CARLA DORSEY, TIM DORSEY, TERRY MCGOVERN

USING DATA TO UNCOVER OPERATIONAL INEFFICIENCY[1]

On his Monday morning commute, Glenn Peterson, President of Primo Flight Parts, Inc (PFP), sighed as he looked at the line of cars on the Jacksonville, Florida 295 beltline that seemed to stretch forever. The cars had not budged for ten minutes now. Feeling a bit stuffy, Peterson loosened his tie and clicked the button on his car door. The window whirred down letting in welcomed cool air. Peterson's thoughts turned to some heat he was facing at work.

It was October 8, 2018, Peterson had one week to finalize his 2019 proposed budget to allow time to assemble supporting materials and send them to the Board of Directors in advance of the October 23 meeting. He hoped the board would approve the budget at that meeting. Peterson had been through this process without any significant issues many times since becoming president of the company in 2008. A request in the 2019 budget by one of Peterson's most trusted managers, however, had him wondering if this year's budget process would become congested like the traffic he was experiencing.

About a month before, Peterson had received a puzzling 2019 Request for Personnel from VP of Sales Henry Gallagher. Peterson felt that Gallagher had always run a tight ship and was a strong contributor. As proof, in the past five years, Gallagher's department had hit its sales targets. With a projected 30% increase in sales for 2019, it was not surprising that Gallagher would ask for additional staff. However, Peterson was shocked to see a request for a 40% staff increase. "Why do we need 40% more people to generate 30% more sales?" Peterson asked himself.

Editor: Grandon Gill

The Aerospace Aftermarket Parts Industry

"Airline (and aircraft owners) want and need it all: service, speed, global reach, a central point of contact, and management of spare parts inventory." (Tosse, 2015).

The aerospace aftermarket for parts centers on keeping aircraft flying. Aircraft have an extraordinary number of parts. For example, Linn (2010) notes that the Boeing 737, the most commonly flown commercial aircraft, has 367,000 parts (see Exhibits 1 and 2). Replacement of most, if not all, of these parts happens at some point during the life of the aircraft. Every part has a unique tracking number, with necessary paperwork that records its initial installation and history of use. Many aircraft parts have fly-time limitations that require verification on the paperwork.

The aftermarket for aircraft parts is highly regulated. Parts must meet specific air-worthiness standards and gain approval by the FAA. The FAA Title 14 code of regulations includes five different sections; the FAA also has two Advisory Circulars, and two Orders documents that must be followed to manufacture aircraft parts (FAA, 2019). Aircraft parts that have limited fly time require monitoring and planned-replacement programs. For this reason, quantities of spare parts are stored, and rushed to customers when needed. Since airlines depend on aircraft flying to make profits, it is vital for the parts to arrive on time and meet all service obligations. Combining the massive number of parts, a significant regulatory environment, quick fulfillment requirements, and the growth of the market makes for a sophisticated business and one that requires accuracy and timeliness to meet its goal.

The aerospace aftermarket parts industry is indeed complex, consisting of a network of suppliers, brokers, and affiliations to locate a customer's need. Brokers are intermediaries. Component vendors have a combined function of brokers and inventory warehouses; they purchase, carry and repair inventory. Most companies have a unique market niche, as it would be impossible to warehouse all parts for all aircraft.

The Inventory Locator Service (ILS) (Exhibit 3) was a data warehouse that offered an electronic aviation, marine and defense marketplace, and provided aftermarket information on supply, demand, and pricing data (Inventory Locator, 2019). The aerospace aftermarket parts industry utilized the ILS to locate and determine selling prices for parts. It was a tool used in the sales-quoting process for parts.

Due to the regulatory and competitive nature of the business, many end users were required to solicit more than one quote for a part. These additional quotes added to the fulfillment turnaround process—much time was spent on quotes that will never result in a sale.

The outlook for the aftermarket portion of the aerospace industry was one of growth. The replacement of aging assets would drive the global market and increasing Asia-Pacific demand should sustain it (Frost & Sullivan, 2016).

Primo Flight Parts, Inc.

PFP, founded in 1981 in Jacksonville, Florida, was a privately held supplier of aftermarket parts for the aerospace industry. It was both a component vendor and a repair facility that warehouses inventoried parts. Its market niche was parts for U.S.-manufactured legacy fighters, transports, patrol aircraft and helicopters located around the world.

