

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Finance from the Nova School of Business and Economics.

General Title:

NAVIGATING TURBULENCE IN THE RAYTHEON TECHNOLOGIES MERGER

Individual Subtitle (PHILIPP NUECHTERLEIN – 59335):

**DRIVERS OF THE MERGER: INTEGRATION CHALLENGES AND STRATEGIC
MERGERS**

Work project carried out under the supervision of:

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Reading observations for jury: The knowledge cut-off date for this case study is April 03, 2020, the day United Technologies Corporation, Light Merger Sub Corp and Raytheon Company merged.

Group work abstract

In 2019, United Technologies Corporation and Raytheon Company merged, creating a major aerospace and defence giant. The goal was to balance the volatility of commercial sales with the stability of defence contracts while innovating in areas like hypersonics and AI. However, merging two industry giants was not easy. They faced strict regulatory hurdles, had to address shareholder concerns, and managed to finalize the deal despite turbulent headwinds of the pandemic. The UTC-Raytheon merger exemplifies the complexities in modern mergers and acquisitions, illustrating how visionary goals must navigate the harsh realities of execution and market dynamics in the business world.

Individual work abstract

The UTC-Raytheon merger faced significant integration challenges due to UTC's prior M&A activity, including the Rockwell Collins acquisition and Otis and Carrier divestitures. Regulatory scrutiny from U.S. and European authorities led to required divestitures, complicating the process. As a "merger of equals," aligning UTC's commercial aerospace focus with Raytheon's defense operations added complexity. UTC's experience in large-scale acquisitions provided advantages but also increased integration risks. Successfully navigating these hurdles was crucial to realizing projected synergies and establishing Raytheon Technologies as a leading aerospace and defense powerhouse.

Keywords: Merger & Acquisition, Merger of Equals, Shareholder Activism, Strategic Diversification, Synergies, Risk Management, Case Study

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Part A: Case Study

GENERAL PART

“Greg Hayes was a busy man last summer. The chief executive of United Technologies was finalising a \$30bn acquisition of the avionics specialist Rockwell Collins while also plotting a break up of his US industrial conglomerate by spinning off other businesses. Then he received a call. On the phone was Tom Kennedy, his counterpart at Raytheon, the defence group and one of the top five prime contractors to the Pentagon. Would he consider a merger between Raytheon and the aerospace businesses of UTC? The timing was not ideal but the proposal was.” (Pfeifer and Waldmeir 2019)

For Hayes, the idea of a merger with Raytheon wasn't entirely new. *“This had been on our radar screen . . . for a decade or more,”* he remarked after announcing the deal (Pfeifer and Waldmeir 2019). While the timing was challenging, the opportunity to combine two complementary A&D giants was very promising because the merger offered a perfect alignment of strengths. UTC sought the stability of defence contracts to balance the cyclical nature of its commercial aerospace business, while Raytheon aimed to leverage UTC's advanced technologies, such as avionics and propulsion systems, to gain a foothold in the commercial sector. Together, the two envisioned creating a diversified aerospace and defence powerhouse capable of leading in both markets.

Despite the promising strategic reasons for the merger such as significant synergies, cutting-edge innovation in technology, and the potential to become a leading force in a rapidly changing industry, the path forward was filled with challenges. UTC was deeply involved in a massive restructuring because it was integrating a \$30 billion acquisition, all while spinning off two other major parts of their business. On top of this, the uncertainty of the global economy added a layer of risk that could affect the timing and ultimate

success of the merger. While the move was bold and aligned with the long-term visions of both companies, it was stepping into a future full of unknowns.

United Technologies Corporation

In 1929, Frederick Renschler, founder of Pratt & Whitney, proposed a bold idea to his key client William Boeing, founder of Boeing Airplane and Transport Corporation. He suggested a consolidation of the two companies, combining his aircraft engine manufacturing business with Boeings airplane manufacturing business and the subsequent start of operating an airline together, which was put into practice in 1929 by creating the “*United Aircraft and Transport Corporation*” (United Technologies Corporation, n.d.). However, this merger was undone only 5 years later in 1934 due to the Air Mail Scandal, which forbid airplane operators and manufacturers to be owned by the same company. Through this split, the “*United Aircraft Corporation*” was formed consisting primarily of Pratt & Whitney. During the 85 years since then, the company evolved and grew massively, finally becoming the “*United Technologies Corporation*” (UTC) after the acquisition of Carrier and Otis. Today, UTC is a manufacturer of aircraft engines and aerospace systems for commercial and defence customers, as well as building systems and includes four key business units: Otis, Carrier, Collins Aerospace Systems (in 2018 UTC acquired Rockwell Collins and merged it with its UTC Aerospace Systems Segment to form Collins Aerospace Systems) and Pratt & Whitney. Otis specializes in the manufacturing of elevators, escalators, moving walkways, and related services (Otis Elevator Company, n.d.). Carrier provides heating, ventilating, air conditioning (HVAC), and refrigeration systems, along with building automation, and fire and security technologies products (Carrier Global Corporation, n.d.). Collins Aerospace Systems is a manufacturer of systems and components for commercial and business aviation, military & defence, helicopters, space and airports (Collins Aerospace, n.d.). Pratt & Whitney is engaged in

designing, developing, producing and maintaining a wide range of aircraft engines for commercial, military, business jet and general aviation customers (Pratt & Whitney, n.d.).

In 2018, UTC had total sales of \$66.5 billion, which are relatively evenly divided as 29% of sales are from Pratt & Whitney, 25% are from Collins Aerospace Systems, 19% are from Otis and 28% are from Carrier (SEC 2018c). The company mainly serves civilian customers, which is why only 14% of total sales were military-related sales in 2018 (SEC 2018c). Currently, the backlog stands at \$119.4 billion, with \$21.7 billion attributed to Otis and Carrier, stretching out nearly a decade into the future (SEC 2018c).

Recently, UTC decided to focus on their core business, which is the aerospace segment including Collins Aerospace Systems and Pratt & Whitney and thus wants to spin off Otis and Carrier to become a pure player in the aerospace industry. The potential merger with Raytheon complements this vision by integrating UTC's strengths in advanced avionics and engines with Raytheon's expertise in defence systems. UTC's leadership views the opportunity of a merger with Raytheon as a transformative opportunity to strengthen its position as a leader in both commercial and defence aerospace sectors, aligning with its long-term goal of diversifying revenue streams and focusing on innovation. The merger would create a resilient business model that balances the cyclicity of commercial aerospace with the stability of government contracts while unlocking opportunities for innovation and growth.

Raytheon Company

In 1922, on the third floor of an old, tenantless building near the Massachusetts Institute of Technology in Cambridge, Raytheon Company, originally known as the American Appliance Company, was founded (Raytheon Company 2022). The breakthrough innovation that later gave the company its name and its success was a tube that made it possible to operate radios from the socket instead of relying on batteries and was named Raytheon. Based on this

groundbreaking invention, the company developed further products such as the microwave oven and the microwave radar and increasingly specialized in military applications. Today, Raytheon specializes in defence technologies and systems and is divided into two business units: Raytheon Intelligence & Space (RIS) and Raytheon Missiles & Defence (RMD). RIS develops integrated sensor and communication systems, cyber and software solutions, and electronic warfare systems, while RMD specializes in designing and producing integrated air and missile defence systems, naval and undersea sensor solutions, and advanced combat solutions, such as precision-guided munitions and hypersonic weapons (Raytheon Company, n.d.).

In 2018, Raytheon had total sales of \$27.1 billion, which are evenly divided as 47% of sales are from RIS and 53% are from RMD (SEC 2018b). Both RIS and RMD serve as prime contractors or major subcontractors on numerous programs with the U.S. Department of Defence, NASA, and international governments and approximately 81% of total sales in 2018 were military sales to the U.S. government (including foreign military sales through the U.S. government) (SEC 2018b). The current backlog stands at \$42.4 billion (SEC 2018b) and stretches several years into the future.

For Raytheon, the merger represents a strategic opportunity to expand its presence in the commercial aerospace market and create a more balanced entity while leveraging UTC's advanced aerospace technologies and a shared R&D division to enhance its defence capabilities, a vision strongly championed by the company's leadership.

Industry and market overview

The aerospace and defence (A&D) industry has long been a cornerstone of both U.S. economic growth and national security. By 2018, the sector was generating over \$929 billion in revenue, supporting more than 2.5 million jobs and establishing the U.S. as a dominant

force in both commercial aerospace and defence markets (Aerospace Industries Association 2019). This leadership is built on a combination of government-backed defence initiatives and the rapidly expanding global demand for commercial aircraft. Behind the scenes, the sector's growth is driven by more than just cutting-edge technologies - it is also shaped by its unique market dynamics, high barriers to entry, and increasingly complex supply chains. At the heart of this dynamic industry are two distinct yet interconnected segments: the commercial aerospace sector, which serves global airlines, and the defence sector, which is heavily influenced by U.S. and global defence spending. In recent years, the commercial aerospace market has seen robust expansion, largely driven by a growing middle class in emerging markets and a global push for fuel-efficient aircraft. As of 2018, the production backlog for aircraft orders remains strong, which reduces the business' cyclical nature, with air traffic continuing to rise above the historical average of 5.5% (DeNicolò, Matthews, and Buck 2018). The industry's profitability, however, is not immune to global macroeconomic shifts, facing several headwinds such as political & trade uncertainties and tariffs imposed on essential materials like aluminium and steel. Major commercial aerospace companies are now under pressure to optimise operations and further verticalize their supply chains to mitigate these risks. In parallel, the defence sector is also undergoing transformation. Historically, U.S. defence contractors have benefitted from significant government spending, with the fiscal year 2019 defence budget projected to increase by 3% to \$606 billion (DeNicolò, Matthews, and Buck 2018). The U.S. government's focus on military modernization, including missile defence, space capabilities, and cybersecurity, has driven demand for advanced defence systems. U.S.-based contractors like Raytheon, Lockheed Martin, and Northrop Grumman are the primary beneficiaries of these initiatives, particularly given the government's preference for American-made technology and the barriers created by regulatory requirements.

What makes the A&D industry especially unique is the significant barriers to entry. For commercial aerospace, companies like UTC have adopted a *"razor-and-blade"* business model (Pershing Square Holdings, Ltd. 2018). This model relies on selling high-value equipment, such as aircraft engines, at or near breakeven prices, while generating significant profits through decades of aftermarket sales of spare parts and services. Aircraft engines, for instance, require continuous servicing, creating a reliable long-term revenue stream for companies that dominate this space. The defence sector follows a similar pattern. Once contractors establish relationships with government clients, the high costs of switching providers, coupled with strict regulatory and security requirements, make it incredibly difficult for new entrants to break into the market. This results in an industry dominated by a few key players who hold long-term government contracts and have well-established technological expertise.

By early 2019, one of the most striking developments within the A&D sector is the wave of consolidation reshaping the competitive landscape. A&D companies are increasingly turning to mergers and acquisitions to scale up, improve operational efficiency, and secure control over their supply chains (DeNicolo, Matthews, and Buck 2018). This trend is particularly pronounced in the defence industry, where the growing complexity of military systems, combined with cost pressures from government clients, has pushed contractors to seek efficiencies through vertical integration.

As of early 2019, the outlook for the aerospace and defence industry remains positive, driven by global defence modernization efforts and robust demand for commercial aircraft. However, trade uncertainties, rising production costs, and potential budget constraints in defence spending present challenges that industry players will need to manage carefully (DeNicolo, Matthews, and Buck 2018). To remain competitive, companies will need to continue investing in next-generation technologies such as artificial intelligence, cybersecurity, and autonomous

systems, while streamlining operations and managing increasingly complex global supply chains. Despite these challenges, the industry's high barriers to entry, long-term government contracts, and growing demand for technologically advanced products ensure that aerospace and defence companies will remain vital players in the global economy for years to come.

Timeline of events

2015	UTC sold the Sikorsky helicopter business to Lockheed Martin Corp
2016	UTC successfully defended against a takeover bid from Honeywell International Inc
September 5, 2017	Rockwell Collins was sold to UTC
November 26, 2018	Completion of Rockwell Collins acquisition and announcement of Otis and Carrier spin-offs
June 8, 2019	Merger rumour date
June 9, 2019	Merger announcement
	...continuing on page 21

Merger overview

In early June 2019, whispers began circulating through the A&D industry about a potential landmark deal. Speculation intensified when "*a person familiar with the matter*," hinted that United Technologies Corporation, which was just planning to spin off its non-aerospace divisions, was possibly preparing to join forces with Raytheon Company, a major defence contractor. On June 8, the rumour mill buzzed, drawing the attention of analysts and stakeholders alike and within 24 hours, the whispers turned into reality: UTC and Raytheon announced a historic all-stock merger of equals (Roumeliotis and Brumpton 2019).

“On June 9, 2019, United Technologies Corporation, or UTC, Light Merger Sub Corp., a wholly owned subsidiary of UTC, or Merger Sub, and Raytheon Company, or Raytheon, entered into an Agreement and Plan of Merger, or the merger agreement, pursuant to which, subject to approval of UTC shareowners and Raytheon stockholders and the satisfaction or (to the extent permitted by law) waiver of other specified closing conditions, the UTC aerospace businesses and Raytheon will combine in an all-stock merger of equals.” (SEC 2019). Accordingly, the merger itself was accomplished through the formation of a new UTC subsidiary established for the purpose of creating a merger entity, Raytheon Technologies, in which UTC and Raytheon could merge (Exhibit 1) (SEC 2019).

A fixed exchange ratio deal intended to create a combined company in which the post-merger ownership structure consisted of 57% UTC shareholders and 43% RTX shareholders, corresponding to an exchange ratio of 2.3348 (SEC 2019). UTC planned to issue approximately 648 million shares of UTC common stock to Raytheon shareholders as part of the merger (SEC 2019). Furthermore, as part of this transaction, United Technologies had to divest its two non-aerospace and defence divisions, Otis Corp (OTIS) and Carrier Corp (CARR) and distribute them to its shareholders in a tax-free manner (SEC 2019). UTC's shareholders received half a share of Otis and one share of Carrier for every UTX share they hold, marking the end of UTX as an independent entity (Cornell 2020).

The required spin-offs marked a strategic shift of UTC to move from a conglomerate, comprising of an elevator, air conditioning and aerospace business, towards a *“pure play”* aerospace & defence company after completing the merger with the military company Raytheon. The resulting *“platform-agnostic A&D company with a diversified portfolio”* (Exhibit 2) offered a wide array of products and services across various platforms and markets in both the defence and commercial sectors, achieving 2018 revenues of \$69 billion, positioning it just behind major industry rivals like Boeing and Airbus. Furthermore, the

proposed UTC-Raytheon merger was noted to be the biggest ever in the sector (Exhibit 3). As shown in Exhibit 4 United Technologies estimated 2019 sales would decrease due to the spin-offs of its Carrier and Otis units. Still, a merger with Raytheon was expected to nearly restore the lost revenue, bringing sales back to approximately \$75.4 billion (Exhibit 4). This suggested the merger would effectively offset the financial impact of the spin-offs, maintaining the company's overall revenue.

Synergies from the United Technologies and Raytheon merger were projected to exceed \$1 billion in pre-tax cost savings within four years, resulting in a net of over \$500 million after accounting for integration costs. The combined entity aimed to achieve these significant savings through supply chain efficiencies, corporate consolidations, and technological integration. Additionally, Raytheon Technologies planned to leverage its substantial R&D investments, which included approximately \$8 billion in 2019, across seven R&D Centres of Excellence with a workforce of around 60,000 engineers and 38,000 patents, to drive innovation, capture new market opportunities, and potentially realise further revenue synergies (RTX 2019).

