~11.0
RMD	12.0-12.3	~12.0
Elims	(0.9)-(1.0)	~(1.0)
Total RIS & RMD	22.1-22.6	~22.0

Profit (\$ millions)	RTX Q2-Q4 Outlook (Prior)	RTX Q2-Q4 Outlook (10/27/2020)
RIS	1,085-1,135	1,085-1,115
RMD	1,450-1,510	1,450-1,480
Elims	(130)-(135)	~(100)
Total RIS & RMD	2,405-2,510	2,435-2,495

Source: Company's data

Areas of action on defense

Air and Missile defense: Through interceptors, radars and space sensors, RTX provides protection to several nations. One of the main products, the Patriot Air and Missile Defense System, is already in 16 countries. It is also developing the next generation of kill vehicles that steer into the paths of warheads.

Sensors and imaging: These products enable naval destroyers to increase detection ranges and accuracy, helps meteorologists and support precise military operations with laser range finders. The company is also developing better missile warning sensors to combat advance threats in space. For the F-35 Lightning II fighter jet, RTX is developing the next generation of Electro-Optical Distributed Aperture System that send high resolution, real time electro optical and infrared imagery to pilot's visors from 6 infrared cameras mounted around the aircraft in order to give them a 360 degree awareness. The tube-launched Coyote unmanned aircraft system is being adapted to different missions, including surveillance, electronic warfare and strike.

Command, Control and Secure Communication: This division delivers accurate, real-time, cyber secure information to military decision makers, even in the most remote places. The company is developing the next generation of GPS Operational Control Systems and already completed the first launch of modernized GPS III satellites. RTX is pioneering the new Low-Power Radar (Skyler) that provides data for low altitude flights of smaller aircraft and drones, while supporting high altitude air traffic and weather.

Cyber: Essentially cybersecurity products for the Department of Homeland Security and the Department of Defense of US

Precision Weapons: These weapons use advanced seeker technology, laser guidance and digital signal processing to deliver a high degree of accuracy. In 2018, the US Navy selected the Naval Strike Missile which is able to launch from land and hit moving sea targets. The tests for the StormBreaker (which can detect multiple targets in adverse weather conditions) were completed and US Air Force has integrated the system on the F-15E, and will integrate also in F/A-18E, F/A-18F and F-35B.

Mission support: RTX through live, virtual and augmented reality platforms has multiple training programmes for military.

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▲ **Facilities**

Raytheon segments: 92% of the company’s floor space for manufacturing, engineering, research, administration, sales and warehousing is in US. The company has also facilities in Canada, Ireland, Abu Dhabi, England, Scotland, United Arab Emirates, Israel, Saudi Arabia, and India.

▲ **Main clients**

Collins Aerospace: Boeing and Airbus are the largest customers with a combined **27%** and **31%** of total sales in 2019 and 2018, respectively. Sales to the **US Government** were **18%** and 19% sales in 2019 and 2018, respectively. Only these three clients aggregated more than 75% of sales.

Pratt & Whitney: Airbus (largest customer) accounted for **31%** and 36% of sales in 2019 and 2018, respectively. Sales to the **US Government** were approximately **27%** and 23% in 2019 and 2018, respectively. More than 60% of total sales are generated by international operations, including US exports.

Raytheon: US Government is by far the largest client, which accounted for **69%** and 68% of total revenues in 2019 and 2018, respectively. Foreign military sales through the US government aggregated 14% and 13% of total sales in 2019 and 2018 respectively.

(dollars in millions)	2019	2018	2017
Pratt & Whitney	\$ 5,614	\$ 4,489	\$ 3,347
Collins Aerospace Systems	4,802	2,779	2,299
Other	227	175	152
Total	\$ 10,643	\$ 7,443	\$ 5,798

Source: Company’s data

▲ **Raytheon and United Technologies merger**

- Raytheon Technologies Corporation announced the successful completion of the all-stock merger of equals transaction between Raytheon and United Technologies Corporation on April 3, 2020, following the completion by United Technologies of its previously announced spin-offs of its Carrier and Otis businesses. The latter is the world’s leading provider of elevators, escalators and moving walkways, and maintains more than 2 million customer units around the world. And Carrier is a leading global provider of innovative HVAC, refrigeration, fire and security technologies.
- Headquartered in Waltham, Mass., Raytheon Technologies is **now one of the largest aerospace and defense companies in the world** with approximately **USD 74 bn in pro forma 2019** net sales and a global team of 195k employees, including 60k engineers and scientists.
- With this merger, the new company expects to achieve **more than USD 1 bn in gross annual cost synergies** by the year 4 and to return between **USD 18 and 20 bn of capital to shareowners** in first 48 months following completion of the merger.
- The aim of this merger was to create a balanced and diversified A&D portfolio resilient across business cycles