PFP had built a reliable network of suppliers and customers, and Peterson said they had a stellar reputation within the industry. PFP took great strides to assure customers received the critical parts where and when they needed them; they were proud of their performance record.

The company began 2018 with 118 employees. Most of the management team had been with PFP or its parent company for at least seven years. PFP tended to hire veterans to help serve its market niche—the military market. These workers' military backgrounds helped create a hardworking, committed, no-nonsense approach to conducting business.

Of their 118 employees:

- 58 (49%) were in the Distribution Department
- 29 (25%) were in the Sales Department
- 31 (26%) were in all other departments (Accounting, Repair, IT, Purchasing, HR, Exec)

Business had been good in recent years, with the preceding four years showing an average growth of 14%. Most of the growth came from organic sales, except for 2017, when a new product line was brought on, as seen in Figure 1 below:

PFP, Inc								
5 Year Revnue Stream and Projected 6th Year								
2014- 2019								
		Organic Sales	New Product Sales	Total Sales	Organic Sales	New Product Sales	Total Sales	Cumulative
		$	$	$	% over (under)	% over (under)	% over (under)	Sales Growth
Calendar Year					preceeding year	preceeding year	preceeding year	Total Sales
2014	actual	18,369,000		18,369,000	9.00%		9.00%	9.00%
2015	actual	20,389,590		20,389,590	11.00%		11.00%	10.00%
2016	actual	23,040,237		23,040,237	13.00%		13.00%	11.00%
2017	actual	25,574,663	2,764,837	28,339,500	11.00%	12.00%	23.00%	14.00%
2018	actual/projected	32,307,030		32,307,030	14.00%		14.00%	14.00%
2019	projected	36,183,873	5,816,127	42,000,000	12.00%	18.00%	30.00%	16.67%

Figure 1: PFP Revenue Stream. *Source:* **PFP Inc.**

2018 was well on track to meet PFP's sales budget. In 2019, the company would be bringing on another new product line that excited everyone. They had worked on this project for more than two years, and it finally closed. The new production line would bring PFP closer to its target to exceed $50 million in sales for 2019.

Peterson commented that much of the company's growth came from its hard-earned reputation for exceptional customer service and on-time, error-free deliveries. Peterson believed in his teams and thought they worked together well, always meeting their sales and profit targets. In his view, while the daily grind could be chaotic, a general feeling of optimism pervaded the company.

Peterson's attention to detail and insistence on planning and budgeting also played an essential role in PFP's growth. He joined the U.S. Air Force after college and spent 12 years there. His final position was procurement officer. Aviation Certified Sales (ACS), PFP's parent company, sought him out to head up their procurement department. In five years, he rose to VP of Procurement as he had a network of

resources that allowed ACS to procure parts unavailable to most. The reward for his stellar performance was a promotion to President of PFP.

A combination of his military training and his mentor's influence shaped how Peterson managed PFP. Peterson's mentor, ACS CEO Keith Rodriguez, had a favorite saying: "The more time we spend planning, the better the execution is bound to be." Peterson carried this belief with him to PFP.

PFP's Planning and Budgeting Process

PFP's strategic planning for each year began quite early in the preceding year. The budgeting process happened after establishing the strategic plan. The first budget to be prepared and approved was the sales budget, as it is the basis for all other budgets. The sales budget factored in organic sales from existing products, plus any new product coming online.

Peterson set up timelines for all he did. PFP's 2018 schedule for 2019 strategic plans and financial budgets was as follows:

April 1: Board of Directors has an annual strategic planning session for succeeding year. The board also reviews preceding year's final financial statements and operations report.

May 31: CEO prepares a strategic plan after breakout sessions, research, etc.

June 15: Board to vote on adoption of Strategic Plan.

July 16: Approved strategic plan sent to Accounting for calculation of Sales budget.

August 1: Sales budget approved by the CEO and President.

August 7: President circulates Sales budget and asks all department heads to complete their department budget, including any Request for Personnel.

August 25: All department budgets are due.

September 15: Budgets returned to the department heads with approvals, denials, or request for additional information and explanation.

October 1: Updated budgets submitted to President from department heads.

October 15: Final budget prepared for the upcoming board meeting.

October 23: Budget presented to the Board of Directors for approval.

October 30: Final budget adopted and released to department heads.

This timeline gave ample time to prepare for the upcoming calendar year. It required an extensive amount of planning but proved to be useful in attaining the annual goals.

