Champo Carpets Case Analysis

1. Identifying the Problem

Champo Carpets is one of the major carpet manufacturing carpets in India, with more than 52 years of experience. However, they are facing a decrease in their sells, due to a low conversion rate (rate between samples and selling orders). The high cost of raw material and dyes, design cost, labor cost and amount of wastage, are factors that are negatively contributing to the challenge.

2. Exploratory Analysis

I performed a descriptive analysis of the main variables in the study: "CustomerCode", "CountryName", "ItemName" and "OrderCategory". According to the analysis, the most important type of carpet is the "Hand Tufted" with 4,670 orders fulfilled (See Exhibit #2) and USD18,504,515 (See Exhibit #7) of revenue, followed by "Durry" with 2,792 orders and USD5,601,134 of revenue. Moreover, the customer with higher number of sales is "TGT" with USD11,341,053, followed by "H-2" with USD3,804,801 (See Exhibit #6). In addition, the country with more sales is USA with 9,196 orders (See Exhibit #3) and USD27,082,868 of revenues (See Exhibit #5).

3. Data Conversion Analysis

After we converted the data by matching sample orders to subsequent regular orders for the same model of carpet, we can highlight the following ideas. In first place, the type of carpet with highest conversion rate is "Knotted" with 88.9% of rate, followed by "Double Back" and "Table Tufted" with 62.8% and 61.5% respectively (See Exhibit #8). However, "Hand Tufted" is the type with more conversations, but just a 36.1% of conversion rate. On the other hand, the revenue from the converted orders is USD4,675,349, with "Hand Tufted" carpet type as the most profitable one (See Exhibit #9). Moreover, the client most receptive to receiving samples is "CC" with 1,729 distinct orders (See Exhibit #11). However, it is not the most profitable, as H-2 is the customer with higher revenue (See Exhibit #12).

4. Recommendations

Based on the analysis, I would suggest the following strategies to Champo Carpets. The first recommendation is to use Prescriptive Analytics to identify the customers with higher conversion rate and offer them a different package of deals and promotions that can increase even more their conversion rate. Some of these customers are "H-2", "C-2", and "A-9". Moreover, identify why the conversion rate of client "CC" is so low (See Exhibit #14) and offer them a specific and personalized package of promotions. In this way, the sunk cost of attending client "CC" can also represent higher profit for the company. A second suggestion, is to identify the different customer groups, based on the countries or type of carpet that they buy, and tailored a set of marketing strategies specially designed for them. A third suggestion is to use machine learning to optimize the inventory and help them minimize the waste and labor costs that producing the samples mean.

5. Exhibits

#1 "Summary Statistics by Order Category"

Order Category	Count	Mean Revenue	Median Revenue	Min Revenue	Max Revenue	Std. Dev	IQR
Order	13,135	2,392.0402	590.625	0	599,719.6800	16,832.0911	1,376.8
Sample	5,820	0.0612	0.000	0	356.0625	4.6673	0.0

#2 "Summary Statistics by Carpet Type"

Order Category	Order Type	Count	Mean	Median	Min	Max	Std. Dev	IQR
Order	HAND TUFTED	4,670	3,962.4230	637.700	0.00	599,719.7	27,489.7125	1,502.0000
Order	DURRY	2,792	2,006.1370	695.000	0.00	238,579.4	6,899.1515	1,575.0000
Order	DOUBLE BACK	1,920	872.7023	450.000	0.00	19,600.0	1,404.7825	928.1250
Order	HANDWOVEN	1,625	1,224.9802	525.000	0.00	31,028.4	2,410.7820	1,149.9200
Order	KNOTTED	1,358	1,617.7423	648.000	0.00	34,440.0	2,876.6593	1,576.8000
Sample	HAND TUFTED	2,425	0.1468	0	0	356.0625	7.2305	0
Sample	DURRY	1,563	0.0000	0	0	0.0000	0.0000	0
Sample	HANDWOVEN	705	0.0000	0	0	0.0000	0.0000	0
Sample	DOUBLE BACK	554	0.0000	0	0	0.0000	0.0000	0
Sample	KNOTTED	217	0.0000	0	0	0.0000	0.0000	0

#3 "Summary Statistics by Country"

Order Category	Country	Count	Mean	Median	Min	Max	Std. Dev	IQR
Order	USA	9,196	2,945.0705	608.4900	0.00	599,719.680	20,051.0555	1,501.8000
Order	UK	1,491	1,318.1833	855.3600	0.00	20,162.000	1,588.3070	1,301.2000
Order	ITALY	551	1,021.9580	501.7500	3.91	20,736.000	1,818.4405	1,046.1300
Order	ROMANIA	436	978.5001	854.4000	5.12	5,059.584	811.0521	892.3200
Order	AUSTRALIA	301	1,185.8434	772.8000	0.00	11,745.000	1,532.6406	1,796.7000
Sample	INDIA	3,941	0.000	0	0	0.0000	0.0000	0
Sample	USA	1,430	0.249	0	0	356.0625	9.4158	0
Sample	UK	203	0.000	0	0	0.0000	0.0000	0
Sample	BELGIUM	132	0.000	0	0	0.0000	0.0000	0
Sample	ITALY	45	0.000	0	0	0.0000	0.0000	0