▲ **M&A activity**

Rockwell Collins: In 2017, UTX announced the purchase of Rockwell Collins for USD 30bn. Rockwell manufactures airplane parts and sells mostly in US. In the fourth year the company, UTX expected to achieve USD 500 mn in synergies. The transaction closed in November 2018 and contributed around USD 1.35 bn to 2019 operating profit and generated USD 1.4 bn of FCF. By acquiring Rockwell Collins, UTX portfolio integrated the Rockwell Collins’ avionics manufacturing, defense business and interiors unit.

Taylor divestment: In 2018, United Technologies sold Taylor, which manufactured ice cream dispensing equipment and frozen drinks machines, for USD 1bn.

Source: Company’s data

Source: Company’s data

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Relative Valuation

Name	Country	Market Cap (mn)	Currency	P/E 2020E	P/E 2021E	EV/Sales	YTD	CF/Total Liabilities	CFO/Cape x
NORTHROP GRUMMAN CORP	UNITED STATES	49.279	USD	13,0	12,2	1,8	-14,1%	13,3	3,4
SAFRAN SA	FRANCE	39.015	EUR	38,7	23,4	1,9	-33,7%	10,5	4,5
LOCKHEED MARTIN CORP	UNITED STATES	99.869	USD	14,5	13,6	1,8	-8,3%	16,5	4,9
TELEDYNE TECHNOLOGIES INC	UNITED STATES	11.564	USD	31,7	28,0	3,8	-9,5%	25,8	5,5
GENERAL DYNAMICS CORP	UNITED STATES	38.629	USD	12,2	11,6	1,4	-23,7%	8,5	3,0
RAYTHEON TECHNOLOGIES CORP	UNITED STATES	82.967	USD	20,6	15,3	1,7	-38,2%	9,3	3,9
Average exc. Raytheon Technologies				22,0	17,8	2,2	-17,85%	14,9	4,3

Source: BiG Research

Risks

US Government dependency: More than 70% of the company's total sales are for the US government which creates a great dependence of the company in the total budget for aerospace and defense of US. Furthermore, Raytheon Technologies is subject to extensive regulations and requirements in order to be able to supply products and services to the US government. There are 2 different types of contract, the cost reimbursement and fixed price contracts. Cost reimbursement usually encompasses a contractual cost ceiling to which costs are reimbursed and an additional fee is paid. Fixed contracts may be Firm Fixed Price (FFP) or Fixed Price Incentive (FPI), being the latter the preferred by the government. Under the FFP, the contractor agrees to deliver a product or service for a specific price and consequently bears the risk of higher costs than expected or the benefits of efficiency in these costs. Under FPI, the contractor shares with the government the risk of costs up to a negotiated ceiling. The Budget Control Act of 2011 established specific limits to investment from 2012 to 2021, but was amended several times since then, which translates into a lower degree of predictability for Raytheon contracts.

Goodwill impairment: In the second quarter of 2020, RTX reported a goodwill impairment in two of the six Collins Aerospace reporting units of USD 3.2 billion. For the other reporting units, the reporting unit that was closest to impairment was a reporting unit at Collins Aerospace, with a fair value in excess of book value, including goodwill, of USD 1.4 billion or 19%. Material changes in these estimates could occur and result in additional impairments in future periods. Even though it is not impossible, the company do not expect to report more impairments.

Competition: This industry is highly competitive, especially in innovation, which requires the constant development of new technologies and products in order to have a higher probability of winning government contracts.

Sales to countries in US blacklist: If the US government forbids sales to a company's customer like for example Saudi Arabia, Raytheon Technologies financial results may be negatively affected.

