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Carolina Golden Products

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This case study focuses on an investment decision made in a poultry processing firm which is faced with increased sales targets but is constrained by dependence on other companies for storage and distribution. The decision to construct a distribution center is analyzed in this study. Instructors can use this case to teach agribusiness finance. As with other case studies, many issues can be explored, such as market channels, the importance of assumptions, and structure of the poultry industry.

One evening, as Darrel Davis sat watching CNN news and skimming through a poultry magazine, his mind drifted to the increased sales targets he faced as marketing manager for Carolina Golden Products (CGP). The new targets included selling 20 truckloads of chicken (720,000 pounds) per day, seven days per week. "How can we handle that much chicken?" he wondered. Darrel almost laughed out loud when he thought about what would happen if they didn't. "The worst thing that can happen is my boss could fire me," he thought. But that thought didn't linger in his mind and he was soon thinking about the chicken he needed to sell. "Actually selling the chicken will be the easy part," thought Darrel., "Both new and old customers want to buy our marinated ready-breaded chicken (MRB) and individual quick-frozen chicken (IQF). The problem as I see it is how to handle that much chicken. We are already using other businesses to store our chicken." Darrel wondered if there was a better way. That night Darrel tossed and turned in bed; the challenge of achieving the new sales targets was keeping him awake.

After his restless night Darrel left home earlier than usual. Arriving at work half an hour early, he

put his briefcase on his desk and wandered in the hall thinking about how he could handle the increased volume of sales. As he stared through the hall window at the company-owned vacant lot across the street, he was struck by the opportunity of building a distribution center to increase the firm's storage capacity. However, only about a week ago his boss had discussed with him a lucrative offer to sell the land to a trucking company. The trucking company wanted to start construction immediately and had given CGP a month to make a decision and get the necessary approval from its Board of Directors. Darrel knew that he had two weeks before the Board meeting where a decision had to be made about the vacant lot—sell it to a trucking company or use it to construct a distribution center.

A distribution center adjoining the processing facilities would allow CGP to speed its response time to customers orders. Darrel felt certain the center could save money by eliminating transshipment of products to the refrigerated storage facilities the firm was currently using. It also might make CGP more competitive. It would at least allow them to handle their shipments the way they wanted, rather than be limited by the storage facilities they were now using. Darrel wanted the distribution center and he knew his staff would support him. They had always complained about not having adequate control over marketing because of distribution problems.

Darrel realized that he would have to put his ideas down on paper to convince his boss and the Board of Directors, considering the size of investment that would be involved. As he thought of the work required to develop his ideas into a proposal he saw Angelique Hillian, a member of his staff, enter the building. He quickly realized that Angelique would be the best person to work with him on this project. Angelique's strong quantita-

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tive and communication skills would be important as they analyzed this opportunity and presented the idea to the Board. Darrel smiled as he thought of how Angelique would respond to this challenging new assignment.

Angelique, with a B.A. in marketing and a M.S. degree in agribusiness from South Carolina State University, had the necessary education, experience, and personality to provide leadership to the sales division of CGP. Before being promoted she had worked in several capacities, including production supervisor and management trainee, during her four years with CGP. Angelique was well-liked by the staff and management. Recognizing her initiative, commitment, and loyalty, management often gave her additional responsibilities. More importantly, Darrel knew that Angelique would agree with him on the need to have more control over marketing and distribution.

Darrel met Angelique at the door. He gave her a quick overview of his idea and asked her to stop by his office later that morning so they could discuss it in more detail. Angelique was smiling as she walked to her office—she loved a challenge and this was a great opportunity to apply some of the tools she had studied in school. In addition, if she did well on this project the next promotion might come sooner than she planned.

Carolina Golden Products

Carolina Golden Products has grown quickly in a rapidly changing poultry and poultry products industry. Net sales increased from \$92 million in 1993 to \$137 million in 1995. CGP's main enterprise is a poultry-processing facility in Sumter, South Carolina. The facility supplies fresh, frozen and processed chicken to fast food, institutional, retail, and export customers.