Sales and Distribution: Driving Customer Satisfaction

The Distribution department and the Sales department were typically the keys to client satisfaction. Distribution, in the case of PFP, was also its operations and was responsible for fulfilling sales orders. This department depended on timely processing, proper packaging, and fully understanding the logistical

needs of the customer. Distribution employees worked tirelessly to perform at the highest levels, knowing that any errors would cause re-work throughout the entire system and cause customer satisfaction to falter.

Sales were crucial because they typically provided the company's first interaction with a customer. At PFP, the department was responsible for providing pricing quotes for parts. The department head was Henry Gallagher, a military veteran with extensive knowledge of military procurement and process. The staff liked and respected him. His ability to lead his team to consistently hit their sales targets gave him a great deal of respect as a powerful leader.

Gallagher created four subsections in the Sales department. Each had its manager:

1. Engine Parts Sales Manager
2. Airframe Parts Sales Manager
3. Lockheed Account Manager
4. Air Force Account Manager

The quoting process began with an initial customer inquiry for a part. Quoting could be a time-consuming process, or not. If a part was readily available and the price was assigned, it was simple. However, the process became complex when multiple parts were needed, and the parts had to be located and bundled. It could take a staff member up to several days to complete one quote.

Once the quote was complete, they sent it to the potential customer. The customer was generally quick to decide whether they would be placing the order. While approximately two-thirds of quotes resulted in a sale, only 10% of the dollar value quoted resulted in actual sales.

TDG and the Distribution Department

In April 2018, PFP's Distribution department hit a bump in the road: The error rate and customer complaints were rising. Management knew this was unacceptable and contracted with The Dorsey Group to advise their Distribution department. TDG was a business-consulting firm that helps organizations achieve efficiencies by improving performance and streamlining operations. TDG's task was to find the root cause and correct the error rate and customer complaints.

To begin, TDG analyzed the department by observing the daily routine, performing time studies and interviews, and creating a process map. They also collected key performance metrics and listed employee frustrations. Strengths, weaknesses, variances, work standards and impediments were all evaluated and analyzed. Data was stratified so that it became useful information, and employee feedback was noted.

Some highlights of the TDG findings were as follows:

1. The expectation for standard work had not been established, leading to excessive variation in hours needed to perform a similar task.
2. Roles of staffers were not clearly defined.
3. Priority jobs were being interrupted by outside influences (emergency jobs for external departments).
4. A Work Center monitor revealed significant non-value-added time searching for or waiting for products, tools, and supplies.

In June 2018, The Dorsey Group submitted their findings and recommendations to Peterson and his VP of Distribution, Fred Benz. Peterson asked TDG to implement its proposed program, as all agreed that the operational improvements should address the rise in customer complaints stemming from the Distribution department.

TDG put its consultants to work and began the installation of High-Performance Work Teams within the Distribution department. Guiding and training the PFP employees, they developed, defined, and tracked expectations on a scorecard. As a result, Distribution team members could identify issues and frustrations that impacted their performance. Through the collection of individual feedback, the team could analyze data trends and generate information to identify and prioritize projects based upon significance. TDG established rules of engagement to streamline processes to minimize non-valued added work.

Peterson was impressed when the process reached 80% completion. He was already impressed with TDG's business analytic capabilities, and pleased to see the Distribution department's new communications, process flows, and team approach. Errors and complaints were already declining—prior to full implementation of TDG's recommendations.

Sales Staffing Puzzle

Peterson met with Gallagher in mid-September 2018. In the meeting, Gallagher explained to Peterson his rationale for the 2019 request of 12 extra staffers: "I used the same approach I have used for the past years, and it has worked well. I looked at the Sales budget for next year and divided that number by sales dollars per sales staff that we currently generate." Gallagher based his request on both historical practices and gut feel. He used his self-taught and time-tested "sales generated per person" approach and then added three new buffer staff for the new product line. The new product line was a large one, and he did not want to miss the numbers.

Peterson knew that 2019 was going to be a busy and challenging year. He expected a 12% increase in organic sales to PFP's ever-growing network of existing clients and the introduction of a new product was expected to increase sales another 18% (for a total sales increase of 30%).

Gallagher walked Peterson through the Excel spreadsheet he created to support his calculation:

3 Years of Sales July 1, 2015 - June 30, 2018:		
2015	6 months	8,730,455
2016	full year	23,040,237
2017	full year	25,574,663
2018	6 months	15,989,234
		73,334,589

Figure 2: Sales Department 2019 Requested Budget. *Source:* **PFP Inc.**

Although Peterson trusted and had for many years relied on Gallagher, this request bugged him. Sales already made up 25% of the workforce and this could take them well beyond. No one had ever questioned

the staffing levels for the department. Why interrupt the momentum of five consistent years hitting sales targets?