Taking over as CEO of Raytheon Technologies was Greg Hayes, former CEO of United Technologies who called the mega-merger an *"innovative cash machine"* and mentioned that the beauty of the deal was a merger of equals with no premium. *"By bringing these two companies together, we get access to Tom's pristine balance sheet and an A rating on the debt. And with that flexibility, we can return \$18 to 20 billion to our shareowners over the next three years. That's about double they would have gotten with us as a standalone."*(RTX 2019)

Drivers of the merger: integration challenges and strategic mergers

UTC's intense M&A activity in the years leading up to the merger, combined with the complexities inherent in a merger of equals, heightened the integration challenges for the newly created entity, RTX. Additionally, regulatory hurdles from American and European authorities not only prolonged the deal process but also necessitated divestitures for both Raytheon and UTC.

Intense M&A activity

Before merging with Raytheon, UTC was highly active in the M&A market, completing several key transactions: acquiring CIAT (SEC 2018a) to strengthen its building systems operations, selling Sikorsky (SEC 2015; Reuters 2015) to focus on aerospace and building systems, and defending against a \$90 billion takeover bid from Honeywell (Ajmeria and Shalal 2017) to maintain strategic independence. These moves set the stage for two transformative steps that defined its future strategy:

- Rockwell Collins acquisition (2018): UTC's acquisition of Rockwell Collins, a leading manufacturer of aircraft components, significantly enhanced its aerospace systems capabilities (SEC 2018a). As part of the deal two businesses of Rockwell Collins, ice protection systems and trimmable horizontal stabilizer actuators had to be sold off (Office of Public Affairs 2018). This acquisition also generated over \$600 million in realised annual cost synergies, exceeding initial projections of \$500 million (see Exhibit 6). These synergies were achieved through streamlined supply chains, optimised corporate structures, and integration efficiencies, reinforcing UTC's ability to derive value from large-scale acquisitions (RTX 2019).

- Separation into three companies (2018-2020): Following the Rockwell Collins acquisition, UTC announced in 2018 its plan to split into three independent companies: United Technologies (Pratt & Whitney and Collins Aerospace Systems), Otis Elevator Company, and Carrier in a tax-free separation to UTC shareholders. This signals UTC's new strategic rationale of becoming a leader in the aerospace sector and focus on its core capabilities (Collins Aerospace 2018).

Integration challenges

These M&A transactions not only reshaped UTC but also set the stage for the merger with Raytheon, creating the more streamlined and powerful aerospace and defence entity RTX. However, these changes further put pressure on the integration between UTC and Raytheon due to the dynamics of the deals. Furthermore, the new combined entity RTX will have to manage a larger and more complex aerospace and defence business, integrate diverse corporate infrastructures and eliminate redundant operations to achieve the desired synergy cost savings of up to \$1 billion in the years after the transaction (Thomson Reuters Streetevents. UTX - United Technologies Corp & Raytheon Co Analysts and Portfolio Managers Meeting at the Paris Air Show 2019).

The process of integrating UTC and Raytheon into a cohesive entity RTX posed significant challenges, driven by the complex and eventful M&A activities of UTC. The acquisition of Rockwell Collins, along with the separation of Otis and Carrier, were pivotal in reshaping UTC's business structure. However, these transactions added layers of complexity to the integration with Raytheon, as the new RTX entity had to reconcile these recent changes while striving to build a unified aerospace and defence powerhouse. The challenge of merging two companies of approximately the same size, each with established corporate cultures and operational strategies, further compounds the integration difficulties. The newly formed RTX

has to manage a larger and more intricate business, requiring the integration of diverse corporate infrastructures and the elimination of redundant operations to realise the projected synergies and cost savings. Despite these challenges, the leadership of both UTC and Raytheon brought significant experience in merging large companies, a skill gained and improved through UTC's prior M&A activities. This experience will play a crucial role in navigating the complexities of the merger and implementing strategies to effectively integrate the two companies. The management's familiarity with large-scale mergers provides a solid foundation for addressing the integration issues and driving the successful unification of the two industry giants into a streamlined and efficient aerospace and defence entity (RTX 2019).

Regulatory issues

The merger between UTC and Raytheon faced extensive regulatory scrutiny to ensure that the deal would not harm competition in the aerospace and defence industry. Various regulatory bodies, including the U.S. Department of Justice (DOJ) and the European Commission, conducted thorough reviews and imposed conditions to address both horizontal and vertical antitrust concerns. Additionally, other regulators, such as those from Canada, also assessed the merger to ensure compliance with their competition laws.

The DOJ (Office of Public Affairs 2020) and the European Commission (European Commission 2020) both identified significant horizontal antitrust issues related to the potential reduction of competition in the markets for military GPS receivers and military airborne radios. They required UTC and Raytheon to divest parts of their businesses to prevent reduced competition. UTC was mandated to divest its military GPS receiver's business to ensure that competition in this market remained robust, as the merger would have otherwise significantly reduced the number of competitors. Similarly, Raytheon was required to divest its military airborne radios business to avoid monopolistic control in this market, which could

lead to higher prices and reduced innovation. Both regulatory bodies aimed to maintain healthy competition in these critical defence sectors, ensuring fair prices and ongoing technological advancements.

The DOJ (Office of Public Affairs 2020) also expressed concerns about vertical antitrust issues. These primarily related to the potential impact on the EO/IR (electro-optical/infrared) reconnaissance satellite market. The merger would have combined Raytheon's dominance in focal plane arrays (FPAs) with UTC's capability in large space-based optical systems, creating a single entity with significant control over critical components for EO/IR satellites. The DOJ highlighted that this vertical integration could lead to the merged company refusing to supply or increasing prices for FPAs and optical systems to competitors, thereby reducing competition and innovation:

“Specifically, UTC is one of only two companies able to build large space-based optical systems, and Raytheon is a leading supplier of detectors called focal plane arrays (FPAs). Raytheon is the only firm that produces FPAs that detect visible light, and one of two firms that produces FPAs that detect infrared light. Large space-based optical systems and FPAs are components of EO/IR reconnaissance satellite payloads – the system that carries out the mission of the satellite – which Raytheon also produces. According to the department’s complaint, the merged firm would have the ability and incentive to require EO/IR payload builders seeking to purchase Raytheon’s industry-leading FPAs to also purchase UTC’s large space-based optical systems, and could deny Raytheon’s EO/IR payload competitors access to UTC’s large space-based optical systems.” (Office of Public Affairs 2020).

To mitigate these vertical antitrust-risks, the DOJ required UTC to divest its large space-based optical systems business in addition to the divestitures to address the horizontal antitrust issues. This divestiture was aimed at preventing the merged entity from leveraging its control over

these essential components to disadvantage competitors and harm the competitive landscape. Overall, to comply with the regulatory requirements and address the antitrust concerns of the DOJ and European Commission, UTC and Raytheon agreed to divest several business units:

- UTC: military GPS receiver and anti-jamming business as well as the large space-based optical systems business
- Raytheon: military airborne radio business

On January 20, 2020, BAE Systems announced an agreement to acquire both UTC's military GPS receiver and anti-jamming business and Raytheon's military airborne radios division for \$2.2 billion (BAE Systems 2020). These divestitures were critical in satisfying the antitrust concerns raised by the DOJ and the European Commission. The Canadian Competition Bureau also reviewed the transaction and determined that the conditions imposed by the DOJ and the European Commission were sufficient to address competitive concerns in Canada (Competition Bureau Canada 2020). By March 30, 2020, RTX announced that all required regulatory approvals had been secured, clearing the way for the deal to move forward (RTX 2020).

While these regulatory measures ensured compliance and preserved competition, they also introduced significant strategic challenges. Divesting key business units, such as UTC's military GPS receivers and large space-based optical systems, reduced the scale and capabilities of the merged entity. This loss raises questions about whether the remaining businesses can achieve the anticipated synergies and market strength envisioned for the deal. The divestitures, though necessary for regulatory approval, highlight the complexity of assessing the merger's long-term success, as the promise of creating a dominant aerospace and defence leader must now be weighed against these substantial concessions.

Timeline of events

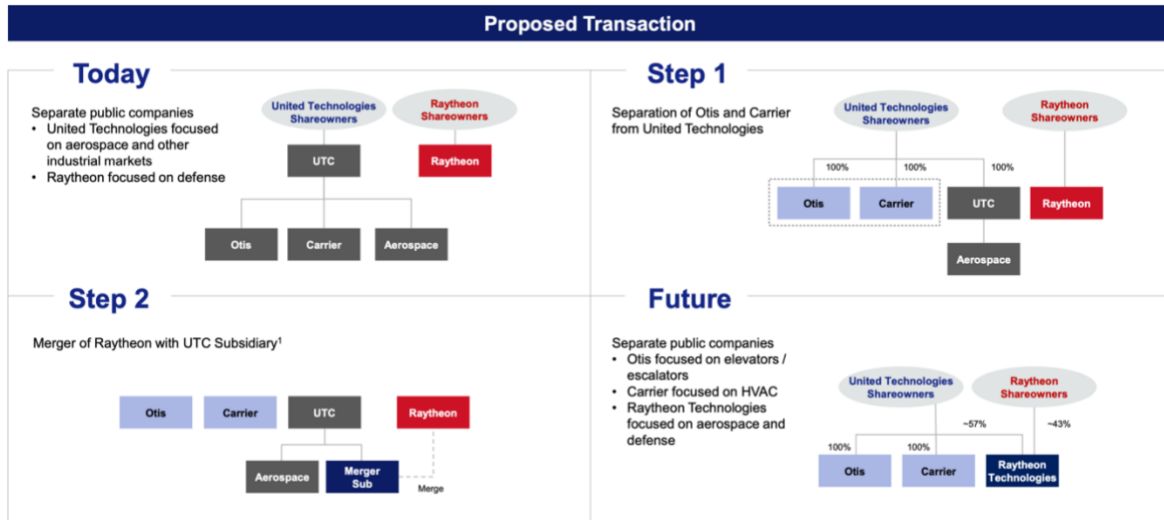
June 9, 2019	Merger announcement
June 9, 2019	Bill Ackman sends a letter to UTC CEO Greg Hayes, expressing concerns following a report about merger talks
June 17, 2019	UTC CEO Greg Hayes responds to the accusations against him and the merger
June 28, 2019	Daniel Loeb, through his hedge fund Third Point, criticises strategic rationale of deal
August 05, 2019	Pershing Square Holdings - Ackman's hedge fund - announces the exit from its investment in UTC
August 13, 2019	Third Point announces a reduction in its investment in UTC
October 11, 2019	Shareholder approval of UTC and Raytheon - transaction is expected to close in first half of 2020
January 8, 2020	The Common Market for Eastern and Southern Africa (COMESA) Competition Commission (CCC) has approved the transaction
January 2020	Turkey's Competition Authority (CA) has approved the transaction
March 13, 2020	The transaction is cleared by the European Commission (EC), conditional on the divestiture of a remedy package
March 26, 2020	The US Department of Justice (DoJ) clears the transaction on condition to divest Raytheon's military airborne radios business and UTC's military global positioning systems (GPS) and large space-based optical systems businesses. Canada's Competition Bureau approved the transaction.
March 30, 2020	The transaction has received all the necessary regulatory approvals and is expected to close on 03 April 2020
April 3, 2020	The spin-offs of Carrier and Otis are completed
April 3, 2020	The transaction has completed. United Technologies' name has changed to Raytheon Technologies Corporation, and its shares of common stock will begin trading on the NYSE under the ticker symbol RTX

Source: Mergermarket – RTX deal

Why was the deal done if no or little value was created and the environment was far from ideal?

EXHIBITS

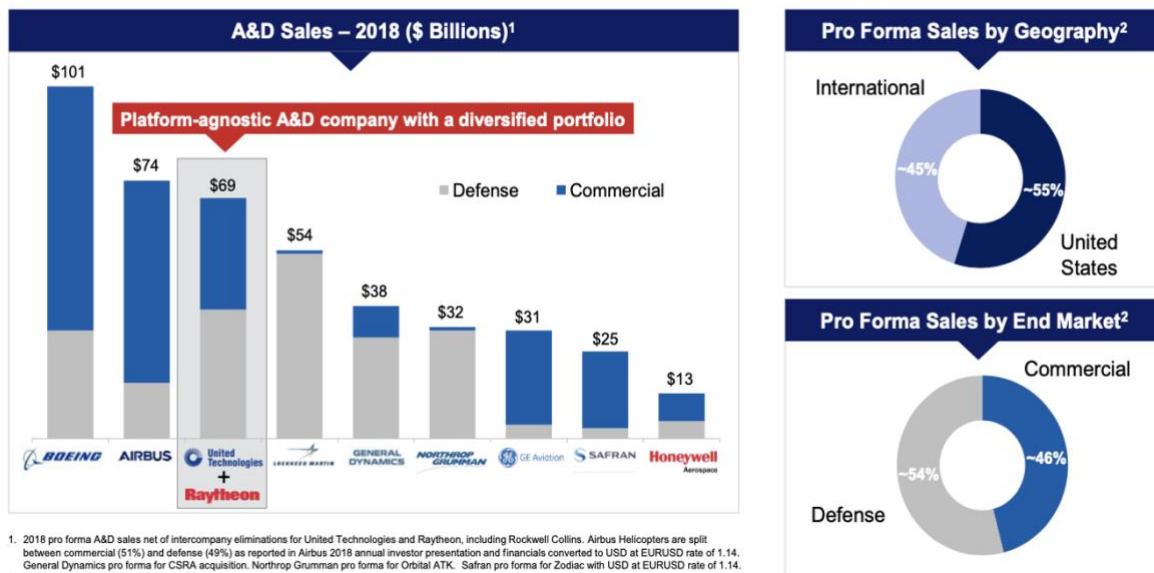
Exhibit 1. Transaction overview



Source: RTX 2019

Exhibit 2. Diversification within the A&D industry

Balanced Across Aerospace & Defense Segments



Source: RTX 2019

Exhibit 3. Previous takeovers in the sector

Go Big or Go Home

A United Technologies-Raytheon merger would be the biggest ever aerospace and defense deal. Here are the previous largest U.S. takeovers in the sector:

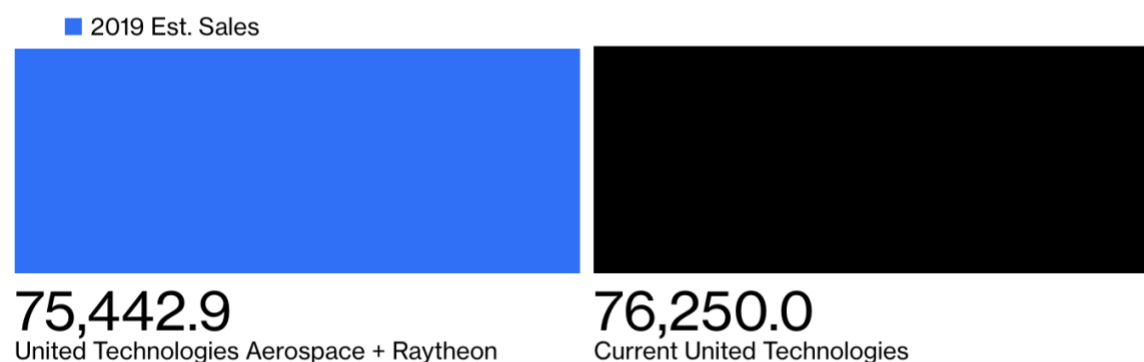
	Target Name	Acquirer Name	Announced Total Value ▼
2017-09-05	Rockwell Collins Inc	United Technologies Corp	\$29.5MB
2018-10-14	L3 Technologies Inc	Harris Corp	19.6M
2011-09-21	Goodrich Corp	United Technologies Corp	18.0M
1996-12-16	McDonnell Douglas Corp	Boeing Co/The	15.5M
2002-02-22	TRW Space & Mission Systems	Northrop Grumman Corp	13.7M
1994-08-30	Lockheed Corp	Martin Marietta Corp	10.0M
2017-09-18	Orbital ATK	Northrop Grumman Corp	9.2M
2015-07-20	Sikorsky Aircraft Corp	Lockheed Martin Corp	9.0M
2016-10-23	B/E Aerospace Inc	Rockwell Collins Inc	8.1M
1999-05-17	Gulfstream Aerospace Corp/DE	General Dynamics Corp	5.7M
2000-12-21	Litton Industries Inc	Northrop Grumman Corp	5.1M

Source: Bloomberg 2019b

Exhibit 4. 2019 estimated sales pre- and post-merger

The Same, But Different

A Raytheon merger would replenish the revenue United Technologies is losing via the spinoffs of its Carrier and Otis units



Source: Analyst estimates, Bloomberg, United Technologies

NOTE: United Technologies revenue for its current portfolio is based on the midpoint of its forecast range of \$75.5 billion to \$77 billion of sales in 2019.