737 MAX Aircraft Litigation: Multiple lawsuits have been filed in U.S. courts relating to the two 737 Max flight accidents. Collins Aerospace sold certain aircraft parts and systems to Boeing for the 737 MAX aircraft involved in these accidents. Collins Aerospace businesses have been named, along with other third parties, as parties in many of these lawsuits. RTX fully supports all ongoing governmental investigations and inquiries relating to the accidents and do not expect that the lawsuits or governmental investigations or inquiries will have a material adverse effect on the financial position, results of operations or cash flows.

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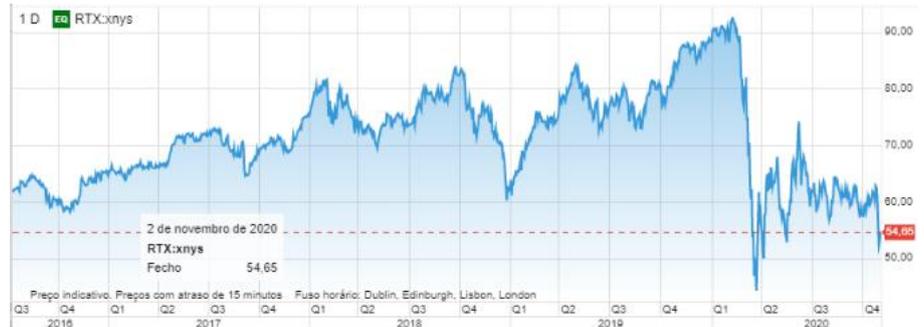
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Covid-19 Pandemic: The social restrictions and quarantines implemented have impacted the aviation sector very deeply. Now, air traffic is still far from 2019 levels and that was been devastating for the commercial industry, and consequently for Collins Aerospace and P&W businesses. Until the virus gets “under control” the recovery will not be material. Thus, if the moment continues to be delayed, RTX results will continue to suffer deeply.

Graph



Source: BiGlobal Trade (partner Saxo Bank); BiG Research

Appendix

Synergy Areas Aligned with Customer Needs

Defense priority areas

	United Technologies Competency	+	Raytheon Competency	=	Raytheon Technologies Customer Solution
Hypersonics / Future Missile Systems 	<ul style="list-style-type: none"> High-temperature materials Thermal and signature management Advanced propulsion 		<ul style="list-style-type: none"> Vehicle integration expertise Seekers and payloads Advanced guidance and control 		Advanced high speed missiles and hypersonic weapons addressing survivability needs in highly contested environments
Directed Energy Weapons 	<ul style="list-style-type: none"> Compact, efficient power generation Advanced thermal management Optical beam delivery 		<ul style="list-style-type: none"> High-power microwave emitters High-energy laser emitters Weapon system integration 		Accelerated development and fielding of directed energy weapons to counter emerging threats
ISR in Contested Environments 	<ul style="list-style-type: none"> Advanced electro-optical payloads Software-defined communications Position, navigation, and timing (PNT) 		<ul style="list-style-type: none"> Radio frequency (RF) payloads Acoustics and communications Multi-sensor fusion / systems integration 		Persistent, resilient ISR capability across space, air, land and maritime domains

Commercial aerospace priority areas

	United Technologies Competency	+	Raytheon Competency	=	Raytheon Technologies Customer Solution
Cyber Protection for Connected Aircraft 	<ul style="list-style-type: none"> Aircraft networks and RF systems Information management systems System architecture and certification 		<ul style="list-style-type: none"> Detection, processing and response Threat intelligence analysis Cyber resiliency testing 		Cyber solutions for airlines and OEMs offering secure connectivity to enable proactive health monitoring and optimized performance
Next Generation Connected Airspace 	<ul style="list-style-type: none"> Future airspace flight deck technology On-board autonomy systems Air-to-ground comms infrastructure 		<ul style="list-style-type: none"> Air traffic control automation Surveillance radars System integration expertise 		Next generation national airspace system with improved capacity, efficiency, and safety
Advanced Analytics & AI for Aviation 	<ul style="list-style-type: none"> Very large installed base Full flight / environmental data Prognostics / health monitoring 		<ul style="list-style-type: none"> Advanced data analytics AI and machine learning Pattern recognition 		Application of AI-based data analytics and machine learning techniques to optimize the manufacturing, maintenance, and fleet operation of commercial aircraft