However, the Sales department quoting and sales procedures were not streamlined, and Peterson wondered whether that could be contributing to the request for more help. His hunch was that 12 new staff for 2019 was too much, but he had no evidence to back it up. Perhaps The Dorsey Group could help.

On September 16, Peterson met with Tim Dorsey, the lead consultant for TDG. Their discussion started with the savings PFP was realizing from the performance-improvement measures in Distribution. Peterson had planned to have TDG work next with the Repair department, but once he explained his concern about Sales' request for staffing, TDG agreed to focus instead on the Sales department and to start right away.

TDG and the Sales Department

TDG began by documenting and understanding the current processes within the department. TDG created an organizational chart (Exhibit 4) and a process map (Exhibit 5). TDG held interviews with everyone in Sales. They were very proud of their department and were eager to explain how they handled the entire process, from initial part inquiry to final order submission to Distribution for fulfillment. Noteworthy observations:

- All incoming sales inquiries were routed according to four major classifications: Engine sales, Airframe sales, Lockheed account, Air Force account. Other than the Lockheed and Air Force accounts (which had dedicated personnel), all inquiries were assigned to the next available Sales team member.
- The time to process a quote varied immensely, as did the procedure. A simple quote would involve a single part that was in stock and clearly priced. A slightly more complex quote required the employee to access the ILS to find the price and determine the part's availability. A more complex quote might involve a bundle of parts that needed a quick shipment, while some of the parts needed repairs. The bundled parts could be coming from several different locations— shipping of all parts went PFP before repair and bundling. Then the bundle needed to be priced out.
- Staff processed quotes without a review of customer history. Each quote started anew.
- Salespeople were unaware of whether they were sending quotes to end-users or to brokers who may be scouting for pricing but had no intention of purchasing.
- Team members never knew whether their quote resulted in a sale; their job was to provide quotes.
- Each part inquiry was treated equally. None was filtered except by the four major classifications: Engine, Airframe, Lockheed, and Air Force.

After gaining an understanding of Sales department procedures, TDG's next step was to look for data used by the department. TDG asked Gallagher for any data he used to evaluate his staff and their performance.

His response: "I don't use much data for evaluation purposes. We consistently hit our numbers and have not disappointed in five years. I keep my eye on the total sales dollars earned and compare it to budget. If we are on track, it's all good."

Dorsey noted the quoting process took a great deal of time. Staff indicated that it could be a challenging process and they were unsure whether their quote efforts would result in a sale. Dorsey started to ponder the ratio of quotes to sales. During the final interviewing process, Dorsey pressed Gallagher on the issue of the number of quotes produced vs. the number of quotes that realized a sale.

Gallagher's response: "Yes, you may be right. We send out many quotes that do not result in a sale. It is just part of the process, I guess. The Accounting department sends us some data showing all quotes and all sales by dollar value ranges; but honestly, I don't look at it much. We manage to hit our targets, and that is all that matters."

Dorsey thanked Gallagher for his time. Now it was time to for TDG get to work, as there were some pressing deadlines for their client. Dorsey needed to see the data that the Accounting department was accumulating. Accounting provided TDG the sales report for the past 36 months (Exhibit 6) and what they referred to as "Quoting Records."

Quoting Records was a chronological listing of every quote sent out. It was a massive Excel spreadsheet and showed everything about the quote, including customer name, dollar amount, Sales subsection that prepared the quote and a small column that showed whether the quote eventually was a realized sale. The spreadsheet was an enormous amount of data, but no information—just raw data.

The data showed number of quotes, number of companies, dollar amount quoted, and dollar amount sold. There also was information on dollar volume ranges, which highlighted the potential sales impact of the quote.