Source: Bloomberg 2019b

Exhibit 5. 2019 estimated sales pre- and post-merger

Pro Forma Financial Profile

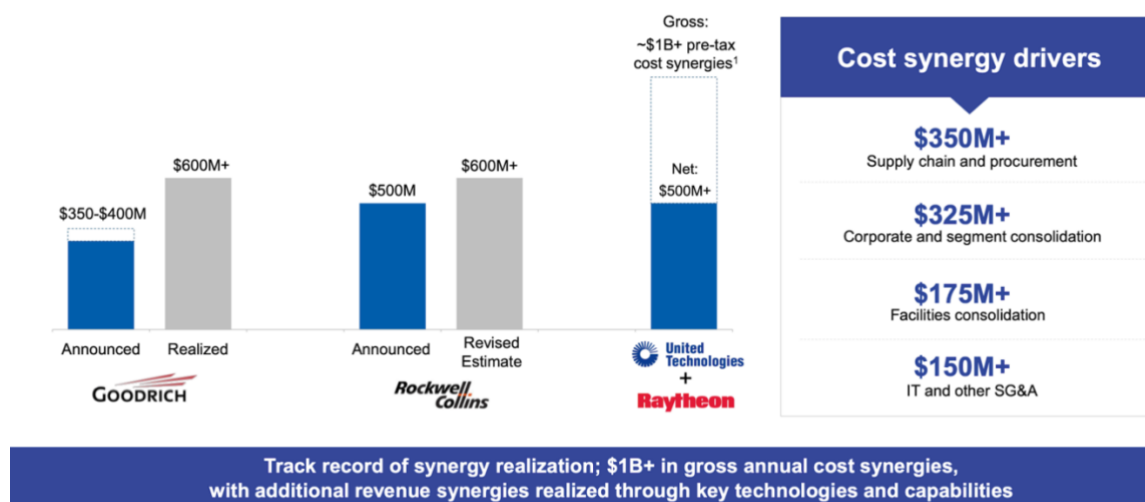
Pro Forma 2019E^{1,2}

	United Technologies	Raytheon	United Technologies + Raytheon
Sales³	~\$44.7B	~\$28.9B	~\$73.6B
Operating Profit⁴	~\$5.8B	~\$3.5B	~\$9.3B
Operating Margins⁴	~12.9%	~12.2%	~12.6%
EBITDA⁵	~\$8.0B	~\$5.4B	~\$13.5B
Free Cash Flow⁶	~\$3.2B	~\$2.8B	~\$6.0B
Net Debt	~\$24B	~\$2B	~\$26B

1. Pro forma 2019 estimates based on current outlook provided by each company; excludes Otis and Carrier
2. Figures exclude pro forma synergies
3. Net of intercompany sales eliminations
4. Reflects business segment operating profit and margins net of eliminations
5. Excludes non-operating pension income/(expense)
6. Excludes one-time costs associated with United Technologies portfolio separation

Source: (RTX 2019)

Exhibit 6. Value creation through cost synergies

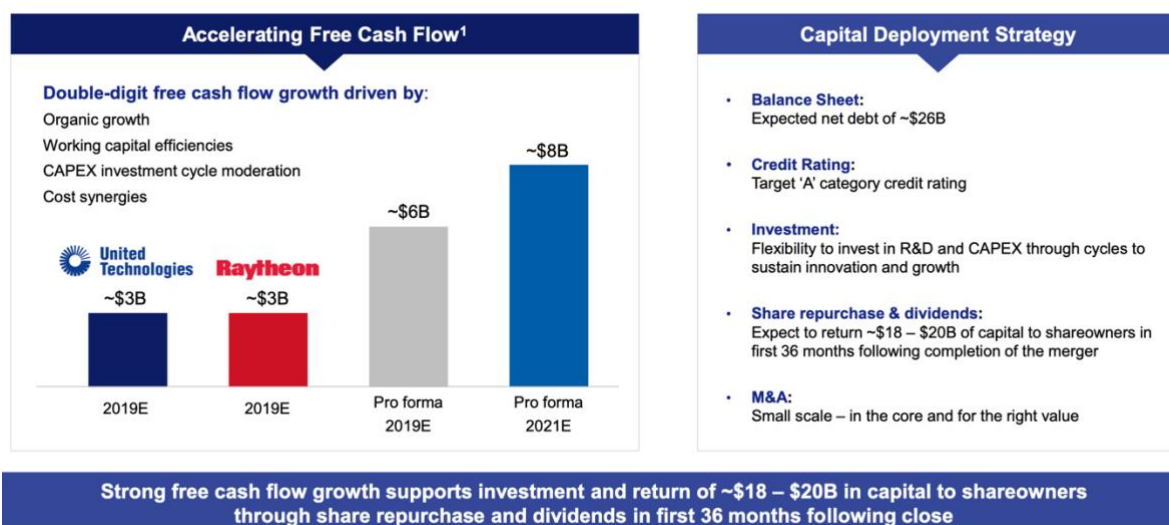


1. Approximately \$600M net one-time cost, subject to USG recoverability, to achieve \$500M+ in net annual cost synergies

Source: (RTX 2019)

Exhibit 7. Robust free cash flow generation

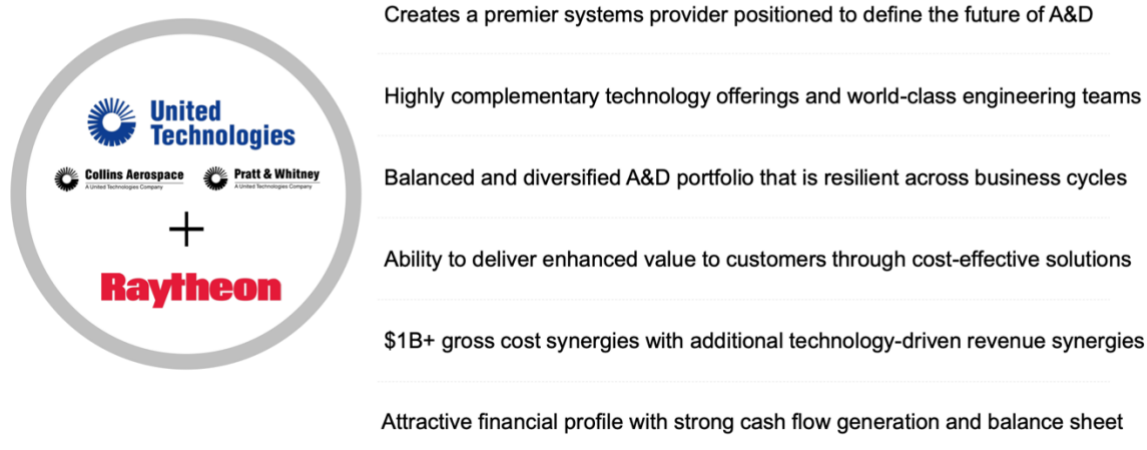
Robust Free Cash Flow Generation



Source: (RTX 2019)

Exhibit 8. Strategic rationale

Strategic Rationale



Source: (RTX 2019)

Exhibit 9. Synergy areas aligned with customer needs (defence & commercial)

Defense priority areas

		United Technologies Competency	+	Raytheon Competency	=	Raytheon Technologies Customer Solution
Hypersonics / Future Missile Systems		- High-temperature materials - Thermal and signature management - Advanced propulsion		- 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		- Compact, efficient power generation - Advanced thermal management - Optical beam delivery		- 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		- Advanced electro-optical payloads - Software-defined communications - Position, navigation, and timing (PNT)		- Radio frequency (RF) payloads - Acoustics and communications - Multi-sensor fusion / systems integration		Persistent, resilient ISR capability across space, air, land and maritime domains

Technology combination addresses highest priority Defense customer requirements

Commercial aerospace priority areas

		United Technologies Competency	+	Raytheon Competency	=	Raytheon Technologies Customer Solution
Cyber Protection for Connected Aircraft		- Aircraft networks and RF systems - Information management systems - System architecture and certification		- 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		- Future airspace flight deck technology - On-board autonomy systems - Air-to-ground comms infrastructure		- 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		- Very large installed base - Full flight / environmental data - Prognostics / health monitoring		- 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

Combined capabilities support optimization of increasingly connected and intelligent commercial aerospace systems

Source: (RTX 2019)

APPENDIX:

Appendix 1. United Technologies Corporation Consolidated Income (in \$mm)

	2013*	2014*	2015*	2016*	2017*	2018*
Revenue	61.074	62.879	61.342	62.319	66.274	75.166
Revenue RemainCo	31.781	33.074	32.655	33.575	36.121	43.340
Revenue Carrier	16.809	16.823	16.707	16.851	17.812	18.922
Revenue Otis	12.484	12.982	11.980	11.893	12.341	12.904
COGS	43.356	44.184	43.876	44.796	49.069	56.220
Gross Profit	17.718	18.695	17.466	17.523	17.205	18.946
Operating Expenses	8.035	8.083	7.297	7.815	7.735	8.936
Operating Income / (Loss)	9.683	10.612	10.169	9.708	9.470	10.010
Interest Expense	923	940	885	1.103	1.096	1.300
Other Non-Op. Income (Loss)	(17)	(25)	(15)	(184)	(427)	(715)
Abnormal Losses (Gains)	258	103	1.870	721	107	33
Pretax Income / (Loss)	8.519	9.594	7.429	8.068	8.694	9.392
Income Tax Expense (Benefit)	2.234	2.508	2.379	1.905	3.069	2.706
Extraordinary Gains (Losses)	(456)	(141)	(3.602)	9	-	-
Minority Interest	388	403	358	371	368	385
Net Income GAAP	6.353	6.824	8.294	5.783	5.257	6.301

Reference Items (in \$mm)

	2013*	2014*	2015*	2016*	2017*	2018*
D&A	1.912	2.045	2.115	2.215	2.539	2.882
D&A RemainCo	1.323	1.487	1.602	1.690	1.990	2.335
D&A Carrier	380	349	337	354	372	357
D&A Otis	209	209	176	171	177	190
EBITDA	10.542	11.516	11.024	10.691	11.905	12.800
EBITDA RemainCo					6.410	6.781
EBITDA Carrier					3.402	3.994
EBITDA Otis					2.093	2.025
CAPEX	(2.077)	(2.072)	(2.206)	(2.326)	(2.713)	(2.594)
CAPEX RemainCo	(1.689)	(1.757)	(1.862)	(1.892)	(2.254)	(2.159)
CAPEX Carrier	(266)	(228)	(261)	(340)	(326)	(263)
CAPEX Otis	(122)	(87)	(83)	(94)	(133)	(172)

*Rockwell Collins data fully consolidated to UTC in Q1 2019 and added manually for previous years. In addition, the company reports its fiscal year different to the calendar year. To account for that, Q4 2018 was extrapolated based on historical averages.

*For all subdivisions, Rockwell Collins is added to "RemainCo".

Source: Data derived from Bloomberg; own illustration

Appendix 2. United Technologies Corporation Consolidated Balance Sheet (in \$mm)

Assets	United Technologies Corporation*				Carrier	Otis
	2016**	2017**	2018	Q1 2019	Q1 2020	
Cash & Cash Equivalents and STI	7.497	9.688	6.152	6.240	768	1.207
Accounts Receivable	12.575	14.021	14.271	13.574	2.674	2.780
Inventory	10.643	12.332	10.083	10.474	1.556	599
Other ST Assets	1.325	1.577	4.997	5.114	970	928
Total Current Assets	32.040	37.618	35.503	35.402	5.968	5.514
Total Noncurrent Assets	65.373	77.299	98.708	101.978	16.033	4.010
Total Assets	97.413	114.917	134.211	137.380	22.001	9.524
Liabilities and Equity						
Accounts Payable	20.229	22.822	21.303	20.431	3.748	2.747
ST Debt	2.944	2.975	4.345	4.764	218	67
Other ST Liabilities	1.079	1.663	5.720	6.208	485	2.541
Total Current Liabilities	24.252	27.460	31.368	31.403	4.451	5.355
LT Debt	23.079	31.665	41.192	43.024	11.737	6.637
Other LT Liabilities	18.533	18.190	20.932	20.898	2.787	1.721
Total Liabilities	65.864	77.315	93.492	95.325	18.975	13.713
Total Equity	31.549	37.602	40.719	42.055	3.026	(4.189)
Total Liabilities & Equity	97.413	114.917	134.211	137.380	22.001	9.524
Enterprise Value (Estimate)***					35.795	16.973

*United Technologies Corporation financial data includes Carrier and Otis.