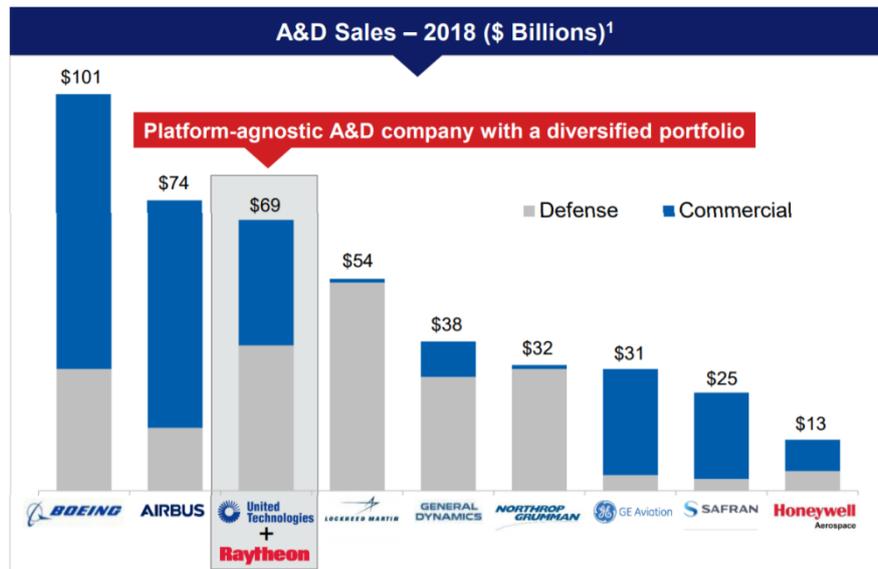
Source: Company's data

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Source: Company's data

Collins Aerospace Portfolio

- COMMERCIAL AVIATION**
- AEROSTRUCTURES
- CABIN
- CARGO SYSTEMS
- CONNECTIVITY AND NETWORK SERVICES
- EXTERIORS
- FLIGHT DECK
- GOVERNMENT AVIATION CONNECTIVITY
- POWER, CONTROLS & ACTUATION
- SERVICE SOLUTIONS
- THERMAL MANAGEMENT & MACHINING
- TRAINING

- BUSINESS AVIATION**
- AEROSTRUCTURES
- CABIN
- EXTERIORS
- FLIGHT DECK
- ARINC DIRECTSM SOLUTIONS
- PLATFORMS
- POWER, CONTROLS & ACTUATION
- SERVICE SOLUTIONS
- HELICOPTERS**
- CIVIL HELICOPTERS
- MILITARY ROTARY WING

Source: Company's data

- MILITARY AND DEFENSE**
- AEROSTRUCTURES
- AVIONICS
- CARGO HANDLING
- COMMUNICATIONS
- DISPLAYS & CONTROLS
- ELECTRONIC SYSTEMS
- ELECTRONIC WARFARE
- EXTERIORS
- GOVERNMENT AVIATION CONNECTIVITY
- INTERIORS
- LANDING SYSTEMS

- NAVIGATION**
- OPTRONICS
- OXYGEN & PASSENGER SERVICE UNIT SYSTEMS
- PLATFORMS
- POWER, CONTROLS & ACTUATION
- SERVICE SOLUTIONS
- SIMULATION & TRAINING
- SUBMARINES & SURFACE SHIPS
- TARGETING
- THERMAL MANAGEMENT & MACHINING

- AIRPORTS**
- CONTACTLESS PASSENGER JOURNEY
- AIRPORT CLOUD SOLUTIONS
- AIRPORT OPERATIONS
- CYBERSECURITY FOR AIRPORTS
- BAGGAGE SYSTEMS
- INFORMATION AND RESOURCES
- PASSENGER FACILITATION SOLUTIONS
- PASSENGER PROCESSING SOLUTIONS
- SPACE**
- CREWED MISSIONS
- OPTICAL EXPERTISE
- SPACE SUITS
- SPACE WHEELS

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Raytheon Intelligence & Space Portfolio

Products & Services

Advanced Tech

- Laser Solutions
- Quantum Engineering and Computing
- Synthetic Biology
- Synthetic Training Environment

Air Dominance

- AN/APG-79 AESA Radar
- AN/APG-82(V)1 AESA Radar
- Joint Precision Approach and Landing System
- Multi-Spectral Targeting System (MTS)
- Next Generation Jammer Mid-Band System