Dorsey's analytics began by stratifying the data (Exhibit 6). He used the below matrix to assist TDG in formulating their recommendation to PFP regarding the Sales department staffing:

Summary of Key Indicators for Sales Data:				
	Quotes Sent	Sales realized	# Quotes	# Companies
Quotes with no Sales	$ 393,435,351	$ -	6,872	1852
Quotes resulting in Sale	$ 719,290,932	$ 73,334,589	30,444	858
Total	$ 1,112,726,283	$ 73,334,589	$ 37,316	2,710
Percentages for Above				
Quotes with no Sales	35.36%	0.00%	18.42%	68.34%
Quotes resulting in Sale	64.64%	100.00%	81.58%	31.66%
Total	100.00%	100.00%	100.00%	100.00%

Figure 3: Summary of Stratified Data. *Source:* The Dorsey Group

The analytics were basic but provided a punch. It was clear where the Sales department could make performance improvements.

The Value of Information in Decision Making

Dorsey wanted to show the stratified data to Gallagher prior to completing and presenting his final report and recommendation. On October 5, the two of them met. One topic Dorsey wanted to discuss with Gallagher was the benefit of making business decisions based upon the right information. Dorsey explained to Gallagher that **data** is useless unless it is transformed into **information**. That information becomes **knowledge** when it is utilized in a way to make informed decisions and take **action**. A linear relationship exists between the terms:

Data => Information => Knowledge => Action

Those types of decisions are what some refer to as evidence-based. Dorsey explained to Gallagher that data given to him by the Accounting department was analyzed, stratified, and turned into useful information. That information showed some inefficiencies and ineffectiveness within the sales department. Gallagher was all ears and very receptive to utilizing information. He agreed with Dorsey but still wanted to increase his 2019 sales staff by 12 employees.

Final Report from TDG

The Dorsey Group's presented its final report to Peterson and Gallagher on October 8. Dorsey explained that through rapid growth, inefficiencies and ineffectiveness became the norm within the Sales department. The department was hitting its targets, which was commendable. However, the team was not performing at optimum efficiency and therefore had a high level of non-valued-added costs. In short, Sales was not achieving operational excellence.

In contrast to Gallagher's request, TDG had a very different staffing recommendation: "Zero staff needs to be added other than those required with specific knowledge of the new product line being introduced in 2019."

Decision Time

The final budget was due in one week. Peterson had some decisions to make.

Should Peterson approve Gallagher's request for 12 new staff or add 0 staff as recommended by TDG, or choose a compromise number between 0 and 12?

What type of metrics should the Sales department be using to evaluate team performance? What type of information should be used to make evidence-based decisions for staffing the sales department?

Why should an organization challenge its operations and look for non-value- added and operational inefficiencies? Should the "good" get in the way of the "great"? What is the role of evidence-based decision making in operational improvement?

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Acknowledgments

Biographies

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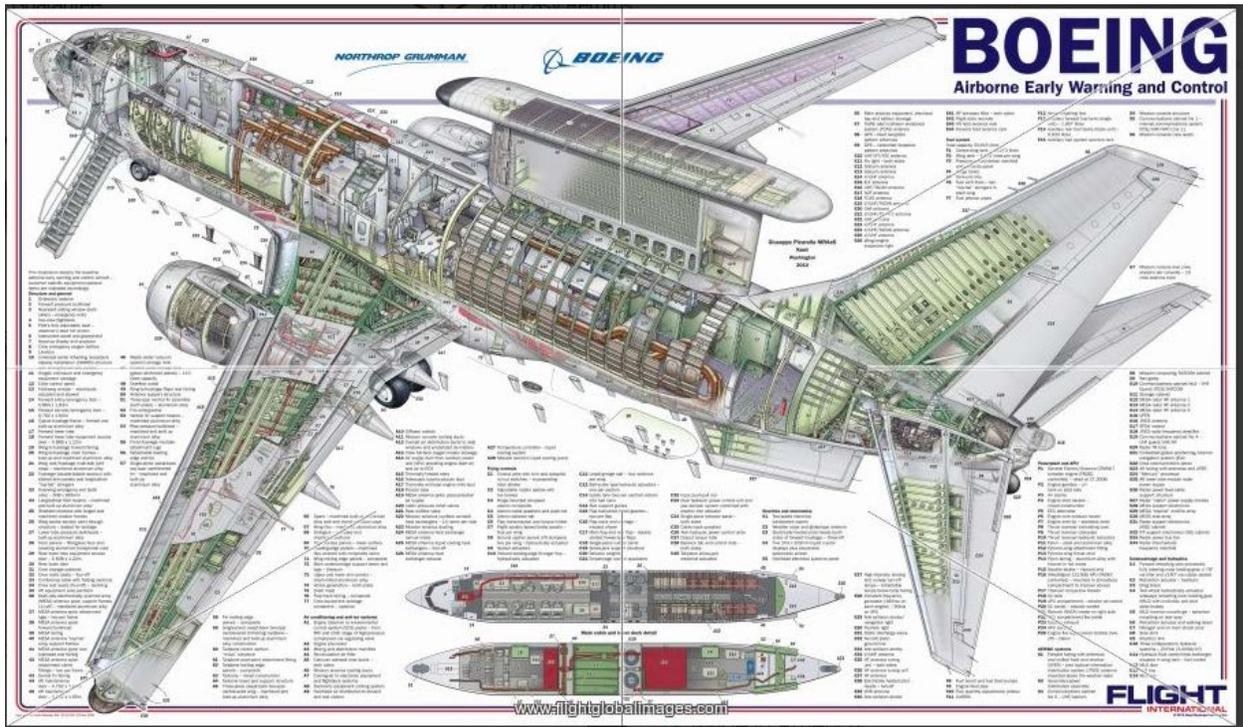
Tim Dorsey is founder and co-owner of The Dorsey Group, a global consulting firm specializing in performance improvement initiatives. He has 35+ years of developing, implementing, consulting and coaching companies to reach their peak performance by creating strategies, developing people, analyzing performance and making lasting operational improvements. Tim has authored the book, *Powering Peak Performance*, 2018 and has developed a proprietary knowledge management system, *The Performance Toolkit* ©, as an aid those seeking to implement continuous performance improvement in their organizations. He conducts a workshop series to train facilitators and is a frequent speaker on the topic.