**Rockwell Collins data fully consolidated in FY 2018 and added manually for previous years.

***Estimate using comparables.

Source: Data derived from Bloomberg; own illustration

Appendix 3. Raytheon Consolidated Income Statement (in \$mm)

	2013	2014	2015	2016	2017	2018
Revenue	23.706	22.826	23.321	24.124	25.348	27.058
COGS	18.532	17.295	17.608	17.507	18.340	19.573
Gross Profit	5.174	5.531	5.713	6.617	7.008	7.485
Operating Expenses	2.170	2.308	2.611	2.444	1.435	1.519
Operating Income / (Loss)	3.004	3.223	3.102	4.173	5.573	5.966
Interest Expense	198	203	222	216	184	153
Other Non-Op. Income (Loss)	(17)	(7)	4	595	934	1.238
Abnormal Losses (Gains)	66	44	35	277	1.342	1.428
Pretax Income / (Loss)	2.757	2.983	2.841	3.085	3.113	3.147
Income Tax Expense (Benefit)	808	790	747	873	1.114	264
Extraordinary Gains (Losses)	(64)	(65)	(13)	(1)	(2)	1
Minority Interest	17	14	(3)	(31)	(23)	(27)
Net Income GAAP	1.996	2.244	2.110	2.244	2.024	2.909

Reference Items (in \$mm)

	2013	2014	2015	2016	2017	2018
D&A	445	439	489	515	550	568
EBITDA	3.449	3.662	3.591	4.688	6.123	6.766
CAPEX	(280)	(326)	(425)	(526)	(634)	(798)

Source: Data derived from Bloomberg; own illustration

Appendix 4. Raytheon Consolidated Balance Sheet (in \$mm)

Assets	2016	2017	2018	Q1-2019
Cash & Cash Equivalents and STI	3.094	3.400	3.608	2.093
Accounts Receivable	1.317	1.324	1.648	1.424
Inventory	725	594	758	882
Other ST Assets	6.179	6.008	6.123	6.557
Total Current Assets	11.315	11.326	12.137	10.956
Total Noncurrent Assets	19.423	19.534	20.533	20.620
Total Assets	30.738	30.860	32.670	31.576
Liabilities and Equity				
Accounts Payable	2.625	2.861	3.473	2.356
ST Debt	300	300	515	1.001
Other ST Liabilities	4.092	4.187	4.475	4.323
Total Current Liabilities	7.017	7.348	8.463	7.680
LT Debt	4.752	4.750	5.402	4.908
Other LT Liabilities	7.850	8.287	6.922	6.848
Total Liabilities	19.619	20.385	20.787	19.436
Total Equity	11.119	10.475	11.883	12.140
Total Liabilities & Equity	30.738	30.860	32.670	31.576

Source: Data derived from Bloomberg; own illustration

Appendix 5. Comparable Company Metrics*

Comparables	Ticker	Market Cap (in \$bn)	P/E	P/BV	EV/EBITDA	EV/EBIT	EV/Rev
Raytheon Corporation	RTN US	51,3	17,16x	4,32x	7,93x	8,66x	1,98x
BAE Systems PLC	BA/ LN	18,7	14,67x	2,65x	7,80x	9,80x	0,93x
General Dynamics Corp	GD US	45,4	13,77x	3,87x	10,95x	12,82x	1,58x
L3Harris Technologies Inc	LHX US	17,1	22,83x	5,15x	14,92x	18,36x	3,33x
Leonardo SpA	LDO	5,1	10,47x	0,98x	6,04x	13,92x	0,57x
Lockheed Martin Corp	LMT US	73,6	12,84x	52,78x	10,24x	11,86x	1,62x
Northrop Grumman Corp	NOC US	41,8	11,48x	5,10x	11,81x	14,31x	1,80x
SAAB	SAABB SS	4,6	27,31x	2,12x	12,60x	17,47x	1,18x
United Technologies Corporation	UTX US	65,6	10,02x	1,52x	13,33x	20,34x	2,07x
Airbus	AIR FP	74,6	21,31x	6,70x	6,36x	9,66x	0,72x
Curtiss-Wright Corp	CW US	4,4	16,01x	2,85x	10,19x	12,99x	2,01x
Dassault Aviation	AM FP	11,5	17,52x	2,35x	6,12x	6,83x	0,95x
General Electric Co	GE US	65,9	13,91x	2,13x	--	--	1,36x
HEICO Corp	HEI US	11,1	44,12x	7,97x	26,14x	31,50x	6,67x
Honeywell Int	HON US	96,4	14,35x	5,30x	13,03x	15,20x	2,44x
Howmet Aerospace Inc	HWM US	8,1	12,07x	1,48x	6,45x	9,26x	0,88x
L3 Harris Technologies Inc	LHX US	17,1	22,83x	5,15x	14,92x	18,36x	3,33x
Meggitt PLC	MGGT LN	4,7	20,30x	1,47x	10,71x	18,47x	2,28x
Moog Inc.	MOG/A US	3,0	24,30x	2,44x	12,07x	16,93x	1,38x
MTU Aero Engines Holding AG	MTX GR	9,4	18,27x	3,95x	11,94x	16,10x	2,03x
Safran S.A.	SAF FP	52,4	35,37x	3,83x	15,64x	25,20x	2,37x
Textron Inc	TXT US	10,8	13,66x	2,07x	8,02x	10,99x	0,93x
Thales Group	HO FP	24,9	22,08x	3,81x	10,36x	14,14x	1,19x
TransDigm Group Inc	TDG US	19,6	29,13x	--	17,06x	18,39x	7,99x
Woodward Inc	WWD US	5,0	22,07x	3,24x	16,85x	24,74x	2,64x

* All figures are based on FY 2018 financial data.

Source: Data derived from Bloomberg; own illustration

Appendix 6. Comparable Transaction Metrics

Target Company	Acquirer	Transaction Value (in \$bn)	Date	EV/EBITDA	EV/EBIT	EV/Rev
Raytheon Corporation						
Collins Aerospace	UTC	29,5	04.09.17	21,18x	27,31x	4,86x
Dassault Aviation SA	Dassault Group	1,0	28.11.14	17,55x	20,27x	2,16x
EADS	BAE Systems	5,0	12.09.12	9,50x	12,30x	1,70x
Esterline Technologies Corp	TransDigm Group	4,0	09.10.18	13,80x	21,86x	1,96x
L3 Technologies Inc	Harris Corp	19,6	13.10.18	14,57x	17,58x	1,95x
Wesco Aircraft Holdings Inc	Platium Equity	1,9	08.08.19	15,33x	19,88x	1,15x
United Technologies Corporation						
Avio Aero	GE	4,3	19.06.13	8,50x	--	--
Intelligrated	Honeywell	1,5	01.07.16	12,00x	--	--
KLX Inc	Boeing	4,2	01.05.18	14,09x	18,33x	2,29x
B/E Aerospace	Rockwell Collins	8,1	23.10.16	13,28x	15,42x	2,81x
Goodrich Corp	UTC	18,4	21.09.11	10,70x	--	--
Esterline Technologies	TransDigm Group Inc	4,0	09.10.18	13,80x	21,86x	2,50x

Source: Data derived from Bloomberg; own illustration

Appendix 7. NWC Cash Cycles: US Aerospace and Defence Industry Average

	2017	2018
Accounts Receivable / Sales	18,7%	21,0%
Inventory / Sales	22,4%	24,1%
Accounts Payable / Sales	10,0%	10,4%

Source: (Damodaran, n.d.)

Appendix 8. Key Financial Data FY 2018 (in \$ mm, unless stated otherwise)

	EPS ** (in \$)	# Shares (in mm)	Book Value	Share Price* (in \$)	WACC (in %)	Tax Rate (in %)
United Technologies Corporation	7,6	861	40.719	76,0	5,70%	21%
Raytheon Corporation	10,6	282	11.883	182,1	9,79%	21%
Combined Entity (for Cost Synergies)					8,56%	21%

* As of 29th of March 2019 (due to comparability to other valuation methods).

** UTC EPS incl. Carrier & Otis.

Source: Data derived from Bloomberg; own illustration

Part B: Teaching Note

GENERAL PART

Synopsis

On June 9, 2019, United Technologies Corporation and Raytheon Company publicly announced their intention to merge in an all-stock megamerger of equals. On April 3, 2020, amidst regulatory scrutiny, shareholder activism and market turbulence, the merger was finalized after fulfilling the relevant closing conditions according to the merger agreement, creating Raytheon Technologies, a diversified leader in the aerospace and defence sector.

This merger is considered one of the most significant consolidations in the A&D industry which was driven by the vision to combine complementary strengths and meet the evolving needs of the sector. Therefore, this case study focuses on the strategic process and motivations that led to the creation of Raytheon Technologies, the surviving company of the merger. The first part of the case study introduces both companies in detail, explaining their history, divisions and business models, along with an overview and outlook of the aerospace and defence industry. Following up with a merger overview providing the structure and most important components of the merger. Next, it dives into the rationale and motives behind the merger, exploring how strategic diversification, synergy potential, and external pressures shaped the decision. The analysis then explores the dynamic M&A activity of UTC before the megamerger, alongside key integration challenges with Raytheon as well as intense regulatory scrutiny, which required divestments for the deal to be allowed. Continuing, the reaction and influence of shareholders concerning the merger, especially respecting the opposition of activist investors, will be examined and the market reaction to the deal including subsequent events will be discussed. The final section will explore the key deal risks, including the impact of the COVID-19 pandemic while examining their interplay with the merger's legal framework and its influence on the transaction's execution and outcomes.

Positioning

This case study is structured for a master's-level course or module focusing on Mergers & Acquisitions or similar areas. Students engaged in this study should already be familiar with essential M&A principles and methods, including how deals are structured, valuation strategies, corporate governance, and relevant legal precedents. This background will enable students to employ analytical thinking to examine fundamental concepts, derive meaningful insights, and create their own valuation frameworks. If students do not possess this background knowledge, the instructor is expected to introduce critical valuation techniques, such as discounted cash flow (DCF) analysis, analysis of comparable companies, and analysis of precedent transactions.

Learning objectives

By engaging with this case study on the UTC-Raytheon merger, students will:

- Analyse the merger rationale by evaluating the strategic and financial motives behind the UTC-Raytheon merger, focusing on diversification, external pressures, and synergy potential. Critically examine the feasibility of the projected cost synergies and their role in driving value creation.
- Evaluate the integration challenges and regulatory scrutiny associated with the UTC-Raytheon merger, analysing how these factors influence post-merger success, synergy realization and stakeholder alignment while proposing strategies to address potential obstacles in M&A execution.
- Analyse the role and influence of activist investors in M&A transactions, focusing on how they can shape merger outcomes, serve as a check on managerial decisions and influence corporate governance. Additionally, examine the market reaction to the deal to assess market-implied synergies and understand how these factors collectively impact the merger.

- Understand and critically evaluate the broader deal risk framework, focusing on the merger agreement and using real-world examples to assess the effectiveness of legal clauses and strategic decisions.
- Assess the RTX merger's alignment with stakeholders' risk-return profiles by evaluating its strategic objectives, weighing its potential benefits against inherent risks and developing balanced, evidence-based recommendations.
- Engage in interactive sessions, including discussions, debates, and simulations of the RTX merger, enhancing critical thinking, building confidence in defending arguments, and allowing students to apply concepts learned during the case while exploring the roles of key stakeholders - management, activist investors, regulators, and shareholders - in shaping M&A outcomes.

SUBSTANTIVE ANALYSIS AND TEACHING PROCESS

i. Introduction

A comprehensive examination of the UTC-Raytheon merger provides an engaging opportunity for students to explore the complexities of M&A in the aerospace and defence industries. Throughout three class sessions, each lasting approximately three hours, this case study facilitates a detailed investigation into the strategic rationale, financial implications, deal risks and post-merger challenges of one of the largest mergers in the sector. To this end, the teaching note offers structured guidance to instructors on how to facilitate discussions, pose critical questions, and engage students in interactive activities.

The teaching note will be accompanied by a student Excel file containing the financial statements of UTC, including the spin-offs of Otis and Carrier as well as the recent acquisition of Rockwell Collins. Additionally, instructors will have access to a dedicated Excel file that includes detailed DCF analysis, relative valuation metrics, synergy calculations and the merger

premium assessment, enabling them to guide students through the financial components of the case effectively.

Building on the case study content, instructors can begin the discussion by asking students to reflect on the unique dynamics of mergers and acquisitions in highly regulated sectors like aerospace and defence. They should explore the strategic reasons companies engage in M&A and the specific challenges they face. Key discussion questions might include:

- What strategic benefits do firms seek through mergers in the aerospace and defence industries?
- What are the potential synergies and risks associated with merging companies with distinct focuses, such as UTC's commercial aerospace and Raytheon's defence technologies?
- How can complementary capabilities between merging firms create value for the combined entity?

The instructor can then refer to Figure 1, Figure 2 and Figure 3 of the appendix to visually illustrate and reinforce these concepts. Figure 1 provides a historical overview of UTC's technological milestones in commercial aerospace, while Figure 2 and 3 highlight Raytheon's achievements in defence innovation, including radar systems, missile defence and cybersecurity capabilities. These visuals offer a foundation for discussing how the two firms' complementary strengths align to create a diversified leader in aerospace and defence.

This introductory discussion serves to frame the case study, encouraging students to think critically about the drivers of the UTC-Raytheon merger. With a clear understanding of the strategic context, they will be better prepared to delve into the financial analysis, synergy realisation, and post-merger integration challenges in subsequent sessions.

ii. Deal structure & motives

a. Merger of equals

The challenges that are reflected in the market's initial reaction to the UTC-Raytheon deal raise questions about the ownership, governance and strategic rationale of mergers branded as “*mergers of equals*”. In order to introduce students to the concept of a merger of equals (MoE), it is important to explain both the theoretical framework and the practical implications of this structure and apply it to the case of the UTC-Raytheon deal. The discussion should begin by reiterating the concept of MoE and ensuring that students understand the criteria: comparable size, market position, profitability and valuation. In this context, a critical reflection on the feasibility of the concept of merger of equals, similar to the concept of comparability, should be continued. In addition, the possible strategic rationale for labelling a transaction as a merger of equals should be explored.

Students should refer to the following reading to understand the various arguments behind the term “*merger of equals*”: *Can a merger of equals truly exist?* (Alluru and Thomas 2016) which suggests that less than 1% of the M&A deals could be classified as mergers of equals. Rather, the term “*merger of equals*” is often used as a tactic in mergers and acquisitions to: “*Circumvent regulatory hurdles & reassure anxious stakeholders, especially those of the ‘weaker’ partner*” (Alluru and Thomas 2016).

In the next step, students should challenge the post-merger realities that challenge the MoE narrative in the United Technologies - Raytheon merger:

- The post-merger ownership Structure split consisting of 57% UTC and 43% Raytheon supports the imbalance of power and challenges the perception of an equal partnership. Could the division be an indicator of UTC's dominance in the negotiations or a strategic intention to reassure stakeholders from the smaller, “*weaker*” partner?

- The governance division of 7 independent board seats for UTC and 6 for Raytheon also reflects inequality. Therefore, students should discuss whether this split supports a true MoE or reflects UTC's stronger bargaining position.

The following list of standard questions is proposed. The instructor is free to modify them:

- What are the arguments supporting UTC-RTN merger being a merger of equals and what are the arguments against it?
- What are possible challenges when creating a true equal merger between two companies of different sizes, operational focuses, and market positions, such as UTC and Raytheon?
- How does the UTC-Raytheon merger compare to other famous MoEs (e.g. the Daimler-Chrysler or Lafarge-Holcim mergers)? What can be learned from these MoEs regarding integration challenges and value creation?

GENERAL PART

iii. Value creation

a. Standalone valuation and relative analysis

The valuation exercise serves as a practical transition, linking the students' prior analyses to the valuation outcomes for UTC and Raytheon. To evaluate students results, instructors should use the provided Excel file as a guide to discuss the range of valuation results derived from various methods. For this case study, understanding the valuation is an important aspect because the deal was criticised by stakeholders for being financial irrational and for not showing obvious financial benefits and characteristics of a typical merger deal.

For the valuation exercise, students can apply simplified assumptions, which are largely predefined in the case study material and use the most widely used valuation techniques, such as discounted cash flow (DCF), comparable company analysis (CCA) and comparable

transaction analysis (CTA). The valuation results included in the provided Excel file offer examples using DCF, CCA, and CTA to estimate the standalone values for both UTC and Raytheon before the merger. These valuations are based on historical data from a recent period and use Q1 2019 as the cut-off date because this is the closest date to the merger announcement without including post-announcement volatility, providing a baseline for assessing the intrinsic value of each company.

For UTC, the football field chart (Figure 4) yields the following estimated values, calculated using different approaches:

- DCF Analysis: Depending on the assumptions used, the valuations range from around \$90.96 to \$162.91 for the mixed approach, with the perpetuity method, extending the potential valuation from \$98.69 up to \$207.21.
- CTA: Transaction-based multiples result in valuations between \$38.01 and \$113.47, reflecting differences across metrics like EV/Revenue, EV/EBIT and EV/EBITDA.
- CCA: This method yields a broader spread of values, with lower estimates starting at \$6.37 (EV/EBIT) and higher estimates reaching \$399.44 (P/BV).

For Raytheon, the football field chart (Figure 4) yields the following estimated values, calculated using different approaches:

- DCF Analysis: The mixed approach range extends from \$175.20 to \$242.07, with the perpetuity-based valuation falling between \$159.90 and \$220.85.
- CTA: The values derived from transaction multiples span from \$102.15 to \$592.05, depending on the metric applied.
- CCA: The spread here is particularly wide, with some valuations as low as \$41.34 and others as high as \$395.31 based on P/BV ratios.