CGP is a subsidiary of Gold Kist, the nation's second largest poultry processor, marketing more than 14 million broilers per week. Gold Kist and its subsidiaries are fully integrated with contract broiler, pullet and breeder producers; hatcheries; feed mills; processing plants; by-product facilities; and further processing, transportation, and product marketing services. Products are marketed under the names of Medallion™, Early Bird™, Big Value™, and Gold Kist Farms™ labels, as well as customers' private labels. Fresh and processed poultry

products are sold to fast food outlets and grocery retailers. Gold Kist, which exports eight percent of its production, is a leader in international poultry sales.

Gold Kist History

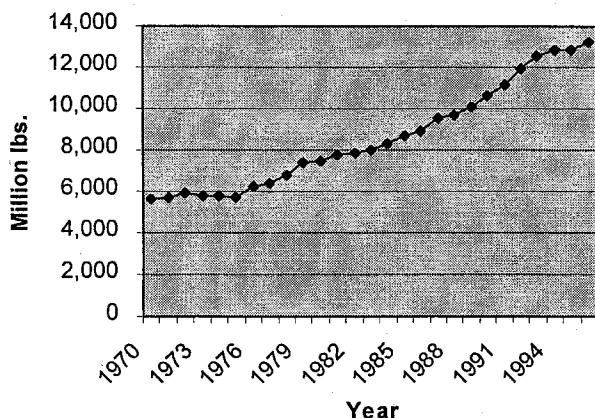
Gold Kist Incorporated began as a cotton-marketing cooperative in Carolina, Georgia in 1933. Since then, Gold Kist has become the nation's second largest and the only farmer-owned poultry processor. Gold Kist also manufactures high quality feed, seed, fertilizer, chemical, animal health products, and farm supplies. With more than \$2.3 billion in annual sales, Gold Kist ranked among the top 25 food companies in the United States (Fortune) in 1998.

Through the years, Gold Kist's original corporate mission remained the same: to improve the economic well-being of its farmer members. In 1996, Gold Kist had approximately 26,000 active farmer members and more than 55,000 equity holders. Cooperative policy is set by a nine-member Board of Directors (all farmers) elected by their fellow members. Directing day-to-day operations of Gold Kist is the Management Executive Committee.

Poultry Consumption

The poultry industry has been highly successful due to product and production innovation, aggressive marketing, and efficient operations. Since 1970, poultry consumption in the United States has increased from 5.6 to 13.2 billion pounds (Figure 1, USDA). Per-capita broiler consumption increased from 0.7 pounds in 1935 to 72 pounds in 1997, surpassing beef for the first time in 1993.

Two major factors contributed to the substantial growth in the poultry industry. First, consumers purchased more poultry than red meat per capita, largely due to changes in tastes and preferences relating to dietary and health issues. Poultry is high in protein and low in fat, allowing the poultry industry to capitalize on the increasing trend towards health-conscious diets. Second, the poultry industry has benefited from increased consumption of convenience foods. Fast food restaurants and the frozen food industry have expanded the use of poultry in existing and new product lines because poul-

Figure 1. Poultry Consumption.

try is a flexible product with a number of different product forms, including pre-cut and further-processed varieties.

Poultry Production And Processing

The four largest integrated broiler firms—Tyson Foods Inc., Gold Kist Inc., ConAgra Inc., and Perdue Farms Inc.—accounted for 40.5 percent of volume of sales in 1993. The remaining 50 companies accounted for 59.5 percent of the volume (Thornton). Until the 1950s most farms had small poultry enterprises. However, today poultry production is concentrated on farms in the eastern half of the U.S. About 83 percent of the farms that produce poultry in the U.S. are found in the Northeast, Appalachian, Southeast, Delta, and Corn Belt regions. Four regions—Northeast, Appalachian, Delta, and Southeast—accounted for 70 percent of the total value of poultry and egg production in the U.S. in 1995 (Perry, Baker, and Green).

Angelique understood the historical reasons for the concentration of the poultry industry in these three major regions. First, these areas have mild or temperate climates. Second, wage rates in these regions are generally lower than in other parts of the country because of a less-unionized workforce and an abundant supply of unskilled labor. Finally, all three areas are relatively close to large, final-demand markets. High initial investment may limit the number of new entrants to the industry. As a result, the industry will likely remain concentrated among a relatively small number of firms which control most of the phases of operation, including production, processing, and marketing.

