

RUNNING HEAD: Fitness Plus Capacity Case Study

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Fitness Plus – A Case Study of Capacity

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Introduction

Fitness Plus is a full-service fitness club that has sustained tremendous growth since its opening. Recently, management became aware of overcrowding and unavailability of equipment in certain areas and is now trying to determine how to properly evaluate the situation and decide if there is enough room at the current building to properly service existing members or to open a larger facility in another location.

Existing operations

Management needs specific information to estimate how well the existing capacity of the building is being utilized by members and to decide the capacity utilization rate of the club to reveal if they are utilizing their space efficiently.

Fitness Plus knows their most popular activities are in the following areas:

- 1) Aerobics room accommodates 35 people per class; *30% of members use.*
- 2) Free weight room; *20% of members use.*
- 3) 24-piece Nautilus equipment room; *25% of members use.*
- 4) Cardiovascular room containing 29 pieces of equipment (9 stair-steppers, 6 treadmills, 6 life-cycle bikes, 3 air-dyne bikes, 2 cross-aerobic machines, 2 rowing machines, and one climber); *40% of members use.*

Also there is space for 8 racquetball courts, which *15% of members use*, and 6 tennis courts, which *10% of members use.*

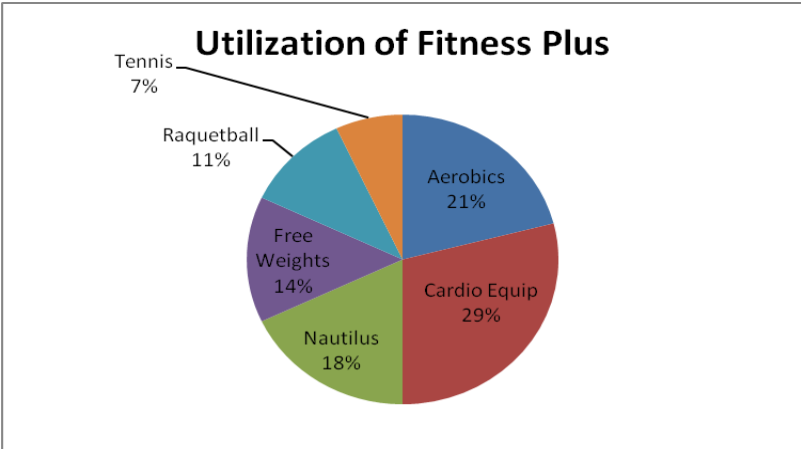
Analyzing growth

In five year's time, growth went up 2 times during peak hours, and 1- $\frac{1}{2}$ times during slow hours. Growth has gone up 1- $\frac{2}{3}$ times overall.

1992	660 hours open during week	Slow time – average 6-8 people/hour	Peak – average 40 people/hour	9,990 people working out/week (15 people per hour average/open hours)
1997	660 hours open during week	Slow time – average 10 people/hour	Peak – average 80 people/hour	16,500 people working out/week (25 people per hour average/open hours)

Measuring Existing Utilization

The areas where most bottlenecks occur during peak hours are aerobics, cardiovascular, and Nautilus areas.



Of course, people often do a mixture of both cardio and weight training exercises, but by constructing a utilization pie chart of Fitness Plus, we realize visually that a huge part of membership (68% in fact) uses aerobic, cardiovascular, and Nautilus areas of the club, and only a small part of the membership (18%) uses the racquetball and tennis courts.

	Maximum Capacity / hour
Aerobics	35 people
Cardio Equipment	29 people
Nautilus	24-30 per hour (max 60)
Free Weights	N/A
Racquetball 8 courts	16 people
Tennis 6 courts	12-24 people

Additionally, by measuring the capacity utilization rate by determining how many members can use each area at any given time, we get a broader view of how the resources are being utilized in each area. The maximum capacity of the racquetball courts is 16 people per hour and the tennis courts is 24 people per hour.

The maximum amount of people (best operating level) who can fit into an aerobics room is 35 per hour while the maximum amount of people who can fit into a tennis court is only 4 per hour. Since a much larger percentage of members use aerobics at Fitness Plus, management can risk converting a tennis court into an aerobics room in order to eliminate bottlenecks in the area of a popular exercise regime. The risk of converting one tennis court to an aerobics room is losing a maximum of 4 people over losing 35 people. In a peak period of three hours in an evening, that means risking a maximum of 12 people over losing 105 people.

Looking at the same rationale from a different perspective, consider converting two racquetball courts into another cardiovascular area. The maximum amount of people who can utilize 2 racquetball courts in an hour are 4 people, but if the area was converted into another cardiovascular workout space, it would serve an additional 29 people per hour. Plus, because most people only use the cardio equipment for 30-45 minutes, there will be little to no bottlenecks.

A small membership percentage may be unhappy if they cannot play racquetball or tennis at a specific time, but the club will still have these services at part of their overall membership benefits. The majority of the membership's needs have to be considered because they generate the majority of the revenue in the club. This is the best strategy to fully utilize the current available space. Another strategy might be to use a tennis court or racquetball room during peak hours as an aerobics area, leaving it open for the original activities during off-peak times.

Another area to consider is installing a second line of Nautilus equipment. Because of costs, management might wait to see if the weight training areas (Nautilus and free weights) clear up on their own after the aerobics and cardio changes. If not, another tennis court can be used for a second Nautilus line.

Expansion?

Fitness Plus has not reached its capacity. Eliminating floor space for underutilized areas and converting them into space that will be used by more members is smart planning for the long term (18 months to 3 years) growth of the club.

If Fitness Plus keeps attracting more membership over the next three years and starts to experience bottlenecks again, they can follow membership demand and then decide if they want to build a larger club in another location, or simply eliminate the racquetball and tennis court services completely. Since these areas are less popular with members, it may be a necessary cut for the sustainability of the club.

Building another space is not only expensive, but it may turn long term members away from their current club. Costs of a new facility will be passed on to a member by higher rates, as well as a whole new problem of massive influx of new clientele which can start the bottlenecks all over again. Management needs to carefully weigh the risks of a move. Since they still have underutilized space, a move is not recommended at this time.

Other company uses

This capacity decision made by Fitness Plus can be used in other company's operating decisions because any company needs to focus their attention on where the customer demand is. Other businesses who look at the total square footage of their facilities and the percentage used by each product may realize that expansion or moving to another facility may not be necessary.

Expansion and moving are very expensive, so finding a less expensive alternative is sometimes all a company can do.

How this may work in another company, for example, a supermarket may have long lines at peak hours and not enough checkout space to accommodate all customers. This market can install self service checkout stands. The system only needs one supervisor to monitor four checkout lines, rather than four cashiers to check out customers with four check stands. One salary is being paid instead of four which saves costs in operations and the need for expansion has gone away.

Another example is in a hospital where administrators determined that the birth rate has gone down while the aging population has risen. More space may be converted to geriatric services rather than pediatrics. Shifting around a service to a space that is underutilized will save a company from having to expand or move.

Conclusion

Utilizing a facility completely is critical to make the most of fixed expenses. Deciding what products are more popular with customers and cutting down on others that are not are activities that operations managers must consistently be aware.

Reference

Chase, R. B., Jacobs, F. R., & Aquilano, N. J. (2006) *Operations management for competitive advantage (11th ed)*. New York: McGraw Hill/Irwin. Ch. 11.