It is beneficial for instructors to discuss the spread of valuation results, explaining why students might have obtained different values based on their assumptions and methodologies. Referring to historical stock prices can help students compare the calculated values with market pricing to better understand the relationship between perceived intrinsic value and actual market behaviour. In relation to this, it is important to discuss any potential premium associated with the merger in a next step.

An engaging exercise to close this topic and enhance student participation involves asking them to take on the role of shareholders for either UTC or Raytheon, then deciding whether they would support the merger based on their own valuation results. Here, the instructor can ask the students to vote for or against the merger by hand signal to capture the current opinion of the class. This activity can be repeated later, after additional aspects of the deal have been discussed, to see how their opinions may shift with a deeper understanding.

b. Merger premium and value creation expectations

The concept of a merger premium is critical to understanding the economics of the Raytheon-UTC merger. Participants should analyse the difference between the calculated intrinsic values and the merger terms to understand whether a premium is justified. Factors justifying a premium could be expected synergies, an improved market position or strategic advantages that would make the merged company more valuable than the two separately operating companies. However, it should be noted that these synergies remain speculative until the merger is finalized.

To gain an overall understanding of deal premiums, students could answer selected questions:

- What factors justify paying a premium for the companies' stock?
- Why should shareholders of Raytheon expect a premium for approving the acquisition?
- How does the presence or absence of synergies affect the size of the premium?

- How did Raytheon's shareholders possibly responded when the no premium had been offered? Could UTC have justified this approach by pointing to the strong strategic fit and synergies?
- Does the no-premium structure reflect disciplined capital allocation, or does it suggest a lack of confidence in the merger's potential for transformative growth? Would a small premium have been strategically beneficial to align the interests of both companies' shareholders, or would it have introduced unnecessary risks? If so favouring which party?

To enhance the discussion on the potential cost-saving synergies and their impact on the merger's valuation, it is essential to analyse the dynamics of the deal structure and the strategic decision-making involved. The expected cost-saving synergies of \$500 million, though modest relative to the size of the deal, may suggest a carefully calculated approach by UTC to not overpay, reflecting disciplined decision-making. This could be a strategic move, especially considering UTC's position as the larger entity in the merger, potentially allowing it to negotiate a lower premium or opt for a 'merger of equals' structure. Such a structure helps mitigate the high expectations that typically come with large premiums, aligning more closely with the actual value being offered to shareholders.

To provide a more detailed financial analysis, the instructor may choose to guide students in calculating the exchange ratio after completing all valuation exercises, utilizing their outputs alongside the actual stock prices. With the real-world 57/43 post-merger ownership split, derived from the actual exchange ratio of 2.34, students can recompute this structure by using their DCF valuations and actual stock prices, including estimated synergies. Appendix Figure 5 and Figure 6 serve as a reference, illustrating that the teacher's Excel valuation suggests a DCF-implied exchange ratio of 1.69, while the exchange ratio using stock prices yields 2.36 for the actual ownership structure of 57/43. The low DCF exchange ratio compared to the

almost identical exchange ratios using stock prices and the actual exchange ratio could indicate whether UTC managed to secure a deal favourable to its stakeholders or if the market conditions justified a no-premium deal.

While the management decided against the inclusion of a premium, students should understand the reasoning and perceptions of a no-premium deal and discuss the following aspects:

- Strategic fit: Students should debate whether the strategic alignment between the two companies - both leaders in aerospace and defence - could justify a no-premium deal.
- Acquisition at fair market value: UTC carries less risk as it ensures that the company does not overpay for synergies. However, students should consider whether Raytheon's shareholders would see this as undervaluing their company.
- Perceptions of shareholders: UTC's shareholders might appreciate the disciplined financial approach of avoiding a premium but could also question whether the target is worth acquiring if a premium is not justified. Conversely, Raytheon's shareholders may feel that a no-premium deal does not adequately compensate them for the future growth potential of their company.

While value creation expectations are a key driver of merger premiums, in the Raytheon-UTC merger the focus shifts to how value will be realised for both the acquirer and the target as there is no significant premium. To encourage critical thinking, the instructor should guide students and help them evaluate whether the Raytheon-UTC merger is consistent with typical value creation assumptions. The transaction deviates from conventional factors: the characteristics of the target (a large, publicly traded company), the lack of growth potential typically present in smaller or private acquisitions, the payment structure of the share exchange which creates dilution risk for shareholders and is contrary to the value-enhancing characteristics of cash deals and UTC's ongoing integration efforts which result from previous acquisitions. All of these factors bring into question whether the company is overextended, which could affect its ability

to fully realise synergies in this merger. To introduce another critical discussion of value creation, the following quote should be cited: *“Even though this acquisition adds scale and diversification, the economic benefits appear to be modest,”* said Robert Spingarn, analyst at Credit Suisse Group AG. *“We don't see the additional size significantly deepening existing divides or improving competitiveness.”* (Bloomberg 2019a). Finally, the quote should lead to a discussion about the justification of the merger, whereas students should debate whether the strategic direction of these companies justifies the merger despite the relatively modest synergy effects or not.

Having discussed relevant pros and cons of the deal in the context of value creation, the subject should shift towards the size of the deal and entities merging. Since it can be classified as a “megamerger”, students should explore the following journal article *Do mega-mergers create value?* (Hu, Li, and Wang 2020) and understand how acquirers' previous acquisition experience impacts the success and value of mega-mergers (deals over \$500 million). The study concludes that companies with more acquisition experience, i.e. with at least 12 completed transactions, are more likely to successfully complete mega-mergers and achieve higher shareholder value in both the short and long term (Hu, Li, and Wang 2020 ; Glubov, Yawson, and Zhang 2015).

The following list of standard questions is proposed. The instructor is free to modify them as they please:

- What lessons can be learned from other megamergers where experienced acquirers outperformed, and how can these lessons be applied to the Raytheon-UTC deal?
- With only \$500 million in synergies projected, does this figure meet the expectations for a deal of this size? What are the risks if the projected synergies are not achieved?

The instructor should lead a final interactive debate in which the class is divided into groups arguing either for or against the merger, focusing on specific aspects such as synergies, strategic direction, shareholder perception and the merger premium. Each group should present their

arguments based on the concepts discussed to determine whether the merger is justified in its current form.

c. Synergies valuation

In building upon the earlier discussion of value creation, the focus should shift to cost synergies, which are among the most quantifiable and reliable synergies in mergers. For the Raytheon-UTC transaction, cost synergies represent a major driver of the deal rationale, underlining the strategic emphasis on operational efficiencies and streamlined processes.

The projected gross annual cost synergies of \$1 billion by year four align with typical expectations for large-scale aerospace and defence mergers. However, achieving this level of savings requires a phased realisation, given the complexities of post-merger integration. To guide the valuation exercise, instructors should emphasise that synergies materialise incrementally rather than immediately, reflecting both integration timelines and industry practices (Bruner 2004; The Boston Consulting Group 2018).

For this exercise, students are provided with a baseline approach, but assumptions remain flexible to encourage critical thinking and discussion:

- **Phased realisation:** The percentages that contribute to full realization in Year 4 (e.g., 25%, 50%, 75%) are variable and can be modified by Students. This enables a discussion regarding the potential for synergies to develop at a quicker or delayed pace, depending on the realistic integration challenges.
- **Integration costs:** The total one-off integration costs of \$600 million are spread evenly over the first two years as a starting point. However, students are free to reallocate these costs across the timeline to reflect alternative assumptions about restructuring, severance or IT implementation timing.

The valuation applies the combined entity's WACC of 8.56%, ensuring consistency with the entity's capital structure and risk profile. Net synergies are calculated post-tax at a 21% rate. Figure 7 provides a clear visualisation of the phased realisation of net savings, while Figure 8 demonstrates the corresponding increase in enterprise value.

Instructors can use these assumptions as a basis for an intermediate discussion on the challenges of synergy realisation:

- Is the phased approach realistic? Could synergies ramp up more quickly, or are there risks of delays?
- How might frontloading or backloading these costs impact the net present value of synergies?
- Why is it important to test alternative scenarios in synergy valuation? How do changes to realisation timing or cost allocation affect the overall outcome?

By allowing students to adjust key variables and debate their assumptions, this section creates room for active discussion and reinforces the importance of combining financial analysis with strategic execution. The instructor can guide students towards refining their reasoning and using the provided Excel calculations as a reference point for comparison.

Students should be reminded that looking at synergies in isolation when assessing value can sometimes lead to overestimation of their impact, since actual execution risks may diminish expected savings (Bruner 2004). By examining flexible inputs, students may recognize the sensitivity of valuation outcomes to fundamental assumptions and critically evaluate the feasibility of anticipated cost synergies. This exercise also provides an opportunity to contrast cost synergies with other forms of synergies discussed earlier. While cost synergies are often the most tangible and measurable, their realisation depends heavily on disciplined integration. Compared to more speculative synergies such as innovation and financial synergies in the Raytheon-UTC merger, though limited, offer a more tangible outcome in the form of a minor

WACC reduction, as shown in Figure 9. This shift, driven by refinancing benefits and the coinsurance effect, highlights a stabilising effect on cash flows, yet remains too small to generate significant standalone value.

To encourage critical thinking, instructors might pose the following question:

- Even if financial synergies do not create substantial value, could their stabilising effect support the merger's strategic goals, such as enabling long-term R&D investments or offsetting integration risks?

Using Figure 9, instructors can encourage students to discuss the trade-off between the feasibility of financial synergies and their potential contribution to value creation in the future.

iv. Risk-return trade-off: Why was the deal done?

As highlighted in the previous sections, the merger of UTC and Raytheon is a good illustration of the complexity of strategic decision-making in mergers and acquisitions. To answer the central question “Why was the deal done?”, students should create a structured pro and con list that summarises the key factors that form the decision-making framework and promotes a balanced assessment of the trade-offs involved this transformative transaction similar to the one provided in Figure 10.

Students should assess that the deal presented significant upside potential due to operational synergies, which promised cost savings and increase efficiency. Additionally, the merged entity benefited from a coinsurance effect, balancing UTC's cyclical revenues with Raytheon's stable government-backed contracts to enhance overall creditworthiness. Furthermore, the combined entity was well-positioned to leverage enhanced R&D capabilities, driving innovation in critical future-oriented technologies such as autonomous systems, AI, and hypersonic weapons. These advantages positioned the merger as a strategic move to establish long-term leadership in an increasingly consolidated and competitive aerospace and defence market.

However, students should identify the risks as equally significant. First of all, they should name the integration challenges as a key concern, particularly as UTC was navigating the complexities of spinning off Otis and Carrier while integrating Rockwell Collins. In terms of the deal structure students should raise the questions of fairness, due to the 57/43 equity split and all-stock consideration. Moreover, students should mention the timing of the merger during the COVID-19 pandemic which added further uncertainty, intensified market volatility and therefore amplified risks. The voices of critics and activists, who pointed to a possible overestimation of the management and mentioned the possibility of value destruction through a conglomerate discount, should also be included in the overall assessment.

To conclude the case the instructor can guide the final discussion in two possible directions:

- Risk-return trade-off: Students should critically assess whether the strategic benefits of the deal, such as synergies, innovation, diversification, and long-term positioning, were sufficient to justify the risks, including integration challenges, shareholder dissatisfaction, and external uncertainties like the pandemic.
- Alternative management decisions: The instructor can encourage students to debate various courses of action management could have taken, considering the broader context of the deal:
 - Could management have renegotiated terms to better address shareholder concerns, such as adjusting the equity split or incorporating partial cash consideration to mitigate perceived inequality?
 - Would terminating the deal have been a choice, even at the cost of breakup fees, given the ongoing spin-offs and heightened risks posed by the pandemic?
 - Was proceeding with the merger the optimal decision, focusing on the potential long-term strategic benefits despite the short-term uncertainties and integration complexities?

INDIVIDUAL PART: Philipp Nuechterlein

v. *Drivers of the merger: integration challenges and strategic mergers*

Before analysing the deal with students in greater detail, it is imperative to start with a broader view of the deal by analysing the deal environment that shaped the merger between United Technologies Corporation (UTC) and Raytheon. The merger occurred in a highly dynamic and complex environment, heavily influenced by UTC's M&A strategy in the years leading up to the transaction. Shortly prior to the merger with Raytheon, UTC had already completed another significant acquisition of Rockwell Collins (SEC 2018a), which contributed to the company's aerospace segment. In addition, part of the merger with Raytheon was the divestitures of the Otis and Carrier companies. While these acquisitions & divestitures helped UTC expand its capabilities, they also introduced significant integration and regulatory challenges, which students need to consider when analysing the merger.

a. *M&A activity*

Before exploring the integration hurdles of the UTC-Raytheon merger, it is important for the instructor to first review UTC's recent mergers and divestitures with the students. This provides context for understanding how prior M&A activities shaped UTC's position leading up to the merger and introduced additional complexity into the integration process. UTC adopted a strategic focus on aerospace and defence through a series of acquisitions and divestitures, which ultimately positioned the company for the merger with Raytheon. Some key M&A activities of UTC in years prior to the merger with Raytheon to discuss include:

- Sale of Sikorsky Aircraft in 2015 (Reuters 2015)

- Acquisition of Goodrich Corporation in 2012 and CIAT Group in 2015 (Carrier 2015; Corp 2015)
- Acquisition of Rockwell Collins in 2018 (Collins Aerospace 2018)
- Divestitures of Otis and Carrier in 2020 (Collins Aerospace 2018)

At this point, it is essential for students to understand that frequent M&A activity can have both advantages and challenges. On the one hand, research on “*serial acquirers*” suggests that companies engaged in multiple M&A transactions develop specialized routines and capabilities that help them navigate complex deals more efficiently. These organizations often cultivate deep strategic and operational expertise, enabling them to identify suitable targets, evaluate synergies, and manage integrations with precision. Over time, they establish refined processes for due diligence, negotiations, and post-merger integration, which contribute to their ability to maintain a competitive edge in dynamic markets. On the other hand, managing overlapping integrations can stretch organizational resources, complicate coordination across units, and create alignment challenges that threaten the overall success of acquisitions. Additionally, while codified routines and structured checklists can streamline certain aspects of the process, they often fail to capture the tacit knowledge and contextual adaptability required to address the unique complexities of each transaction. This underscores the importance of fostering a balance between leveraging accumulated expertise, adapting routines to context-specific needs, and maintaining the flexibility to innovate within the acquisition process, ensuring sustainable long-term growth and success (Grant, Nilsson, and Nordvall 2022). To deepen students' understanding of UTC's M&A strategy and its implications for the merger with Raytheon, the following questions can help guide classroom discussion. Instructors may adapt these questions to fit the specific dynamics of the class or to focus on particular aspects of the case:

- How did UTC's recent acquisitions and divestitures impact its readiness for the merger with Raytheon, both positively and negatively?

- What are the advantages and challenges of frequent M&A activity for companies, particularly when managing overlapping integrations?
- How can firms balance the benefits of building strong M&A capabilities with the risks of overextending their organizational resources during multiple large transactions?

b. Antitrust considerations

When discussing mega mergers like the UTC-Raytheon merger, a critical topic of conversation has to be antitrust regulation. Regulatory bodies, such as the U.S. Department of Justice (DOJ) and the European Commission, play a vital role in overseeing these mergers, ensuring that market competition remains healthy and that the public benefits from innovation and fair pricing. The significance of such enforcement becomes clear when examining real-world cases where regulatory bodies have taken action - either by imposing conditions or blocking merger entirely. To provide students with concrete examples of these regulatory dynamics, cases like the blocked Illumina-Grail merger or the ongoing scrutiny surrounding Microsoft's acquisition of Activision Blizzard (Czapracka and Dr. Engel 2024) should be introduced. These cases illustrate the complex challenges companies face during mega mergers and highlight how antitrust enforcement shapes corporate strategies.