#4 "Summary Statistics by Customer"

Order Category	Customer	Count	Mean	Median	Min	Max	Std. Dev	IQR
Order	L-5	14	25,635.0000	840.0000	0.000	70,938.0000	35,043.2503	70,728.0000
Order	L-4	2	22,117.0000	22,117.0000	16,910.000	27,324.0000	7,363.8100	5,207.0000
Order	TGT	609	18,622.4179	664.5100	0.000	599,719.6800	73,908.4460	1,129.3000
Order	F-6	1	16,800.0000	16,800.0000	16,800.000	16,800.0000	NA	0.0000
Order	H-2	476	7,993.2800	4,762.5000	0.000	48,000.0000	7,993.8208	9,924.3750
Sample	C-1	39	9.1298	0	0	356.0625	57.0156	0
Sample	A-11	4	0.0000	0	0	0.0000	0.0000	0
Sample	A-9	222	0.0000	0	0	0.0000	0.0000	0
Sample	B-2	1	0.0000	0	0	0.0000	NA	0
Sample	B-3	1	0.0000	0	0	0.0000	NA	0

#5 "Revenue by Country"

CountryName	Revenue
USA	27,082,868
UK	1,965,411
ITALY	563,099
BELGIUM	426,791
ROMANIA	426,626
AUSTRALIA	356,939
INDIA	147,574
SOUTH AFRICA	130,458
CANADA	116,778
BRAZIL	59,877
LEBANON	56,743
UAE	44,234
CHINA	24,920
ISRAEL	17,129

#6 "Revenue by Customer"

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CustomerCode    Revenue
-------------   -----------
TGT             11,341,053
H-2             3,804,801
P-5             3,066,518
M-1             1,959,794
A-9             1,592,080
C-2             1,557,123
JL              1,231,578
N-1             949,376
T-5             733,833
C-1             567,621
T-2             563,099
I-2             426,626
PD              404,529
L-5             358,890
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#7 "Revenue by Type of Carpet"

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ITEM_NAME               Revenue
--------------------    -----------
HAND TUFTED             18,504,515
DURRY                   5,601,134
KNOTTED                 2,196,894
HANDWOVEN               1,990,593
DOUBLE BACK             1,675,588
HANDLOOM                746,930
JACQUARD                461,568
TABLE TUFTED            132,259
POWER LOOM JACQUARD     84,299
GUN TUFTED              21,591
INDO-TIBBETAN           3,571
-                       503
```

#8 "Conversion Summary by Item Name"

Item Name	Count of Conversion = 1	Count of Conversion = 0	Conversion Ratio
KNOTTED	177	199	88.9%
DOUBLE BACK	328	522	62.8%
TABLE TUFTED	16	26	61.5%
HANDLOOM	6	100	6.0%
HAND TUFTED	813	2252	36.1%
DURRY	528	1506	35.1%
HANDWOVEN	150	680	22.1%
GUN TUFTED	6	31	19.4%
JACQUARD	10	80	12.5%
INDO-TIBBETAN	0	3	0.0%
POWER LOOM JACQUARD	0	99	0.0%

#9 "Conversion Revenue by Item Name"

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ITEM_NAME        Revenue
-------------    ----------
HAND TUFTED      2,814,121
DURRY            711,926
HANDWOVEN        402,647
DOUBLE BACK      398,137
KNOTTED          191,516
TABLE TUFTED     143,183
JACQUARD         13,819
GUN TUFTED       0
HANDLOOM         0
```