Carolina Golden Products—The Current Situation & Opportunity

Because of the rapid increase in the volume of sales, CGP required a large space for warehouse storage and distribution. Currently, CGP contracts with refrigerated warehouses to store and ship products. This system has frequently been questioned because it forced CGP to depend on other companies for storage and shipping. Darrel knew a major decision such as he was proposing—building a distribution center and changing the way products were handled—would first need the support of the Management Executive Committee and then of the Board of Directors.

Darrel and Angelique met to plan a strategy to approach the Management Executive Committee. They began by analyzing CGP's 22 international markets. Export orders are shipped from the storage companies to various U.S. ports depending on the shipment's destination. Shipments are stored until the shipment meets weight specifications required by the customer. Carolina Golden Products is charged for the time the product is in storage. Currently, the average time in storage is 14 days.

Angelique thought about the export markets. She noticed that the international markets have a strong demand for the chicken joint wings, chicken leg quarters, drum portions, gizzards, the v wings, and chicken paws. However, these orders often take weeks to fill. Compared to whole chickens or larger pieces such as chicken breasts, it takes many more chickens to create an equal weight of the smaller pieces. Products remain in storage until the orders are filled, increasing storage time and cost for these types of products.

In addition to the added storage time waiting to fill export orders, storage time was sometimes increased by special circumstances when exporting. For instance, Angelique recalled dealing with the norms and cultures of an Islamic nation. She remembered hiring a witness to bless the slaughtering of the chickens. Had the chickens not been blessed, the importing Islamic nation would not have accepted the product. It was the responsibility of Carolina Golden Products to insure that this ritual was performed correctly. This also took time and increased storage costs.

Angelique shook her head as she looked at the letter from one of the companies where they were

currently storing chicken indicating the contracted storage costs. She knew that the average storage costs depended on the number of storage days, availability of storage space, whether or not other locations in South Carolina or Alabama had to be used, type of packaging, and type of products. Anything that increases storage time increases costs.

CGP policy made it clear that it was very important to supply the specified chicken at the specified time. It was also policy to maintain a base level of inventory. Angelique knew they could cut storage and transportation costs by reducing the length of time in storage or by finding a less expensive way to store the products, such as an alternate location.

Angelique was excited when she left her boss's office. She loved the challenge projects like this presented and was already formulating ideas to solve the problem. Although Angelique agreed with Darrel about the need to have more control, she wanted to generate a successful proposal, so she knew it was important to consider a wide range of alternatives at the beginning. Her main two alternatives were:

Continue to use other warehouses to store and distribute products: This would be expensive in terms of storage and distribution costs. CGP was the largest customer for the local companies in Sumter and Columbia, but they had limited capacity. The company in Alabama can handle their increased volumes but CGP loses some control over their marketing and distribution of chicken by storing their inventory at a far-away location.

Build a distribution center. This would reduce their operating cost and give them more control over marketing and distribution. It would also make it easier for them to achieve their new sales objectives. However, building a distribution center takes time and money. How would they manage until the center was built? How would the warehouses where they currently store their products react if they knew that CGP was building its own storage facilities? Angelique knew that if they decide to build their own distribution center, they would need to do it quickly. She also knew that financing such a large investment within a short time would be an issue.

Angelique was certain that she could produce a good proposal by carefully considering the net present value of the two alternatives. However, like

Darrel, she wanted to build their own distribution center. Having control over marketing and distribution was important to meet their new sales goals.

The Proposal: Building a Distribution Center

To develop a proposal for building a distribution center, Angelique realized she would have to make some assumptions. First, she assumed the new center would operate for 15 years. The second assumption concerned the distribution center's revenue. Because the function of the distribution center was a part of CGP, there would be no specific revenue for the building. However, Angelique noted there would be benefits in the form of saved costs. These saved costs would be the "revenue" for the distribution center. Saved costs also include transportation costs, as CGP currently pays for transportation to the distribution centers in Alabama, Columbia, and Sumter.

Based on products stored in 1996, Angelique estimated the weighted-average contracting costs for storage to be \$1.10, \$1.00, and \$1.00 per hundred-weight (cwt.) with the distribution centers in Sumter, Columbia, and Alabama, respectively, for an average 14-day storage period. These contracting costs could easily vary by 15% higher or lower depending on the type of orders, the markets for poultry, any special circumstances associated with the order, and other factors that affect storage time.