In the context of the UTC-Raytheon merger, regulatory scrutiny focused on both horizontal and vertical antitrust issues to ensure that the new entity RTX would not wield excessive market power, particularly in the defence sector. Students should examine how regulators identified potential risks in overlapping markets and supply chain integration, compelling both companies to divest certain business units to maintain a fair competitive environment.

1. Horizontal regulatory issues

Beginning with horizontal antitrust regulatory concerns, it is important to first clarify the distinction between operational horizontal overlaps and market-harming horizontal antitrust issues. This distinction helps students understand that not all overlaps between businesses in the same market necessarily harm competition. In some cases, companies operating in the same industry may combine for reasons of efficiency or to enhance their operational capacities without significantly impacting market competition. However, the instructor should help students clarify that horizontal antitrust issues arise when such mergers reduce competition to the point that it harms consumers and stifles innovation. In particular, mergers that could lead to monopolistic behaviour, where one company gains excessive market control, leading to higher prices, reduced product variety, or a slowing of innovation. The instructor should underline that this is especially concerning in industries where the market is already concentrated, or where barriers to entry are high, making it difficult for new competitors to emerge (Steiner 2008). To help students understand market competitiveness in the context of mergers, the instructor can introduce tools like the Herfindahl-Hirschman Index (HHI) and Concentration Ratios (CR4). While HHI measures market concentration by summing the squares of all firms' market shares, CR4 shows the market share of the top four firms (Pavic, Galetić, and Piplica 2016).

After reading through the case study, students should understand what the concern from regulators point of view was as well as understand the repercussions for both companies. For the instructor, it's important to emphasise that the horizontal antitrust issues played a central role in this merger. Specifically, the overlap between UTC and Raytheon in critical markets, such as military GPS, radios, and satellite communication systems, raised significant concerns from regulators about market dominances (Dubrow and Ferrara 2020). The aerospace and defence industry is characterised by high market concentration, which can be assessed using the HHI. In this case, the index measured market competitiveness with values below 1,500

indicating “*moderate competition*” (see Figure 11). In recent years, the U.S. aerospace and defence sector has consistently maintained an HHI score near or below this threshold, suggesting a moderately competitive environment. However, mergers like UTC-Raytheon risk increasing this concentration. Regulatory bodies were particularly concerned that without intervention, this merger could push the HHI score higher, reducing competition and innovation in an already consolidated market. To address these risks, the DOJ required divestitures, including UTC’s military GPS and anti-jamming systems and Raytheon’s military radios, to prevent the HHI from rising to levels that might harm market dynamics (6Wresearch 2022).

To engage students in analysing the horizontal antitrust issues related to this merger, the following questions could be helpful:

- Why are horizontal antitrust issues particularly significant in highly concentrated industries like defence and aerospace?
- How do regulators like the DOJ and the European Commission determine when divestitures are necessary in horizontal mergers?
- What are the potential risks if horizontal antitrust issues are not adequately addressed in large-scale mergers?

2. Vertical regulatory issues

Following the discussion on horizontal regulatory issues, students should also be encouraged to consider the less apparent, yet equally important, vertical regulatory concerns. It is crucial to guide students in understanding the difference between vertical integration that may enhance efficiencies and coordination within a supply chain, and vertical mergers that have the potential to harm competition by giving one company control over key resources or channels. In vertical antitrust issues, the concern is not about direct competition between merging companies (as in horizontal cases), but rather the power that the combined entity could wield at different stages

of the same supply chain. In vertical mergers, the primary risk lies in the potential for the merged company to control or restrict access to essential inputs or outputs, thereby creating barriers for competitors and disrupting the competitive balance in the industry. To deepen students' understanding, one should encourage them to consider the potential risks that vertical mergers pose. For example, a company that controls critical elements of the supply chain could restrict competitors' access to essential inputs, raise their prices, or prioritize its own products in ways that limit innovation. This is particularly relevant in industries with complex and specialized supply chains, like aerospace and defence, where access to specific technologies or components is critical for maintaining competition (Steiner 2008).

In the UTC-Raytheon merger, these concerns were highlighted due to the complementary positions that each company held within the aerospace supply chain. Raytheon, as a leading producer of focal plane arrays (FPAs) - essential components for EO/IR satellites - and UTC, with its expertise in large satellite payload systems, created a scenario where the new Raytheon Technologies could potentially control both ends of this specialized supply chain. To help students understand this issue, the instructor should ask them to think about how controlling both inputs (FPAs) and outputs (satellite systems) could lead to market foreclosure, where other competitors are disadvantaged. The discussion should then lead to explore the DOJ's concerns, which centred on the idea that RTX could leverage its control over FPAs to either raise prices for competing satellite manufacturers or limit access to these essential components. This would have an adverse effect on innovation and pricing, potentially harming the broader defence industry. By discussing these points, the instructor can lead students to appreciate why regulatory bodies like the DOJ imposed divestitures to ensure that Raytheon Technologies would not dominate the satellite production chain (Office of Public Affairs 2020; Dubrow and Ferrara 2020).

To help students think critically about the vertical antitrust issues presented by the UTC-Raytheon merger, the following questions can be introduced for class discussion:

- How do vertical antitrust issues differ from horizontal ones, and why are they both important when evaluating mergers?
- How could vertical integration in the UTC-Raytheon merger have affected other players in the EO/IR satellite market if left unchecked?
- Should regulators have imposed stricter conditions on the vertical integration aspects of this merger, or were the DOJ's measures sufficient?

c. Integration challenges

Following the discussions on M&A activity and regulatory challenges, the next logical step in analysing the merger is to examine the integration challenges that accompanied the UTC-Raytheon merger. Mergers of this scale often present significant hurdles, especially when they involve organizations with distinct operations, corporate cultures, and strategic goals. For the instructor, this section is intended to help students explore how post-merger integration determines the success or failure of a deal. The merger of UTC and Raytheon presents a particularly complex scenario. Students should be encouraged to examine how UTC's acquisition of Rockwell Collins, just prior to the merger, added another layer of complexity to an already challenging integration process. The company faced the task of managing multiple integrations simultaneously, which is a well-documented risk factor in post-merger scenarios. As instructor, one can highlight research that demonstrates how the integration of large, diverse organizations can stretch a company's resources, delay the realization of synergies, and create cultural friction between merging entities (Angwin et al. 2022; Diduc 2022).

Now, before diving into five factors driving integration success, it's essential to encourage students to think critically about the broader implications of post-merger integration. Ask

students to reflect on the following: What distinguishes successful integration efforts from those that fail? How can organizations balance the need for rapid integration with the complexities of managing cultural and operational alignment? These questions will help set the stage for a detailed examination of the key factors that shaped the outcome of the UTC-Raytheon merger. By framing the discussion in this way, students will be better prepared to analyse the five factors of integration, using them as a lens to evaluate the broader challenges and strategies involved in post-merger processes (Voth 2021):

1. Strategy aligned with deal rationale: The UTC-Raytheon merger was driven by a clear strategic rationale: to create a dominant player in the aerospace and defence sector with complementary capabilities in commercial and military technologies. The strategic rationale emphasised the creation of a balanced and diversified portfolio, designed to remain resilient across economic cycles.
2. Adaptive, engaged leadership: Leadership played a pivotal role in navigating the complexities of merging two similarly large organizations. Both UTC and Raytheon brought experienced management teams, but the scale of the merger demanded agility and adaptability. Leaders not only had to manage the integration of the two organizations but also simultaneously navigate the divestitures required by regulatory mandates, as discussed earlier in the context of M&A activity & regulatory. These divestitures introduced additional challenges, as leaders needed to ensure that their long-term strategic goals were not derailed by the immediate need to address regulatory demands.
3. Comprehensive communication plan: Clear and consistent communication was essential to address the concerns of key stakeholders throughout the merger process. For example, proactive communication regarding UTC's divestiture of its military GPS receivers played a critical role in managing customer expectations and avoiding

uncertainty. To strengthen this point, instructors can elaborate on how communication strategies were tailored to minimise disruption, maintain trust, and ensure that the message resonated clearly across diverse stakeholder groups.

4. Active cultural integration: Cultural differences between UTC and Raytheon posed a significant hurdle, as the two companies operated in overlapping yet distinct segments of the aerospace and defence industries. Developing shared values and creating cohesive teams across these differing backgrounds was critical to ensuring a smooth transition. The instructor could highlight the importance of addressing cultural integration challenges with historical examples such as the Mercedes-Benz and Chrysler merger, where cultural clashes between the German engineering-focused culture and Chrysler's American, cost-focused approach ultimately undermined the success of the deal (Kumar and Sharma 2019).
5. Appropriate integration pace: Lastly, the instructor should emphasise the importance of achieving the right balance in the pace of integration. Moving too quickly risked overlooking critical details, such as operational and cultural missteps, while moving too slow could have stalled the realization of the anticipated synergies and erode stakeholder confidence. Leadership had to prioritize critical integration tasks, set clear milestones, and align short-term actions with long-term strategic goals to ensure a smooth transition and maintain competitiveness in the aerospace and defence sectors.

To explore the challenges related to M&A activity and integration in more depth, students can be prompted with the following questions:

- How does engaging in multiple acquisitions before a major merger, like UTC did, impact the integration process?
- What are the key challenges of integrating two companies of similar size, especially in industries as complex as aerospace and defence?

- What strategies could UTC have employed to manage the overlapping integrations of Rockwell Collins and Raytheon more effectively?

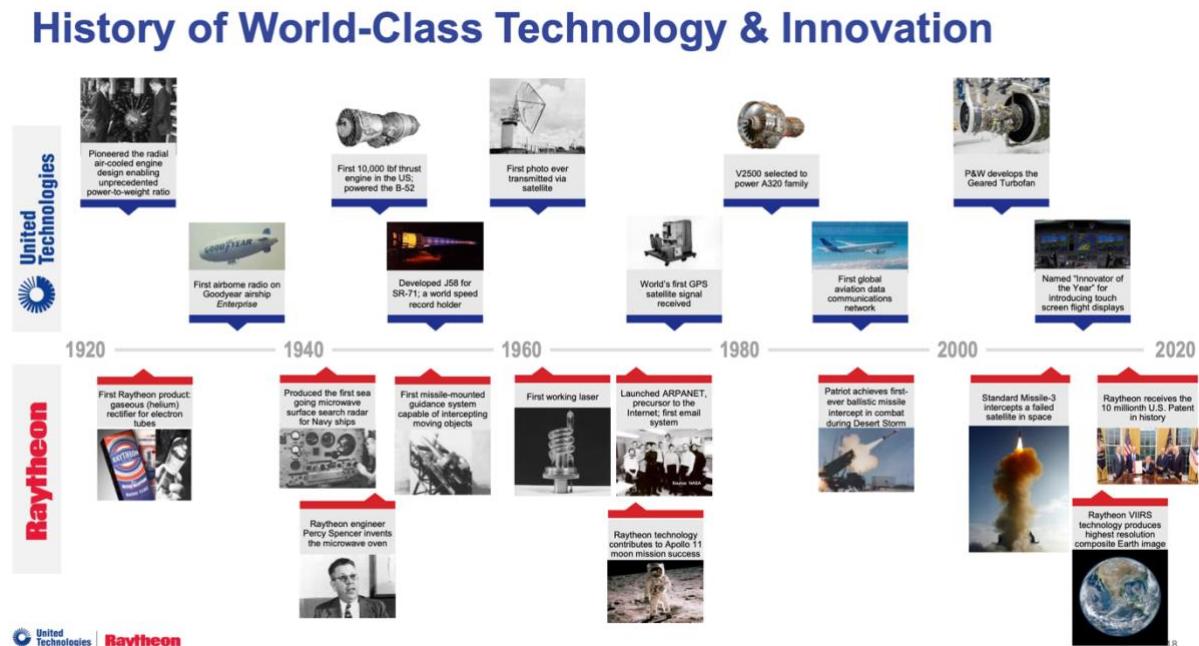
EPILOGUE

When United Technologies Corp. and Raytheon Company announced their merger in 2019, scepticism was high, as relevant shareholders saw it as an ill-conceived merger which lacked rationality and was poorly timed. However, in the face of uncertainty, leadership held firm, driven by a vision of building a diversified aerospace and defence powerhouse. By the time Raytheon Technologies (RTX) emerged in April 2020, the world stood still amid a global pandemic. The commercial aerospace industry struggled, yet the merger revealed its true value. Raytheon's robust defence business, supported by government contracts, provided a lifeline, proving the strength of a diversified portfolio. As competitors resorted to layoffs, Raytheon reallocated employees to its defense segments, safeguarding jobs while adapting to market realities (Bloomberg 2020). As competitors resorted to layoffs, Raytheon reallocated employees to its defense

Fast forward to 2023, under Greg Hayes's leadership, RTX stood successful. The company not only weathered the storm but RTX's defence business has thrived amid growing geopolitical tensions and global unrest, driving increased demand for advanced military technologies and showing a record backlog of \$196 billion (Rajan 2024). As RTX solidifies its position as a leader in both aerospace and defence, the architect of the merger, CEO Greg Hayes, announced his retirement in 2024 and Chris Calio stepping in as CEO. In retrospect, however, the formation of Raytheon Technologies Corporation turned out to be a strategic success, as it provided the merged company with stability and resilience at a time of global uncertainty (Rajan 2024).

