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INDIAN INSTITUTE OF MANAGEMENT
BANGALORE

IMB 693

TESTING MARKETING HYPOTHESES AT WSES

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U Dinesh Kumar, Professor of Decision Sciences and Information Systems, prepared this case for class discussion. This case is not intended to serve as an endorsement, source of primary data, or to show effective or inefficient handling of decision or business processes. The case is adapted from the case titled, "Marketing Head's Conundrum (Case Number IMB 541)", authored by Maneesh Bhandari, Pramod Kumar Bagri and U Dinesh Kumar. Few Exhibits and parts of the case discussion from "Marketing Heads Conundrum", are reproduced in this case.

We Sell Everything in Software (WSES)[1] Inc., sold innovative off-the-shelf products and had customers across the world. WSES specialized in providing software solutions for different industries. Although the products were commercial off-the-shelf, many clients required personalization and after sales support. The list of products sold by WSES is shown in **Exhibit 1**. Jack Williams cofounded WSES in 2005 and took charge as CEO in 2015 and was instrumental in driving data-driven decision making.

WSES was primarily a B2B (Business to Business) company, the sales cycle took anywhere between 3 months to 1 year once the lead was generated by the salesforce. Between 2010 and 2018, it was able to scale up from modest revenue of USD 2 billion to USD 10.3 billion. It possessed a healthy pipeline and a sales force which was aggressive in pursuing opportunities. However, over a period, the competitors of WSES became aware of this lucrative market and started introducing competing products. With increased competition, there was a pricing war, which naturally led to the loss of customers to competitors. Jack was under constant pressure from investors to improve win percentage of the bids submitted by WSES. The sales and marketing team at WSES had to decide whether to pursue a sales opportunity based on its perceived ability to convert a lead.

On March 7, 2018, Jack met Ben Osborne, Vice President-Marketing at WSES, to determine ways to improve effectiveness of the sales force. He felt that salesforce most often depended on its gut feel to allocate marketing expenses to an opportunity.

Jack: *Do you understand Ben that our win percentage opportunities was about 50% and in some products it is much less than 50%.*

Ben: *Jack, we have discussed this before. The competition is high, and our competitors are selling at much a lower price, it is difficult to cut costs for us. Compared to our competitors, we are doing great in converting leads, winning probability of 50% is better than the industry average of 32%.*

Jack: *Sure Ben. I acknowledge that. But we are strong in a few products such as Logisys, we should focus on customers who are interested in these products and give less importance to segments in which we are not very strong.*

Ben: *Yes, I agree that we should focus on our strong products, however, at the same time we must make other products competitive in the market since many of them are introduced in the last 3 years. Our sales team chases opportunities that have higher value since our incentive system encourages them to do so. High value projects also have high risk.*

Jack: *Last week I was chatting with our sales team, I was asking them how they decide whether to pursue an opportunity or not? They told me that they get a hunch from the product,*

[1] Names of all companies and individuals are changed to maintain the confidentiality. The problem context is adapted from the case titled, "Marketing Head's Conundrum (Case Number IMB 541)", authored by Maneesh Bhandari, Pramod Kumar Bagri and U Dinesh Kumar.

geographical location, value of the sale, etc. I don't think they have analyzed the data to find whether their hunch is true.

Ben believed that the sales force was in touch with the customer and understood the situation better. Hence, allocation to projects should be based on the probability to clinch a deal as indicated by the instincts of the sales force. However, there was a risk in using instincts to estimate conversion probabilities. The sales force grouped the sales leads into four groups such as excellent chance of sales conversion, very good chance of conversion, etc. (**Exhibit 2)**. Each salesman could use a different process to arrive at the win probability and there was no methodical structure to it.

Jack believed that the "gut feel" base approach used by sales team to pursue a lead was not the most methodical; at best, it could be used as ancillary data. Jack was convinced that WSES must use the past leads data and generate business rules based on inferences obtained from the data. The sales and marketing team had to decide whether to pursue a lead since it involved costs to the company in the form of travel, time spent by the sales team with potential customers, client visits, legal costs, etc.

ABOUT WSES

WSES has been headquartered in London and was started by Jack Williams and his friend Prudy Perkins, an MBA in Marketing, in 2005 when they realized that there was an opportunity after collapse of a leading product and consulting firm. They started with the creation of a services product – Procsys – and in a decade added an array of products to meet needs across multiple industries. Some of their products such as GTMsys, Finsys, Procys, and Lifesys[2] have been market leaders in their segments. WSES started with the focus on clients in the United Kingdom and in 5 years they started offices across the globe. In 2018, about 50% of their revenues were derived from the United Kingdom.

TESTING THE MARKETING HYPOTHESIS

On March 8, 2018, Jack and Ben met again along with sales and marketing team consisting of Prudy Perkins, Jason McCullagh and Hendry Jackson to find a solution to the problem that they had discussed the previous day. WSES maintained the records of all the leads and their outcome in its enterprise resource planning (ERP) system.