Angelique also estimated the transportation costs per truck (one truck can carry 36,000 pounds) to be \$75, \$165, and \$550 to Sumter, Columbia, and Alabama, respectively. Because of limited space at Sumter, Carolina Golden Products had to store additional chicken at facilities in Columbia and Alabama. Capacity was hard to estimate, as it depended on the type of poultry being stored, as well as the amount of space at the storage facilities in use by other companies. Angelique decided she could look at historical records showing how much was stored at the facilities to get an estimate of capacity at the facilities available to CGP. After examining the records closely, Angelique determined that on average capacity at the Sumter facility was 4,032,000 lbs. of poultry and capacity at the Columbia facility was 3,024,000 lbs. Capacity at the facilities used in Alabama was virtually unlimited.

Next Angelique turned to information Darrel had provided her. Darrel was also excited about

Table 1. Projected Operating Costs for Distribution Center. (Capacity = 1.7 million cwt.)

Item	\$/cwt.
Hourly Labor (including fringe benefits)	0.64
Clerical	0.03
Salaries	0.07
Repairs & Maintenance	0.13
Utilities	0.21
Supplies	0.03
Pallets	0.02
Management Fee	0.07
Taxes	0.08
Miscellaneous	0.15

the project and had already completed research on construction and operation of the facility. Table 1 shows Darrel's estimates of operation costs for the proposed distribution center. Lifetime of the building and equipment are 40 years and 15 years, respectively. Darrel estimated the initial cost of the building to be \$2.61 million and of the equipment, \$1.85 million. He projected the capacity of the new facility to be approximately 12 million pounds of poultry. Operating expenses were estimated in dollars per cwt. stored per two-week period. Darrel decided to keep the storage time at the current average of 14 days, but he hoped that if they owned a distribution center, average storage time would decrease.

Angelique used this information to calculate the estimated payback period, net present value (NPV), and the Internal Rate of Return (IRR). As she began to play with the calculations, Angelique realized that the assumptions about costs, as well as the predicted storage time would be important factors in the analysis. How could she predict these with enough accuracy to make a good decision? Should she run many different scenarios to discuss with Darrel? Although this was Angelique's initial reaction, she soon realized if she prepared too much information, Darrel would just send her back to summarize. Now it was Angelique's turn to look out the window at the vacant lot. As she stared out the window, many thoughts ran through her head. She thought about the opportunities building a distribution center would open for her advancement in the company. She thought about how to best approach the analysis. All the time, Darrel's voice echoed in the back of her head saying, "Our jobs may depend on this, Angelique."

Teaching Note

This case summarizes the strain put on storage capacity by increasing sales goals at Carolina Golden Products (CGP) in Sumter, South Carolina. Together with its partner, Gold Kist, CGP is the second-largest poultry processor in the U.S. Darrel has to increase sales or risk losing his job. An important factor limiting sales increases is CGP's storage capacity. In 1996, CGP had to store its products at distribution centers in South Carolina and other southeastern states. Darrel thinks that by building their own distribution center, CGP can reduce its costs and compete effectively in an increasingly competitive environment. It should not be overlooked that by using other distribution centers, Darrel and CGP have less control over storage time and shipments.

Objective

This case can be used in many courses, such as agribusiness finance, management, marketing, or strategy courses. In finance courses, the case can be used as an exercise in discounted cash-flow analysis. The data and the necessary assumptions are presented. It can also be used to illustrate the importance of understanding the value of assumptions in business decision making. Several assumptions that have been made in forecasting storage and other costs as well as length of time in storage are critical to successful decision making. Sources of financing options are not discussed but that could be done in class or as homework. In marketing courses, the case can be used to discuss details of distribution, supply chain management, etc. The case makes clear the tunnel vision of the manager and his need to have more control to achieve the increased sales targets.

Potential Discussion Questions

1. Discuss recent trends in poultry production and consumption and exports.
2. Draw a diagram to illustrate the poultry distribution channel from the farmer to the consumer.
3. Briefly describe discounted cash flow analysis, assumptions, limitations, etc.
4. Prepare a report for Darrel Davis, including

an analysis of the data and a suggested plan of action to approach the Management Executive Committee.