#10 "Conversion Revenue by Item Name Chart"
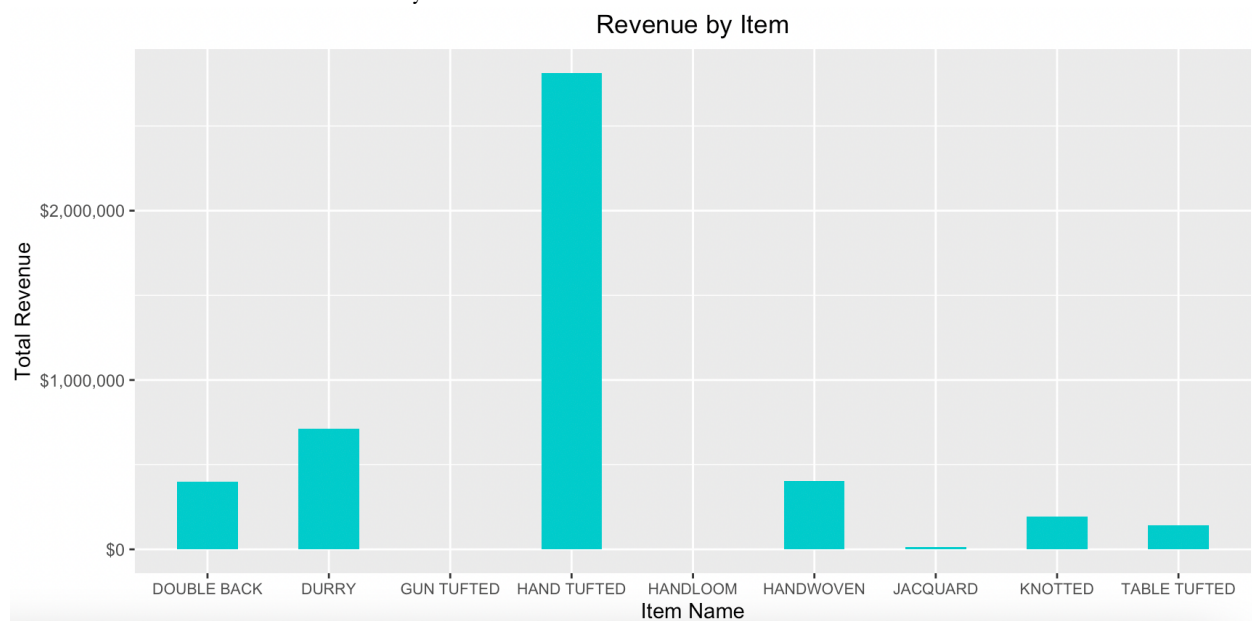
#11 "Conversion Distinct Order"

```
CustomerCode     Sum_Distinct_Order
-------------    -------------------
CC                             1729
A-9                              89
N-1                              74
T-5                              74
TGT                              69
H-2                              59
C-2                              53
M-1                              53
P-4                              42
S-3                              40
```
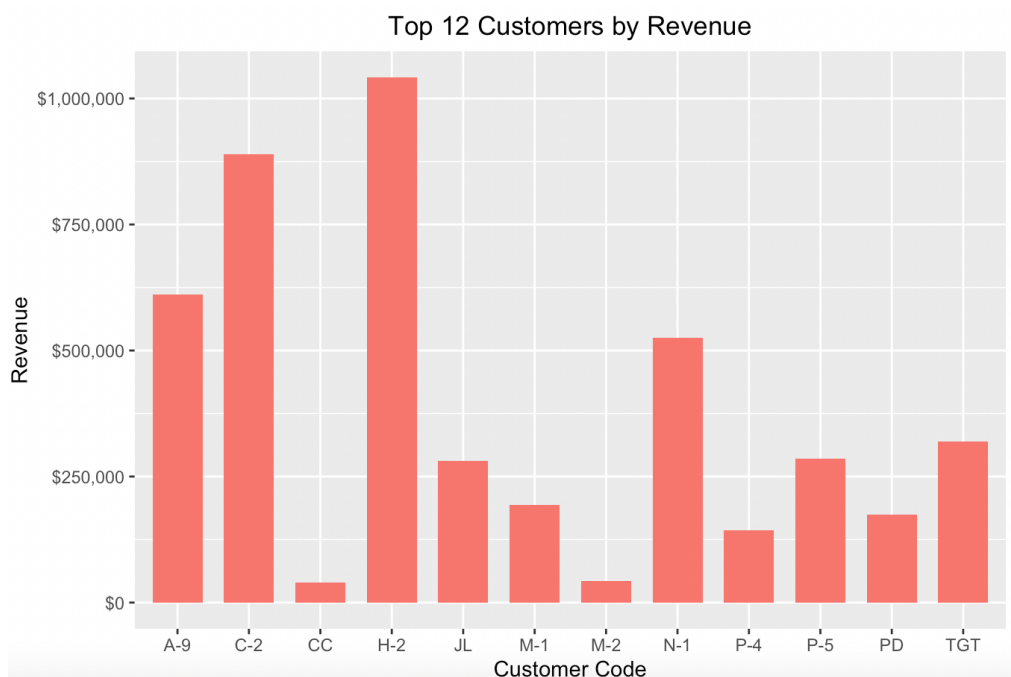
#12 "Conversion Customer Revenue"

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CustomerCode    Revenue
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H-2             1,041,813
C-2             889,414
A-9             611,669
N-1             525,261
TGT             319,987
P-5             284,881
JL              281,187
M-1             193,320
PD              174,770
P-4             143,183
M-2             43,274
CC              39,200
```

#13 "Conversion Customer Revenue Chart"

Top 12 Customers by Revenue

#14 "Conversion Summary by Customer Code"

Customer Code	Count of Conversion = 1	Count of Conversion = 0
CC	15	3927
A-9	351	177
N-1	256	176
TGT	89	157
T-5	6	143
H-2	104	139
PD	83	115
S-3	4	107
M-1	231	95
P-4	16	58