Jack: *Are there patterns that are visible from the data? I think our chance of winning deals in Africa is better than UK, but we are too focused on the UK and other European countries where the competition is much higher. The European market is becoming crowded and we should put our efforts in emerging markets.*

Ben: *I know where you are coming from Jack. I think we should involve Liz Smith who heads our data science team. I can call her here.*

[2] The names of products are modified to maintain the confidentiality

Jack: Would you like to have a coffee? I am making one for myself.

Ben: Let me call Liz while you take out the best coffee beans from your collection.

Jack, a coffee connoisseur, looked at his coffee collection wondering what was best for the occasion. His choice was Kenyan coffee. While Jack was preparing the coffee, Liz, who holds a Ph.D. in statistics from an Ivy school walked in. Jack and Ben explained the problem to Liz.

Ben: Liz, do you think we have a choice to let data influence our marketing decisions? For example, I believe that our winning chances are not the same across different geographical locations. Also, the average sales value of different products is different.

Liz: We can check what the data is saying. Sometimes data shouts. It is just that we are too busy to listen, or we are listening through our noses. For instance, in this case, we can do several hypothesis tests such as two-sample t test and chi-square test of independence to check whether your beliefs are in fact true.

Ben: Liz, I do watch Big Bang Theory, but I find your explanation too technical, can you explain to us in simple English?

Liz: Let me try again, you must have watched several advertisements of the Axe deodorant, in which it is shown that women are drawn towards man sprayed with the deodorant. Do you believe in that advertisement? Basically, hypothesis testing is a technique which can be used to verify such claims.

Jack: I really like those advertisements, I once read that a Professor at Liverpool University was trying to check whether women are drawn towards men sprayed with deodorant.

Liz: Most men live in fantasy world, they run out of ideas to attract women. According to scent science, women never smell deodorized men. It is important to find the evidence in the data for any claim that is being made.

Liz promised that she would start working on the problem and come back to Jack and Ben in a week's time with her recommendations on what was potentially possible.

DATA COLLECTION AND PROBLEM ANALYSIS

Data on every sales opportunity was available in the system Oracle ERP system used by WSES. The data had variables such as lead status (won or lost), product, segment, sales value, profit percentage, profit of the customer, joint bid percentage and relative strength of the product. With the potential variables identified, Liz started her work on cleaning the data. She took a random sample of 1000 opportunities for her analysis from opportunities that WSES pursued during the period 2014 and 2018. Once the data

clean-up was completed, Liz listed several hypotheses based on her discussion with the marketing team. Liz met Ben and said:

> "I have had a long meeting with our marketing team, they told me their beliefs about various aspects of our business. I have listed few of them below, but I am not sure whether they are actually true".

- The chance of winning a lead is not the same for different products.
- The chance of winning a deal in Africa is better than in the United Kingdom.
- Average size of a deal is at least 8 million USD
- Average size of a deal in different geographical locations is not the same.
- Winning chances are higher when the relative strength is higher.
- It is difficult to win leads from customers who are making low profit or making loses.

"I can quickly carry out hypothesis tests on these claims made by the marketing team" remarked Liz. She met Jack and Ben after two weeks and shared what she found in the data. "Liz – Why did I not find you before" chuckled Jack.

Exhibit 1

Variables in the Data

Opportunity No.	Sl. No. of the Opportunity
Reporting Status	Won or Lost as per the data
Sales Outcome	1 = Won and 0 = Lost (binary code of reporting status)
Region	Indicates the following regions (countries) of the client: UK, Other Europe, Americas, Africa, India, Japan, Singapore, Spain and Canada
Customer Industry	Industry of the customer such as: Agriculture, Airline, Banks, Capital Markets, Clinical Research, Consumer goods, Defence, Energy, Finance, Government, Health, Infrastructure, Insurance, Mobility, others, other government, Security, Telecom Equipment, and White Goods
List of products	1.GTMSys, 2. Procsys, 3. LearnSys, 4. Finsys, 5. Lifesys, 6. Logisys and 7. ContactSys
Relative Strength	Strength of the product based on benchmarking carried out by a third-party organization. Higher is better.
Sales Value	Expected Sales value if the deal is won. This constitutes only WSES's share if it is a joint bid
Profit of the customer	Profit earned by the customer in millions of dollars during the previous financial year
Profit %	Profit in percentage of sales value for an opportunity as per the proposal submitted or planned to be submitted
Joint Bid - WSES Portion	WSES works jointly with multiple partners to strengthen the bid. This indicates the % of WSES portion to total value
Leads Conversion Class	E, V, F and L as described in **Exhibit 2**

Source: Primary data from WSES
Note: Mn – million

Exhibit 2

Current Classification of Leads (opportunity) Conversion Based on Opinion (gut feel) of the Sales Team

Class	Description
E	Excellent chance of sales conversion
V	Very good chance of sales conversion
F	Fair chance of sales conversion
L	Low chance of sales conversion