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## ROUGIR COSMETICS INTERNATIONAL: PRODUCTION OPTIMIZATION

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Owen P. Hall Jr. and Kenneth Ko wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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At Rougir Cosmetics International (RCI)'s June 2016 board meeting, the firm's chief executive officer, (CEO), Shelly Anderson, reported that RCI was planning its production schedule for the upcoming quarter. She stated that the firm did not have the internal capacity to meet the projected demand and that the only short-term possibility was to outsource some of the demand to a third-party supplier. She indicated that RCI had been reluctant in the past to use vendors in this way because of the proprietary nature of the company's product line. However, she did state that she had been in negotiations with a local supplier that was prepared to sign a secrecy agreement. Anderson indicated that she would need board approval before proceeding down this path. The board's chairman asked how much of the projected product demand might have to be subcontracted out and cautioned against exposing RCI's complete product line to an outside vendor. Anderson stated that the analysis could be completed along with a recommendation within a week using RCI's analytics-based linear programming model and a further review of the candidate vendor.

### COSMETICS INDUSTRY OVERVIEW

The cosmetics industry, with overall global revenues estimated to reach \$675 billion by 2020, was segmented into skin care, hair care, toiletries, deodorants, makeup and colour, oral care, and fragrances.<sup>1</sup> The skin care sector, by far the largest, accounted for approximately 36 per cent of the overall market. The Asia-Pacific region represented one of the fastest growth areas as Indonesia and Korea joined the ranks of China and India as major consumer markets over the past few years. Some key external drivers in the cosmetics industry, in general, and the skin care sector, in particular, were the consumer confidence index, research and development expenditures, crude oil prices, and the trade-weighted index. Consumers' preferences had shifted towards more environmentally friendly products, which required companies in the industry to develop more niche products. This trend had attracted a number of newer, small entrants to the industry. In response, well-established firms like Procter & Gamble, L'Oréal, and Unilever, who were major

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<sup>1</sup> All currency amounts are in US\$ unless otherwise stated; "Research and Markets: Global Cosmetics Market 2015–2020: Market Was \$460 Billion in 2014 and Is Estimated to Reach \$675 Billion by 2020," Business Wire: A Berkshire Hathaway Company, July 27, 2015, accessed August 15, 2017, [www.businesswire.com/news/home/20150727005524/en/Research-Markets-Global-Cosmetics-Market-2015-2020-Market](http://www.businesswire.com/news/home/20150727005524/en/Research-Markets-Global-Cosmetics-Market-2015-2020-Market).

players in the cosmetics industry, had been investing heavily in research and development as a vehicle for offering new and innovative products. Technology would continue to be a major factor in the skin care sector through the introduction of diagnostic tools and digital applications (apps), and the development of new ingredients and new manufacturing processes (e.g., 3D printers).<sup>2</sup>

Shifting production to India and China with their significantly lower labour costs was one of the major developments in the cosmetics industry over the past 10 years. This transition had also allowed for the development of new markets, thanks to growth in per capita income in developing economies such as China, India, and Indonesia. This growth had further been advanced with the emergence of new distribution channels like home shopping. Many new players were employing the e-commerce model as a cost-effective vehicle for entering this lucrative market. Increasing consumer preferences towards the use of herbal and natural cosmetics products were causing a shift in product design, production, and marketing. New strategies that focused on sustainability issues such as packaging and water usage were now in vogue. Overall, the growth of the skin care sector, by far the largest component of the cosmetics industry, showed no sign of slowing down due primarily to the presumption that youthful-looking skin was a major determinant in one's social and economic position.

## COMPANY BACKGROUND

RCI, which was founded in 2010 in Santa Monica, California, produced and distributed a wide range of cosmetics offerings through a subscription-based e-commerce model. Customers could choose from different pricing plans, and the products were delivered to their homes monthly. The subscription model provided RCI with a stable income stream while continuing to build brand loyalty, particularly with regards to its three flagship products: Rigel Gold (face cream), Apollo Blue (body cream), and Eris Satin (hand cream).

With sales approaching \$150 million annually, RCI had experienced double-digit growth over the past few years. Its marketing department estimated that the demand for the three products for the upcoming quarter were 12,000 cartons of face cream, 8,000 cases of body cream, and 18,000 cases of hand cream. The manufacturing process consisted of a two-stage production procedure that used four ingredients: purified water, oil, scents and colours, and emulsifiers. Stage 1 involved materials preparation and initial mixing while stage 2 focused on final blending and packaging. RCI's available first-shift capacity for the next quarter was 15,000 labour-hours for stage 1 and 10,000 for stage 2. The first-shift hourly rate was \$8.50 for stage 1 and \$9.25 for stage 2. A second shift was available with a 10 per cent reduction in capacity and a 10 per cent increase in wage rates. The cost for raw materials was \$1 per pound for purified water, \$1.50 per pound for oil, \$3 per pound for scents and colours, and \$2 per pound for emulsifiers. The production department had available 200,000 pounds of purified water, 50,000 pounds of oil, 7,500 pounds of scents and colours, and 15,000 pounds of emulsifiers (see Exhibit 1).

RCI could also subcontract with a local supplier previously identified by Anderson for face cream and body cream at a cost of \$40 per carton and \$55 per carton, respectively. This vendor had the capacity to meet the demand requirements that were in excess of RCI's capabilities. Based on the board's direction, Anderson decided not to use the vendor for the production of hand cream. The CEO recognized that other vendor arrangements could include producing critical sub-components of the products (e.g., water-oil solutions). Anderson planned to explore this possibility as a future production option.

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<sup>2</sup> Maria Del Russo, "The Future of Skin Care," R29: Refinery29, November 2, 2014, accessed August 15, 2017, [www.refinery29.com/new-skin-care-trends#slide](http://www.refinery29.com/new-skin-care-trends#slide).

**EXHIBIT 1: PRODUCT PRODUCTION REQUIREMENTS**

| <b>Criteria/Vendor</b>    | <b>Face Cream</b> | <b>Body Cream</b> | <b>Hand Cream</b> |
|---------------------------|-------------------|-------------------|-------------------|
| Labour (hours/carton)     |                   |                   |                   |
| Stage 1                   | 1.5               | 1.8               | 1.0               |
| Stage 2                   | 0.8               | 1.0               | 0.5               |
| Materials (pounds/carton) |                   |                   |                   |
| Water                     | 8.0               | 6.0               | 7.0               |
| Oil                       | 1.0               | 3.0               | 2.0               |
| Scents and colours        | 0.5               | 0.3               | 0.4               |
| Emulsifiers               | 0.5               | 0.7               | 0.6               |

Source: Based on the authors' calculations from information in the case.