APPENDIX

Figure 1. Historical background of UTC and Raytheon

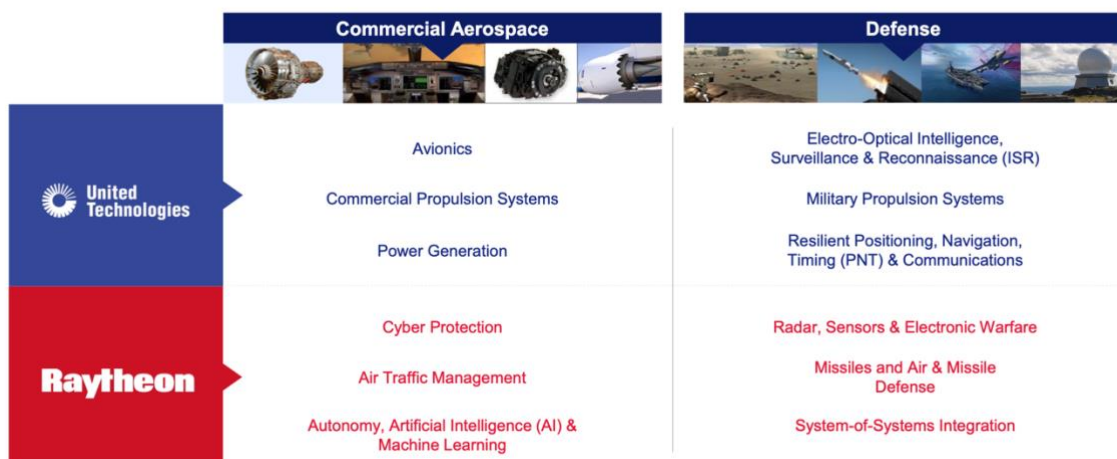


Source: (RTX 2019)

Figure 2. Existing capabilities of UTC and Raytheon

Existing Capabilities Are Highly Complementary

Representative capabilities brought to combination



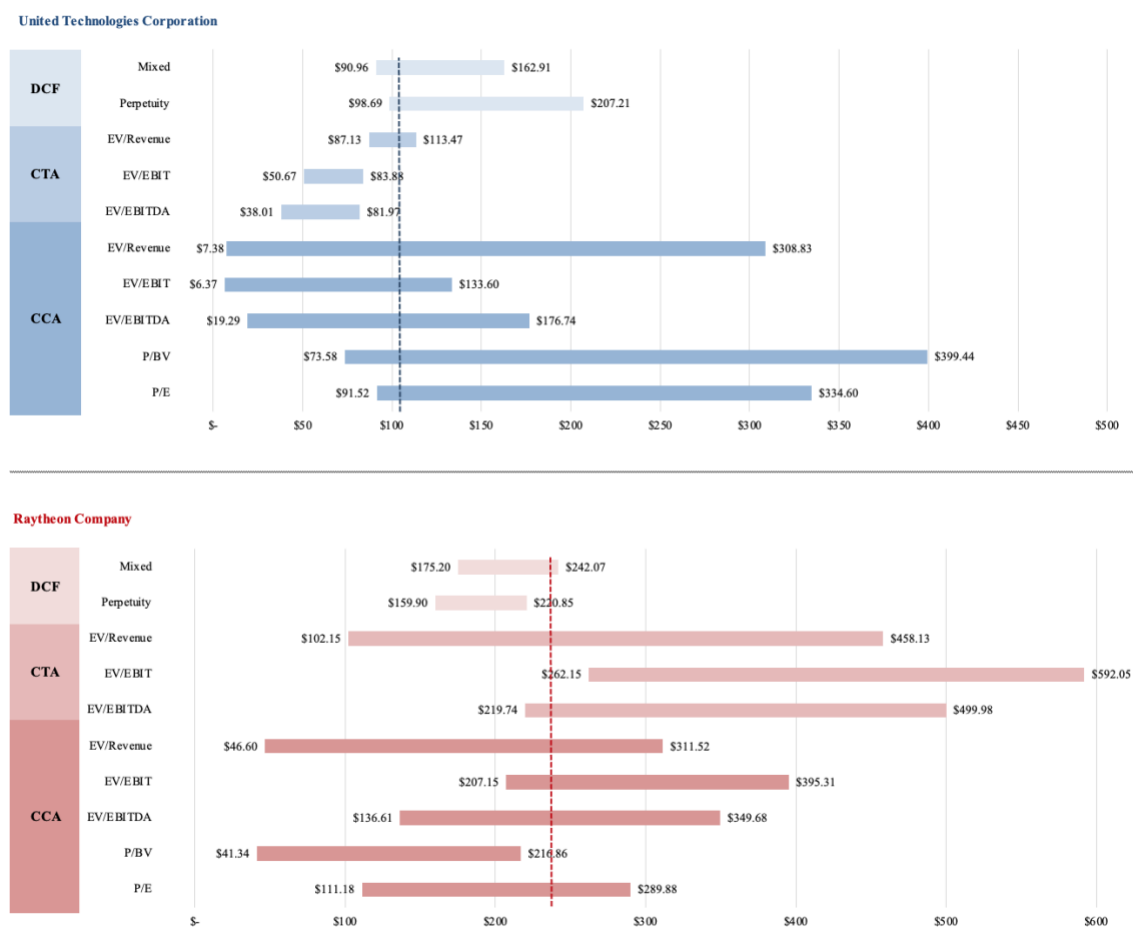
Source: (RTX 2019)

Figure 3. Combined product offering of RTX



Source: (RTX 2019)

Figure 4. Football Field charts for UTC and Raytheon



Source: Own illustration

Figure 5. Exchange ratios using DCF valuation

Cost Synergies		\$13,347									
UTC											
Number of pre-merger shares	862,3										
Synergy share (a)	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Pre-merger value (31/3/2019)	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401	\$101.401
Synergies received	\$0	\$1.335	\$2.669	\$4.004	\$5.339	\$6.674	\$8.008	\$9.343	\$10.678	\$12.013	\$13.347
Pre-merger value + synergies	\$101.401	\$102.736	\$104.071	\$105.405	\$106.740	\$108.075	\$109.409	\$110.744	\$112.079	\$113.414	\$114.748
Per-share merger value (including synergies)	\$117,6	\$119,1	\$120,7	\$122,2	\$123,8	\$125,3	\$126,9	\$128,4	\$130,0	\$131,5	\$133,1
RTN											
Number of pre-merger shares	280										
Synergy share (1-UTC's synergy share)	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
Pre-merger value (31/3/2019)	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615	\$54.615
Synergies received	\$13.347	\$12.013	\$10.678	\$9.343	\$8.008	\$6.674	\$5.339	\$4.004	\$2.669	\$1.335	\$0
Pre-merger value + synergies	\$67.962	\$66.627	\$65.293	\$63.958	\$62.623	\$61.288	\$59.954	\$58.619	\$57.284	\$55.949	\$54.615
Per-share merger value (including synergies)	\$242,7	\$238,0	\$233,2	\$228,4	\$223,7	\$218,9	\$214,1	\$209,4	\$204,6	\$199,8	\$195,1
Exchange Ratio (RTN/UTC)	2.06	2.00	1.93	1.87	1.81	1.75	1.69	1.63	1.57	1.52	1.47

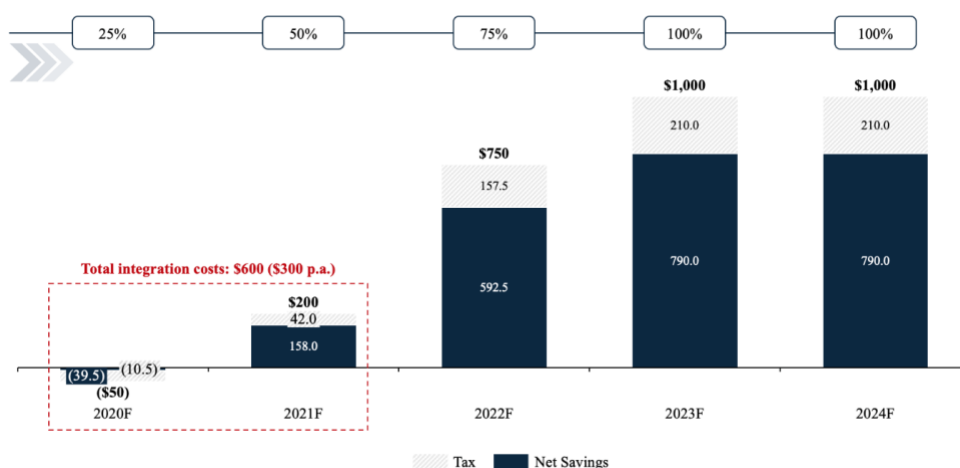
Source: Own calculation

Figure 6. Exchange ratios using stock prices

Cost Synergies		\$13.347									
UTC											
Number of pre-merger shares	862										
Synergy share (a)	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Pre-merger value (31/3/2019)	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552	\$65.552
Synergies received	\$0	\$1.335	\$2.669	\$4.004	\$5.339	\$6.674	\$8.008	\$9.343	\$10.678	\$12.013	\$13.347
Pre-merger value + synergies	\$65.552	\$66.887	\$68.222	\$69.556	\$70.891	\$72.226	\$73.561	\$74.895	\$76.230	\$77.565	\$78.900
Per-share merger value (including synergies)	\$76,0	\$77,6	\$79,1	\$80,7	\$82,2	\$83,8	\$85,3	\$86,9	\$88,4	\$90,0	\$91,5
RTN											
Number of pre-merger shares	280										
Synergy share (1-UTC's synergy share)	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
Pre-merger value (31/3/2019)	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982	\$50.982
Synergies received	\$13.347	\$12.013	\$10.678	\$9.343	\$8.008	\$6.674	\$5.339	\$4.004	\$2.669	\$1.335	\$0
Pre-merger value + synergies	\$64.330	\$62.995	\$61.660	\$60.326	\$58.991	\$57.656	\$56.321	\$54.987	\$53.652	\$52.317	\$50.982
Per-share merger value (including synergies)	\$229,7	\$225,0	\$220,2	\$215,4	\$210,7	\$205,9	\$201,1	\$196,4	\$191,6	\$186,8	\$182,1
Exchange Ratio (RTN/UTC)	3.02	2.90	2.78	2.67	2.56	2.46	2.36	2.26	2.17	2.08	1.99

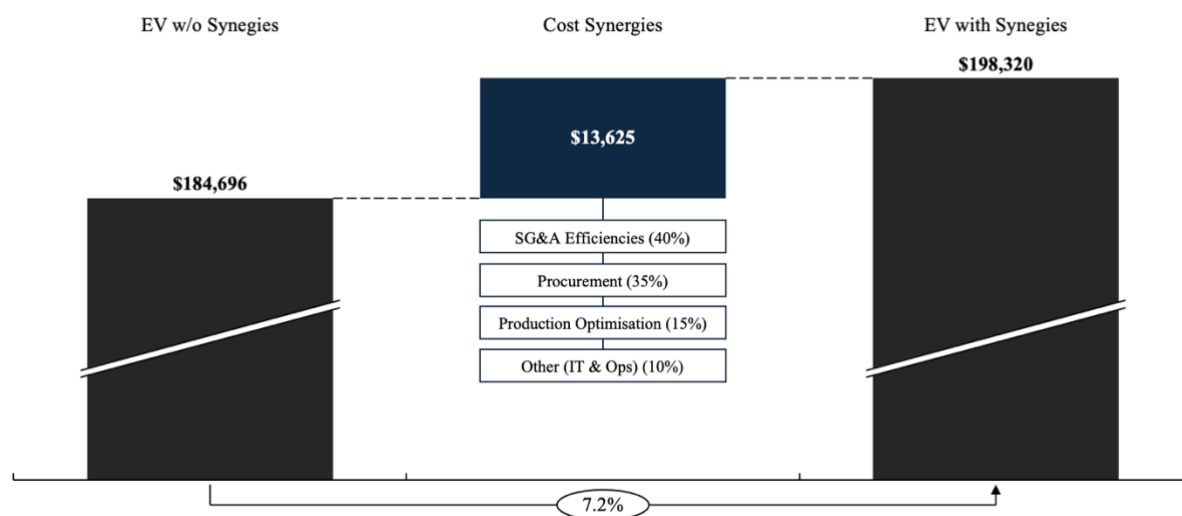
Source: Own calculation

Figure 7. Cost synergies - phased realisation



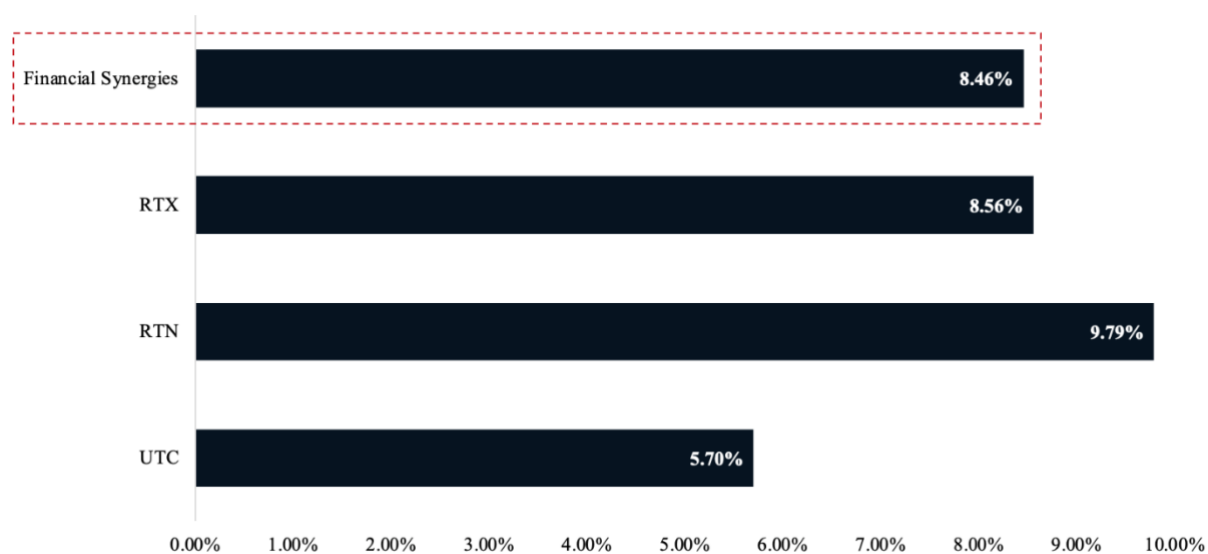
Source: Own illustration

Figure 8. Cost synergies - enterprise value waterfall



Source: Own illustration

Figure 9. Financial synergies – WACC shift / refinancing



Source: Own illustration

Figure 10. Final assessment - risk-return trade-off

Pro

Operational and Financial Synergies:

- cost savings from shared supply chains, improved creditworthiness, and risk reduction via coinsurance

Diversification and Resilience:

- balances UTC's cyclical revenues with Raytheon's stable government-backed contracts, reducing dependency on individual market segments.

Innovation Promotion:

- enhances R&D capacities, enabling advancements in future-oriented technologies (e.g., AI, autonomous systems, hypersonic weapons) and supports long-term market leadership through innovative aerospace and defence solutions.

Long-term Market Positioning:

- positioning of the new entity as a leading player in a consolidated market environment, increased competitive intensity and regulatory challenges.

Con

Environment and Timing:

- high volume of prior merger activity undertaken by UTC (Collins acquisition and spin offs), A&D industries merger trend, Covid downturn

Equality?

- merger of equals but 57/43 split
- debt levels, financial situation, historic stock performance, valuation results

Integration challenges:

- UTC's integration challenges with the ongoing integration of Rockwell Collins while simultaneously managing the spin-offs of Otis and Carrier, stretches its resources and creating additional complexity ahead of the Raytheon merger.

