Seattle U

Memo

To: Guggenheim Board of Directors

From: Josh Wolfe

cc: Justin Gapper

Date: 9/4/2020

Re: Exhibition Proposal Analysis

Part 1: Exhibit setup

Seymore has request the analysis of three proposals that examine the costs associated with the exhibition and the art pieces that should be displayed. All three proposals

Proposal 1 has a $4,000,000 allocation to fund the exhibit. We set out to determine the maximum number of pieces that can be displayed within the budget, and the right combination of pieces that satisfy the constraints set forth by Valentino and Celeste.

15 pieces of art is the maximum number allowed that meets the budget and Valentino and Celeste's requirements. The combination of art pieces is as follows:

Angie: Reflection
Candy: A study of a Fruit Bowl
David: Ziggy III
Enrique: Harley
Helen: Serenity
Helen: Calm Before The Storm
Nicholas: Emergence
Norm: Wasted Resources
Rita: Beyond
Robert: Void
Stuart: Wisdom
Valentino: All That Glitters
Valentino: The Rock

Valentino: Winding Road
Valentino: 1071 fifth Ave

Proposal 2 has a requirement of a minimum of 20 pieces of art showcased and the minimum cost associated to meet that threshold. The previous constraints set forth by Valentino and Celeste still apply.

The minimum cost is $5,400,000 and consists of 20 pieces. The pieces to be displayed are as follows:

Angie: Reflection
Candy: Study of a Fruit Bowl
David: Ziggy III
Enrique: Harley
Helen: Serenity
Helen: Calm Before The Storm
Nicholas: Perfection
Nicholas: Burden
Nicholas: Emergence
Norm: Wasted Resources
Rita: Beyond
Rita: Domestication
Robert: Void
Robert: Sun
Stuart: Wisdom
Stuart: Superior Powers
Valentino: All That Glitters
Valentino: The Rock
Valentino: Winding Road
Valentino: 1071 fifth Ave

Proposal 3 addresses the concern of using an outdated pricing sheet for the pieces. We have performed a Monte Carlo simulation that varies the prices of each piece by +/- 20% in a random and equal probability way. This simulation consisted of 1,000 trials and the constraints and requirements from Proposal 2 are in effect.

The result is an average exhibit price of $5,323,321. This is a reduction in total cost from Proposal 2 by approximate $80,000.

Part 2: Printing Press

(5.4) To evaluate and compare Proposal 4 and 5 we need to analyze the status quo. The total in-process inventory is on average 14.52 units at an average hourly cost of $203.14. This is comprised of an average of 7.52 units in the printing process and 7 units in the inspection process. The inventory costs are on average $116.14 per hour, press cost is $70 per hour, and inspection cost is $17 an hour. The entire printing process is on average 64.44 minutes with a 4.44-minute wait to print. The inspection time is on average 60 minutes with a 52.5-minute wait to be inspected. On average there are 6.13 units in the queue.

(5.5) Proposal 4 reduces print time from 1 hour per unit to 1.2 hours per unit. This reduction also results in a $0.50 hourly reduction in print costs. The idea is to slow print time to allow the inspector to better keep up with output.

This reduction leads to an average total in-process inventory of 18.05 units. This is an increase of approximately 3.5 units in the system at any given time. The hourly cost rises to an average of $226.40 an hour from the current $203.14 per hour. With Proposal 4 there are 11.05 units in the printing system costing $144.40. The entire printing process time takes 94.69 minutes including a 22.69-minute printing queue. This is a significant increase over the status quo. While printing costs are less at $65 an hour, the increased inventory negates any benefit. The inspector statistics and costs remain the same in this proposal.

(5.6) Proposal 5 address the inspection portion of the situation. A faster, more expensive, inspector replaces the previous inspector. The new inspector reduces inspection time from 7.5 to 7 minutes. However, inspector costs raise from $17 per hour to $19 per hour. The printing press specifications are left the same as the status quo in this proposal.

Proposal 5 results in an average total hourly cost of $184.82 as opposed to the current cost of $203.14 and the cost of $226.40 found in Proposal 4, despite the hourly inspector cost jump from $17 to $19. Total in-process inventory is down to 11.98 units compared to 14.52 units at the status quo and 18.05 units in Proposal 4. The average unit in-process inventory for inspections is 4.46, down from 7 in the status quo and Proposal 4. The inspection queue time drops from 52.5 minutes in the status quo and Proposal 4 to an average of 31.18 minutes. The entire inspection process (including queue) takes an average of 38.18 minutes per unit, down from 60 minutes in both Proposal 4 and the status quo. The number of units in the queue drop from 6.13 in the current condition and Proposal 4 to 3.64 units.

(5.7) To meet Seymore’s primary goal of reducing in-process inventory I recommend Proposal 5 over Proposal 4. Proposal 5 reduces the average in-process inventory by approximate average of 2.5 units when compared to the current condition and by 8 units compared to Proposal 4. Even though the inspector cost is $2 an hour more than both the current condition and Proposal 4, the overall hourly cost is reduced by an approximate average of $24 and $32 compared to the current condition and Proposal 4, respectively. The problem of inspection queue build-up is cut nearly in half, from 6.13 units in the queue in both previous conditions, down to 3.64 units on average. Ultimately, Proposal 5 reduces the queue, reduces the average amount of units in in-process inventory, and reduces overall hourly costs.