Command and Control

- Cyber Hardening
- Deployable Air Traffic Control Automation and Comms System
- Joint All Domain Command and Control
- Skyler
- Standard Terminal Automation Replacement System
- Wide Area Augmentation System

Communications and Navigation

- GPS Next-Generation Operational Control System
- Identification Friend or Foe (IFF)
- Protected Satellite Communications
- Troposcatter Solutions

Cybersecurity

- Boot Shield
- CADS
- Countervail
- Cyber Analytics and Intelligence Services
- Cyber as a Service
- Cyber Operations and Research
- Cyber Physical Systems Security
- Cyber Systems Defense and Integration
- Cyber Warfare
- Data Orchestration and Resiliency
- DejaVM
- DevSecOps Optimization
- Electronic Armor
- Gotham
- Mission Services
- NexGenTrac

Decision Superiority

- AN/APY-10 Maritime, Littoral and Overland Surveillance Radar
- Analytics
- Data-Driven Mission Readiness
- Distributed Common Ground System
- Electronic Warfare Planning Management Tool (EWPMT)
- Global Hawk Integrated Sensor Suite
- Intelligence Surveillance Target Acquisition and Reconnaissance (ISTAR)
- Joint Polar Satellite System Common Ground System
- Multi-Spectral Targeting System (MTS)
- SeaVue Surveillance Radar XMC
- Sentinel R1 (ASTOR)
- Shadow R1

Modernization, Training & Mission Support

- Boomerang
- Global Hawk Integrated Sensor Suite
- Joint Polar Satellite System Common Ground System
- Launch and Test Range System (LTRS) Integrated Support Contract (LISC)
- NORAD Operations and Sustainment
- Persistent Cyber Training Environment
- Synthetic Training Environment
- V-22 Osprey Modernization and Sustainment

Space Solutions

- Advanced Weather Interactive Processing System
- Cyber Hardening
- Earth Observing System Data and Information System
- GPS Next-Generation Operational Control System
- Joint Polar Satellite System Common Ground System
- Space Based Early Warning
- Visible Infrared Imaging Radiometer Suite (VIIRS)

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Raytheon Missiles & Defense Portfolio**Products & Services****Air Warfare**

- AIM-9X Sidewinder Missile
- AMRAAM Missile
- Joint Standoff Weapon
- Joint Strike Missile
- MALD Decoy
- Paveway Bomb
- Peregrine Air-to-Air Missile
- StormBreaker Smart Weapon

Counter UAS

- Coyote UAS
- KuRFS: Ku-band Radio Frequency System
- Phaser High-Power Microwave System
- Sentinel Radar

Hypersonics**Land Warfare**

- 3rd GEN FLIR
- Excalibur Projectile
- Javelin Weapon System
- KuRFS: Ku-band Radio Frequency System
- Phaser High-Power Microwave System
- Sentinel Radar
- Stinger Missile
- TOW ITAS System
- TOW Weapon System

Missile Defense

- AN/TPY-2: Army Navy/Transportable Radar Surveillance
- David's Sling System and SkyCeptor Missile
- Global Patriot Solutions
- Iron Dome System and SkyHunter Missile
- Kill Vehicles
- LTAMDS: Lower Tier Air and Missile Defense Sensor
- NASAMS: National Advanced Surface-to-Air Missile System
- Patriot Guidance Enhanced Missile
- SM-3 Interceptor
- SM-6 Missile
- U.S. Navy's SPY-6 Family of Radars
- UEWR: Upgraded Early Warning Radar

Naval Warfare

- Aegis
- AN/AQS-20 Minehunting Sonar
- AN/ASQ-235 Airborne Mine Neutralization System
- ESSM Missile
- Naval Strike Missile
- Phalanx Weapon System
- RAM Missile
- SeaRAM Ship Defense System
- SM-2 Missile
- SM-6 Missile
- Tomahawk Cruise Missile
- Zumwalt-Class Destroyer

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 - Buy, expected absolute return above 15%;
 - Accumulate, expected absolute return between +5% and +15%;
 - Hold/Neutral, expected absolute return between -5% and +5%;
 - Reduce, expected absolute return between -5% and -15%;
 - Sell, expected absolute return below -15%;The investment framework aforementioned is merely indicative and not globally strict.
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- The update of the investment recommendations models and respective price-targets will occur, usually, in a period of 6 to 12 months.
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