- Given your report, should the Management Executive Committee invest in the proposed distribution center? Why or why not?

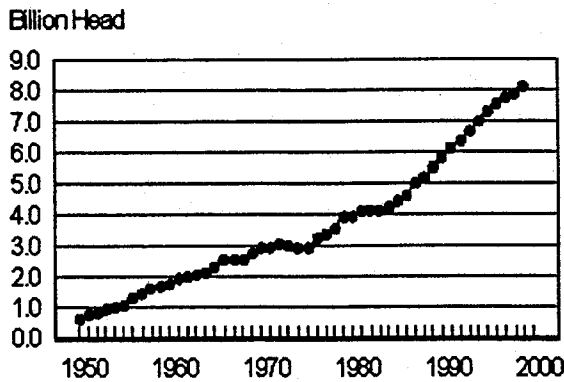
Teaching Approach

The following answers can be used for the above discussion questions.

1. Discuss recent trends in poultry production and consumption and exports.

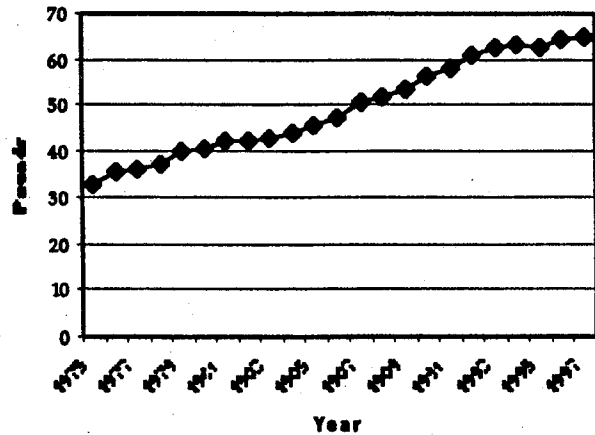
Production and consumption of poultry have been on the increase in the United States for a number of years. Students can be encouraged to search for the information on the Internet or at the library. Some useful sources include the USDA's Livestock Situation and Outlook Reports, USDA NASS's website (<http://www.usda.gov/nass/pubs/pubs.htm>), and magazines such as *Poultry USA* (previously *Broiler Industry*). Some examples of data available follow:

**Annual Broiler Production, 1950-1999
United States**



Source: USDA, NASS

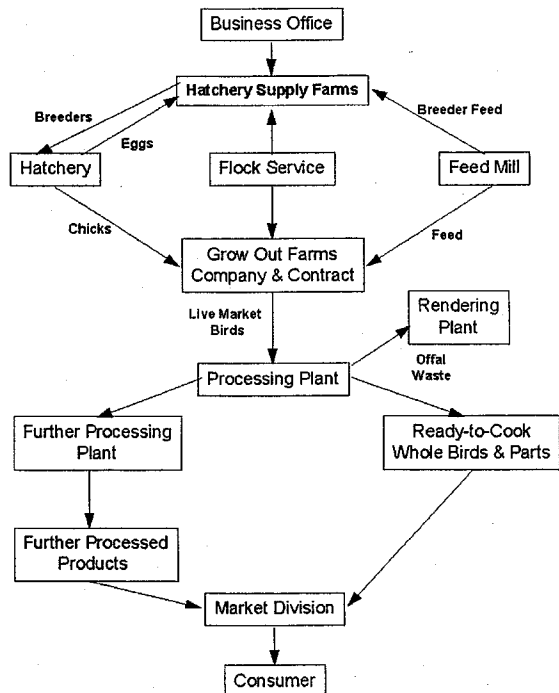
U.S. Per-Capita Consumption of Poultry



Source: USDA, Economics and Statistics System

- Draw a diagram to illustrate the poultry distribution channel from the farmer to the consumer.

FIG. 4 VERTICAL INTEGRATION IN THE BROILER INDUSTRY



Source: Hyatt, D. "The U.S. Poultry Industry," <http://gallus.tamu.edu/fsis/fsman1.html>, Department of Poultry Science, Texas A&M University, October 1995.