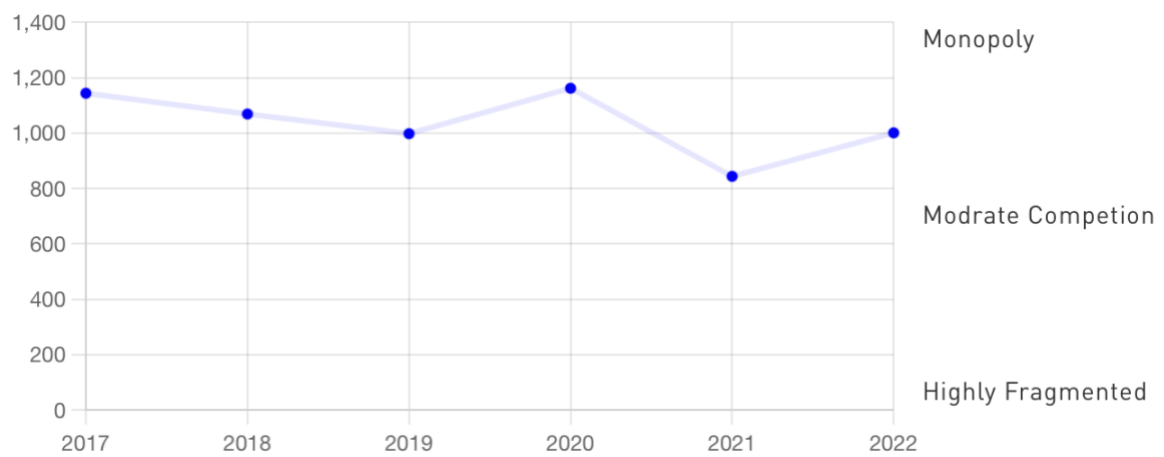
(Questionable) Deal Risk Balance:

- significant deal value risk disadvantaging Raytheon shareholders due to the all-stock consideration compounded by the COVID-19 pandemic and the inapplicability of the MAE clause., while UTC bears a higher burden of completion risk

Shareholder critique:

- overconfidence of management (hubris, empire building), undervaluation of UTC, RTN is a business of inferior quality, conglomerate discount

Figure 11. Herfindahl-Hirsch-Index (HHI) of the American aerospace & defence industry



Source: (6Wresearch 2022)

REFERENCES

- 6Wresearch. 2022. “United States (US) Aerospace and Defense Market (2024-2030) | Trends, Outlook & Forecast.” August 2022. <https://www.6wresearch.com/industry-report/united-states-us-aerospace-and-defense-market-outlook>.
- Aerospace Industries Association. 2019. “2019 Facts & Figures U.S. Aerospace & Defense.” Aerospace Industries Association. <https://www.aia-aerospace.org/publications/2019-facts-figures/>.
- Ajmeria, Ankit, and Andrea Shalal. 2017. “United Tech Rejects Honeywell’s \$90.7 Billion Offer.” Reuters. February 27, 2017. <https://www.reuters.com/article/us-unitedtech-m-a-honeywell-idUSKCN0VZ1X7/>.
- Alluru, Jayanth-Reddy, and Mark Thomas. 2016. “Can a Merger of Equals Truly Exist?,” June. <https://www.emerald.com/insight/content/doi/10.1108/SD-03-2016-0039/full/html#sec004>.
- Angwin, Duncan N., Uma Urs, Naagush Appadu, Ioannis C. Thanos, Stavros Vourloumis, and Minas N. Kastanakis. 2022. “Does Merger & Acquisition (M&A) Strategy Matter? A Contingency Perspective.” *European Management Journal*, Reshaping M&A Scholarship – Broadening the Boundaries of M&A Research, 40 (6): 847–56. <https://doi.org/10.1016/j.emj.2022.09.004>.
- BAE Systems. 2020. “BAE Systems Announces Proposed Acquisition of One UTC Military GPS Business and Raytheon’s Airborne Tactical Radios Business.” January 20, 2020. <https://www.baesystems.com/en/article/bae-systems-announces-proposed-acquisition-of-gps-and-atr-business>.
- Bloomberg. 2019a. “CEO-to-CEO Call Paved Way for United Technologies’ Mega Deal.” <https://www.bloomberg.com/news/articles/2019-06-10/united-technologies-ceo-caps-aerospace-revamp-with-raytheon-deal>.
- Bloomberg. 2019b. “Raytheon Is United Technologies’ \$50 Billion Finishing Touch.” *Brooke Sutherland*, September 6, 2019. <https://www.bloomberg.com/opinion/articles/2019-06-09/raytheon-is-united-technologies-50-billion-finishing-touch>.
- Bloomberg. 2020. “The Criticized Raytheon-United Technologies Deal Looks Smart Now.” *Brooke Sutherland*, August 6, 2020. <https://www.bloomberg.com/news/articles/2020-06-08/raytheon-and-united-technologies-merger-looks-pretty-smart>.
- Bloomberg Technology. 2020. Raytheon CEO Sees “Two-Year Tough Spell” Ahead Due to Virus Pandemic. https://www.youtube.com/watch?v=SLaT0fo_VcQ.

- Bruner, R. 2004. *Applied Mergers and Acquisitions*. Joseph R. Perella (Foreword by). 978-0-471-39505-8. John Wiley & Sons Inc.
- Carrier. 2015. “UTC Building & Industrial Systems Completes CIAT Acquisition.” Carrier. January 5, 2015. https://www.corporate.carrier.com/news/news-articles/utc_building_industrial_systems_completes_ciat_acquisition.html
- Carrier Global Corporation. n.d. “Our Segments - Carrier.” Company Website. Carrier Corporate. Accessed September 15, 2024. <https://www.corporate.carrier.com/our-segments/>.
- Collins Aerospace. 2018. “United Technologies Announces Intention to Separate into Three Independent Companies; Completes Acquisition of Rockwell Collins.” November 26, 2018. <https://www.collinsaerospace.com/news/news/2018/11/united-technologies-announces-intention-to-separate>.
- Collins Aerospace. 2024. “Our Capabilities - Collins Aerospace.” Company Website. Collins Aerospace. Accessed September 13, 2024. <https://www.collinsaerospace.com/>.
- Competition Bureau Canada. 2020. “Competition Bureau Will Not Oppose Merger between United Technologies and Raytheon.” News releases. March 30, 2020. <https://www.canada.ca/en/competition-bureau/news/2020/03/competition-bureau-will-not-oppose-merger-between-united-technologies-and-raytheon.html>.
- Cornell, Joe. 2020. “Raytheon Technologies, Otis And Carrier Begin Regular Way Trading.” <https://www.forbes.com/sites/joecornell/2020/04/06/raytheon-technologies-otis-and-carrier-begin-regular-way-trading/>.
- Corp, United Technologies. 2015. “United Technologies Closes Goodrich Acquisition; Marshall Larsen to Join UTC Board of Directors; Alain Bellemare to Lead UTC Propulsion & Aerospace Systems.” UTC Building & Industrial Systems Completes CIAT Acquisition. January 5, 2015. <https://www.prnewswire.com/news-releases/united-technologies-closes-goodrich-acquisition-marshall-larsen-to-join-utc-board-of-directors-alain-bellemare-to-lead-utc-propulsion--aerospace-systems-163884836.html>.
- Czapracka, Katarzyna, and Michael Dr. Engel. 2024. “High-Profile Deals in European Regulators’ Firing Lines.” M&A Explorer. June 24, 2024. <https://mergers.whitecase.com/highlights/high-profile-deals-in-european-regulators-firing-lines>.
- Damodaran, A. 2012. *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*. 3rd ed. SBN: 978-1118011522. John Wiley & Sons.

- Damodaran, Aswath. n.d. “Damodaran Online.” NYU Stern. Accessed December 8, 2024.
https://pages.stern.nyu.edu/~adamodar/New_Home_Page/dataarchived.html.
- DeNicolo, Christopher, David Matthews, and William Buck. 2018. “Industry Top Trends 2019: Aerospace and Defense.” S&P Global Ratings.
<https://www.maalot.co.il/Publications/SR20181115142951.pdf>.
- Diduc, Sniazhana. 2022. “Integration Team Members’ Approaches to Uncertainty Management in M&A.” *European Management Journal*, Reshaping M&A Scholarship – Broadening the Boundaries of M&A Research, 40 (6): 917–31.
<https://doi.org/10.1016/j.emj.2022.10.002>.
- Dubrow, Jon B., and Anthony S. Ferrara. 2020. “United Technologies/Raytheon Highlights Key Issues in Aerospace and Defense Industry Merger Review.” *McDermott Will & Emery* (blog). April 22, 2020. <https://www.mwe.com/insights/united-technologies-raytheon-highlights-key-issues-aerospace-defense-industry-merger-review/>.
- European Commission. 2020. “Mergers: Commission Approves Acquisition of Raytheon by UTC.” Press Release. European Commission - European Commission. March 13, 2020. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_463.
- Glubov, Andrey, Alfred Yawson, and Huizhong Zhang. 2015. “Extraordinary Acquirers.” *Journal of Financial Economics*, 2015, vol. 116, issue 2, 314–330.
- Hu, Nan, Hui Li, and Xing Wang. 2020. “Do Mega-Mergers Create Value? The Acquisition Experience and Mega-Deal Outcomes,” January.
<https://doi.org/10.1016/j.jempfin.2019.11.004>.
- Kumar, Vinod, and Priti Sharma. 2019. “Why Mergers and Acquisitions Fail?” In *An Insight into Mergers and Acquisitions: A Growth Perspective*, edited by Vinod Kumar and Priti Sharma, 183–95. Singapore: Springer. https://doi.org/10.1007/978-981-13-5829-6_10.
- Office of Public Affairs. 2018. “Office of Public Affairs | Justice Department Requires UTC to Divest Two Aerospace Businesses to Proceed with Acquisition of Rockwell Collins | United States Department of Justice.” Office of Public Affairs. October 1, 2018.
<https://www.justice.gov/opa/pr/justice-department-requires-utc-divest-two-aerospace-businesses-proceed-acquisition-rockwell>.
- Office of Public Affairs. 2020. “Office of Public Affairs | Justice Department Requires Divestitures in Merger Between UTC and Raytheon to Address Vertical and Horizontal Antitrust Concerns | United States Department of Justice.” Office of Public

- Affairs. March 26, 2020. <https://www.justice.gov/opa/pr/justice-department-requires-divestitures-merger-between-utc-and-raytheon-address-vertical-and>.
- Otis Elevator Company. n.d. “Products - Otis Elevator Company.” Company Website. OTIS. Accessed September 15, 2024. <https://www.otis.com/en/us/products-services/products>.
- Pavic, Ivan, Fran Galetić, and Damir Piplica. 2016. “Similarities and Differences between the CR and HHI as an Indicator of Market Concentration and Market Power.” *British Journal of Economics, Management & Trade* 13 (January):1–8. <https://doi.org/10.9734/BJEMT/2016/23193>.
- Pershing Square Holdings. 2019a. “Pershing Square Holdings, Ltd. Unaudited Condensed Interim Financial Statements.” Pershing Square Holdings, Ltd. <https://assets.pershingsquareholdings.com/2019/08/15175158/PSH-2019-Interim-Financial-Statements.pdf>.
- Pershing Square Holdings. 2019b. “Press Release Pershing Square Holdings, Ltd.” *Pershing Square Holdings, Ltd. Exits Investments in United Technologies and ADP and Acquires New Investment* (blog). August 5, 2019. <https://pershingsquareholdings.com/pershing-square-holdings-ltd-exits-investments-in-united-technologies-and-adp/>.
- Pershing Square Holdings, Ltd. 2018. “Letter to Shareholders Q1 2018.” Pershing Square Holdings, Ltd. <https://assets.pershingsquareholdings.com/2014/09/08112812/Pershing-Square-1Q18-Investor-Letter-PSH.pdf>.
- Pfeifer, Sylvia, and Patti Waldmeir. 2019. “Big Is Beautiful for UTC and Raytheon in Mega Deal.” *Financial Times*, June 11, 2019. <https://www.ft.com/content/dc39dc3e-8b99-11e9-a24d-b42f641eca37>.
- Pfeifer, Sylvia, Patti Waldmeir, and James Fontanella-Khan. 2019. “United Technologies-Raytheon Deal Creates Aerospace Powerhouse.” *Financial Times*, June 9, 2019.
- Pratt & Whitney. n.d. “Our Story - Pratt & Whitney.” Company Website. Pratt & Whitney. Accessed September 15, 2024. <https://www.prattwhitney.com/en/our-company/our-story>.
- Rajan, Rachael. 2024. “Earnings Call: RTX Announces Leadership Change and Robust Financials By Investing.Com.” Investing.Com. January 24, 2024. <https://www.investing.com/news/stock-market-news/earnings-call-rtx-announces-leadership-change-and-robust-financials-93CH-3282221>.

- Raytheon Company. 2022. “100 Years of Era-Defining Innovation.” Company Website.
Raytheon Company. July 6, 2022. <https://www.rtx.com/news/2022/07/01/raytheon-100-anniversary>.
- Raytheon Company.n.d. “Raytheon Capabilities.” Company Website. Raytheon Company.
Accessed September 13, 2024. <https://www.rtx.com/raytheon>.
- Reg Roumeliotis and Harry Brumpton. 2019. “United Technologies Nears Deal to Merge Aerospace Unit with Raytheon,” August 6, 2019.
https://finance.yahoo.com/news/raytheon-united-technologies-talks-merge-215752780.html?guccounter=1&guce_referrer=aHR0cHM6Ly9jaGF0Z3B0LmNvbS8&guce_referrer_sig=AQAAAJ_faCv9KTDYB7ZoE1E7QuMmGAY09g3rtFJ4eiBeYf8iQuQII5yUYNKg3YNtFMcYqSgA5h4At9CdxJV4o59ntyJuHdnt-TmdsipmnZZySLgdMmA1uFHHDEcUet51mb2AOz32S7bTWCum3-lscxj-a2zDecbl_PIVtkwe3-DkX7gy.
- Reuters. 2015. “Lockheed to Buy UTC’s Sikorsky for \$9 Bln | Reuters.” Reuters. July 20, 2015. <https://www.reuters.com/article/idUSL1N1000GE/>.
- RTX. 2019. “United Technologies Aerospace Businesses and Raytheon to Combine in Merger of Equals.” <https://investors.rtx.com/static-files/0e5ad90b-0e03-4d32-96a3-6504e5d6310b>.
- RTX. 2020. “Raytheon and United Technologies Obtain All Regulatory Approvals to Close Merger of Equals.” RTX. March 30, 2020. <https://investors.rtx.com/news-releases/news-release-details/raytheon-and-united-technologies-obtain-all-regulatory-approvals>.
- SEC. 2015. “SEC Form 10-K.” Securities and Exchange Commission.
<https://www.sec.gov/Archives/edgar/data/936468/000119312516476010/d62685d10k.htm>.
- SEC. 2018a. “SEC Form S-4.” Securities and Exchange Commission.
<https://www.sec.gov/Archives/edgar/data/101829/000119312517307079/d449927ds4.htm>.
- SEC. 2018b. “SEC Form 10-K RTN 2018.” Securities and Exchange Commission.
<https://investors.rtx.com/static-files/1d9c6f1a-3d36-450c-966a-e71b285a2157>.
- SEC. 2018c. “SEC Form 10-K UTC 2018.” Securities and Exchange Commission.
<https://investors.rtx.com/static-files/f92f5d51-19fe-45eb-a1d6-cd240cad6ed5>.
- SEC. 2019a. “Raytheon and United Technologies Merger Announcement.” Form 425.

- SEC. 2019b. “SEC Form 13-F.” Securities and Exchange Commission.
<https://www.sec.gov/Archives/edgar/data/1040273/000108514619002213/0001085146-19-002213-index.html>.
- SEC. 2019c. “SEC Form S-4 Registration Statement Under The Securities Act Of 1933.” Securities And Exchange Commission.
https://www.sec.gov/Archives/edgar/data/101829/000114036119013079/nt10003205x1_s4.htm.
- Steiner, Robert L. 2008. “Symposium on Buyer Power: Vertical Competition, Horizontal Competition and Market Power.” *Antitrust Bulletin* 53 (2): 251–70.
- The Boston Consulting Group. 2018. “Synergies Take Center Stage Sep.” BCG. https://web-assets.bcg.com/img-src/BCG-Synergies-Take-Center-Stage-Sep-2018_tcm9-202243.pdf.
- Thomson Reuters Streetevents. UTX - United Technologies Corp & Raytheon Co Analysts and Portfolio Managers Meeting at the Paris Air Show. 2019.
<https://www.sec.gov/Archives/edgar/data/1047122/000119312519174898/d764072d425.html>.
- United Technologies Corp. 2019. “Shareowners Approve Raytheon and United Technologies Merger of Equals.”
<file:///Users/vanessakopp/Desktop/Research%20Thesis/Shareowners%20Approve%20Raytheon%20and%20United%20Technologies%20Merger%20of%20Equals.pdf>.
- United Technologies Corporation. n.d. “We Are RTX.” Company Website. United Technologies Corporation. Accessed December 15, 2024. <https://www.rtx.com/who-we-are/we-are-rtx>.
- Voth, Jeffrey M. 2021. “Five Essentials for Successful Merger Integration: What the Aerospace and Defense Industry Knows.” *Journal of Business Strategy* 42 (5): 304–14. <https://doi.org/10.1108/JBS-02-2020-0045>.