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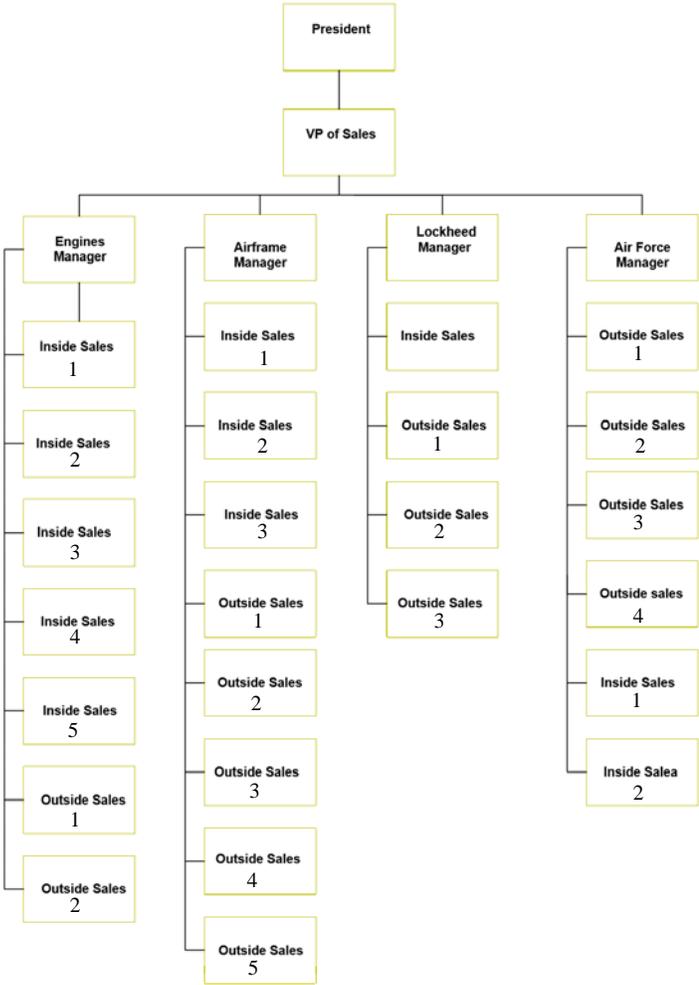
Exhibit 1: Many Parts of an Aircraft #1