3. Briefly describe discounted cash flow analysis, assumptions, limitations, etc.

A present-value (PV) model is a mathematical relationship that depicts the value of discounted future cash flows in the current period. Present value (PV) models are important decision aids for investment analysis. Analysis of a firm's activities over time can be evaluated in an investment analysis framework. By discounting future cash flows to their present cash equivalent, PV models provide important information for making investment decisions (Robison and Barry).

Key elements of PV models are the discount rate and the projected cash flows. The discount rate is the price at which a dollar of cash flow is exchanged between time periods. The firm sacrifices income at the discount rate when it consumes. It earns income at the discount rate when it postpones consumption and invests (Robison and Barry).

The projected cash flows are the anticipated cash inflows and outflows expected to result from activity associated with the investment. The cash flows include the initial investment as well as the production, marketing, financial, and tax-management decisions and activities of the firm. These decisions, taken together, determine the cash flows in each period over the investment's time horizon.

4. Prepare a report for Darrel Davis, including an analysis of the data and a suggested plan of action to approach the Management Executive Committee.

Financial Analysis

The text of the case suggests students should conduct an analysis to determine payback period, net present value (NPV), and the Internal Rate of Return (IRR). A first step in making these calculations is to determine average storage and transportation costs if the distribution center is not built. Average storage capacity will be 14 days of production, or 10,080,000 pounds.

Using these figures, cost for 720,000 lbs. per

day was calculated at \$4,522,788 per year with current distribution methods. Given operating costs of \$1.43/cwt. and no transportation costs, cost of the new facility would be \$3,758,040.

Payback Period is calculated using the formula: Investment/Annual Net Cash Flow

Annual Net Cash Flow is the saved costs for the new distribution center, \$764,768 per year. This results in a payback period of 5.83 years.

Net Present Value, using a discount rate of 10 percent, is calculated by:

$$NPV = P_1/(1+i)^1 + P_2/(1+i)^2 + \dots + P_{15}/(1+i)^{15} - I \\ = \$1,503,592$$

where P_n is the cost savings each year and I is the initial investment.

Internal Rate of Return = 15.6 percent.

Sensitivity analysis can be performed using the suggested 15-percent range on storage costs for the current method. Without changing calculations for the proposed distribution center, a decrease in costs of the former method by 15 percent results in a payback period of 11.9 years and an NPV of -\$1,606,114. In fact, NPV will become negative if storage costs are approximately 93 percent of predictions. Students could take the analysis on step further and examine the sensitivity of cost predictions of the estimates for the new facilities.

5. Given your report, should the Management Executive Committee invest in the proposed distribution center? Why or why not?

Based on the above calculations, one can lead the class in a discussion on the reliability of the estimates. If the estimates are assumed to be close to accurate, the positive NPV leads to a recommendation to build the distribution center. However, concern over the sensitivity analysis may lead the students to more investigation. At this point, the instructor could introduce further methods of analyzing the case. For instance, a strategic analysis of the industry as well as of the company might be conducted. It should not be overlooked that the distribution center would provide the company with additional flexibility in shipping orders, potentially

Facility	Capacity	Storage Cost/cwt.	Transportation Costs/cwt.	Cost/cwt.
Sumter	4,032,000	\$1.10	\$0.21	\$1.31
Columbia	3,024,000	\$1.00	\$0.46	\$1.46
Alabama	3,024,000	\$1.00	\$1.53	\$2.53

reducing storage time and therefore storage costs, as well as allowing the company to respond to consumers.

One reviewer suggested the following method to analyze the situation using profit maximization:

Projected outside storage cost per year:		10,080,000 lbs. stored every two weeks
		365 days per year
		14 day inventory storage cycle length
		26.1 storage cycles per year
		262,800,000 lbs. to outside storage per year
		\$1.72 weighted average storage cost per cwt.
		\$4,522,767 total outside storage cost per year
Depreciation & Interest		
New Building	\$2,610,000	
Asset Life in years	40	
Annual Depreciation		\$65,250
New Equipment	\$1,850,000	
Asset Life in years	15	
Annual Depreciation		\$123,333
Financing Cost		
Total Bldg & Equip Cost	\$4,460,000	
Interest Rate	8%	
Loan length	15	
Full amortized 15-year loan annual payment		\$521,060
Operating Expenses		
Per cwt.	\$1.43	
Per year		\$3,785,040
Gross Annual Gain from Building		\$55,085

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