Source:www.flightglobalimages.com

Exhibit 2: Many Parts of an Aircraft #2

Source: www.flightglobalimages.com

Exhibit 3: ILS for Aircraft Parts

Source: www.ils.com, downloaded 09/24/18

Exhibit 4: Sales Department Organization Chart

Primo Flight Parts, Inc.
Sales Department Organization Chart
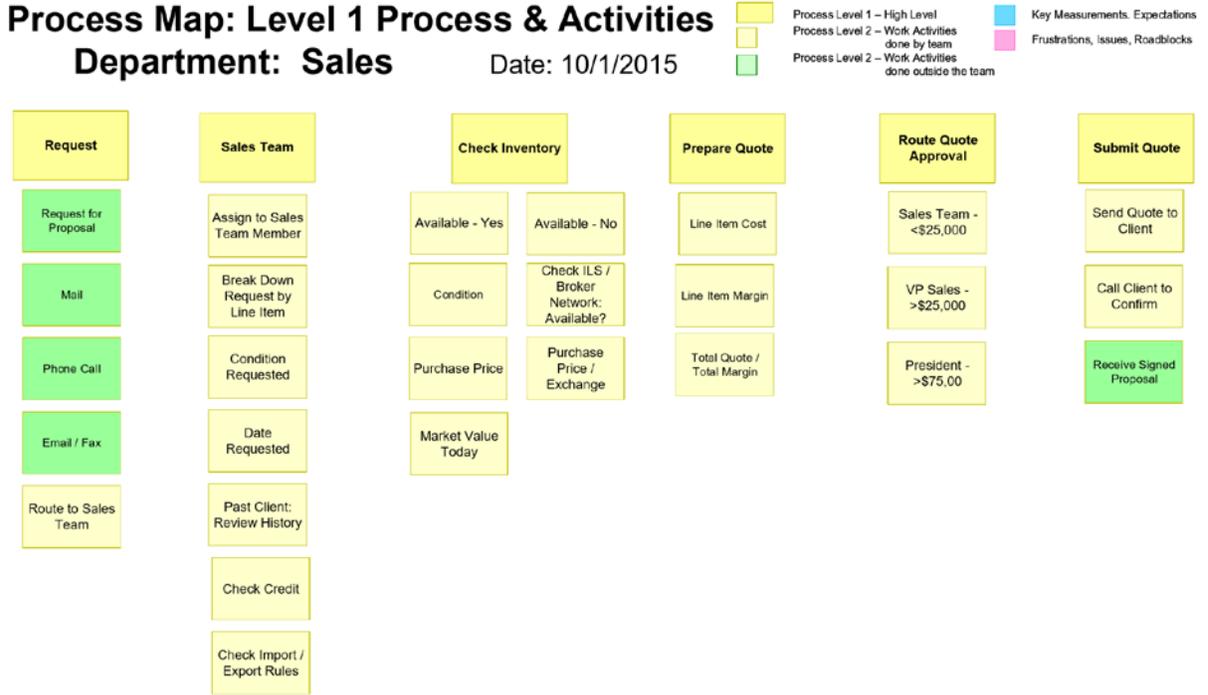Date: 9/23/2015

Inside Sales require no travel
Outside Sales require travel
    Note: The employee name was removed from each box – only the title remains due to confidentiality.

Source: PFP Inc.

Exhibit 5: Sale Department Flowchart

Source: The Dorsey Group

Exhibit 6: Quoting Data Stratified by Sale/No Sale and by Dollar Volume Range

Combo of Systems	All Parts			
$ Quoted	$ Sold	Quotes	Co.	$ Volume
$105,575,201	$0	769	5	>$10,000,000
$109,925,595	$0	574	52	$1,500,000
$37,346,901	$0	302	30	$1,000,000
$44,866,537	$0	527	61	$500,000
$45,455,327	$0	870	127	$250,000
$28,377,070	$0	754	157	$100,000
$10,116,848	$0	611	141	$50,000
$5,788,653	$0	514	160	$25,000
$5,855,152	$0	1,474	743	$1,000
$114,108	$0	296	215	$200
$13,959	$0	181	161	$1
$393,435,351	**$0**	**6,872**	**1,852**	
$ Quoted	$ Sold	Quotes	Co.	$ Volume
$102,929,810	$30,167,451	3,927	15	>$1,000,000
$91,849,012	$11,189,182	2,021	16	$1,000,000
$92,551,397	$12,354,629	3,944	32	$500,000
$95,740,410	$9,966,994	3,887	61	$250,000
$62,358,423	$4,151,780	3,348	58	$100,000
$68,351,742	$2,524,356	3,417	70	$50,000
$156,962,420	$2,865,396	7,068	314	$25,000
$42,602,353	$103,842	2,369	200	$1,000
$5,945,366	$10,959	463	92	$200
$719,290,932	**$73,334,589**	**30,444**	**858**	
$1,112,726,283	$73,334,589	37,316	2,710	

Source: The Dorsey Group