

Digital Marketing Practicum

About Me: <https://github.com/sanjeevlcc>

1. What is Marketing?

Marketing is the **process of identifying customer needs**, creating value, communicating that value, and delivering products/services that satisfy customer expectations.

Key points:

- It connects **business offerings** with **customer demand**
- Involves activities like research, branding, advertising, pricing, selling, and customer relationship management
- It aims to build **long-term trust and customer loyalty**

Simple definition:

“Marketing is understanding what people need, providing it better than competitors, and creating meaningful relationships with customers.”

2. Why is Marketing Important?

Marketing is important because it:

1. Generates Awareness

People must know your brand exists before they consider buying.

2. Attracts and Retains Customers

Marketing brings in customers and keeps them engaged with value.

3. Helps Understand the Market

Through surveys, analytics, and research, businesses know:

- What customers like
- What problems they face
- What competitors are offering

4. Drives Revenue

Good marketing directly increases sales and business growth.

5. Builds Brand Image

Strong marketing builds trust, credibility, and loyalty.

6. Supports Decision-Making

Marketing insights guide:

- Pricing decisions
 - Product updates
 - Distribution strategies
 - Investment choices
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3. Why Digital Marketing Practicum?

A **practicum** means **hands-on, practical training**.

Digital Marketing Practicum is included in the course because:

1. Real-World Application

Students learn by doing:

- Running simulated campaigns
- Creating ad creatives
- Analyzing performance metrics

2. Industry Tools & Practical Exposure

Students practice using the same tools that professionals use.

3. Skill Development for Modern Jobs

Industries demand digital skills such as:

- SEO
- Social media marketing
- Google Ads
- Data analytics

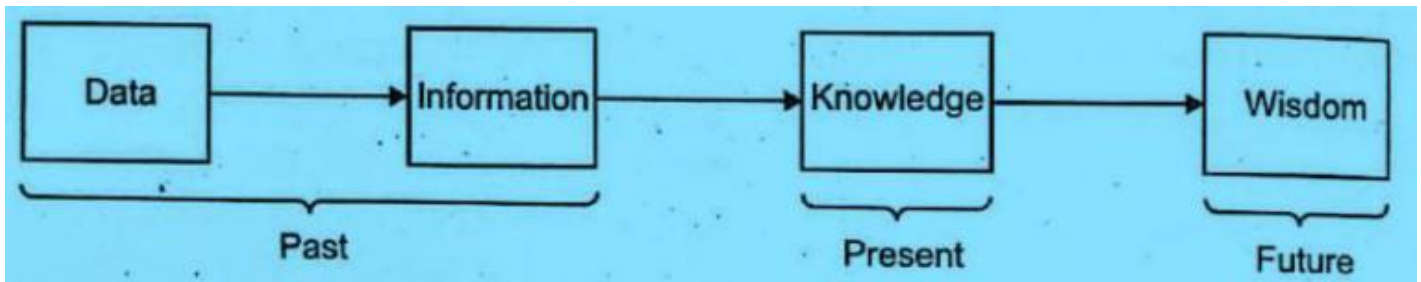
4. Decision-Making Using Data

5. Builds a Professional Portfolio

Students complete:

- Campaign plans
- Case studies
- Automation workflows
- Analytics dashboards

These are valuable for jobs and internships.



4. What Software Tools Are Needed?

Digital marketing requires both **technical tools** and **data tools**.

A. Analytical & Data Tools

Purpose	Tools
Data cleaning, model building	Google Colab, Jupyter Notebook, Python
Website traffic analysis	Google Analytics 4 (GA4)
Keyword + SEO research	Ubersuggest, SEMrush (freemium options)

B. Content & Creative Tools

Purpose	Tools
Graphics & ad design	Canva , Adobe Express
Video editing	CapCut, Canva Video

C. Advertising & Performance Tools

Purpose	Tools
Social media ads	Meta Ads Manager , TikTok Ads
Search engine ads	Google Ads
Email automation	Mailchimp, HubSpot

D. Marketing Automation Tools

Purpose	Tools
CRM + Automation	HubSpot , Zoho CRM
Customer segmentation	Google Analytics, HubSpot

E. Collaboration Tools

Purpose	Tools
Project execution	Google Drive, Colab, Trello
Team communication	Slack, Teams

5. Role of Data + Model + Result = Decision Making

In modern marketing, **data-driven decision-making** is essential.
This formula explains it:

(1) DATA

Data comes from:

- Website visits
- Customer purchases
- Social media engagement
- Email campaign performance
- Market research
- Surveys

Examples:

- “Which ad clicked most?”
 - “Which age group buys more often?”
 - “What time does audience engage most?”
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(2) MODEL

A **model** uses data to generate insights or predictions.

Examples:

- Predict which customers might buy next
- Forecast sales for the next 30 days
- Identify customer segments
- Recommend marketing budget allocation

Tools used:

Python, Google Colab, Machine Learning, Analytics platforms.

(3) RESULT

The model outputs measurable results:

- Expected revenue

- Best customer segment
- Optimal price range
- Best performing channel
- Customer lifetime value (CLV)

(4) DECISION MAKING

Top managers use these results to make **strategic decisions**.

Marketing Directors / CMOs decide:


- Which campaign to scale
- Which audience to target
- Which product to modify
- What budget to allocate
- Whether a strategy is profitable

Example:

If data shows:

- Instagram ads = high engagement
- Google Ads = high conversion
- Email = high retention

Then decision:

 Allocate more budget to high-conversion channels (Google Ads).

Simple Example

Dataset: Sales of products

Model: Predict which product will perform well next month

Result: Forecast suggests Product A will grow by 30%

Decision: Increase inventory + Run promotion campaign

This is exactly why digital marketing professionals must know:

data analysis + tools + analytics + strategy.

Working with single variables

Let's build a **simple marketing scenario**:

- **Input (X)** = Daily digital ad spend in USD (1 variable, 40 days)
- **Output (y)** = Daily new customers acquired
- We'll:
 - Create **data**
 - Train a **linear regression model**
 - Use the **result for decision making** (e.g., "If we spend \$800, how many customers can we expect?")

https://github.com/sanjeevlcc/notes_2081/blob/main/DM/MBA%20DMP/LAB_1.ipynb



How this matches Data → Model → Decision

1. Data

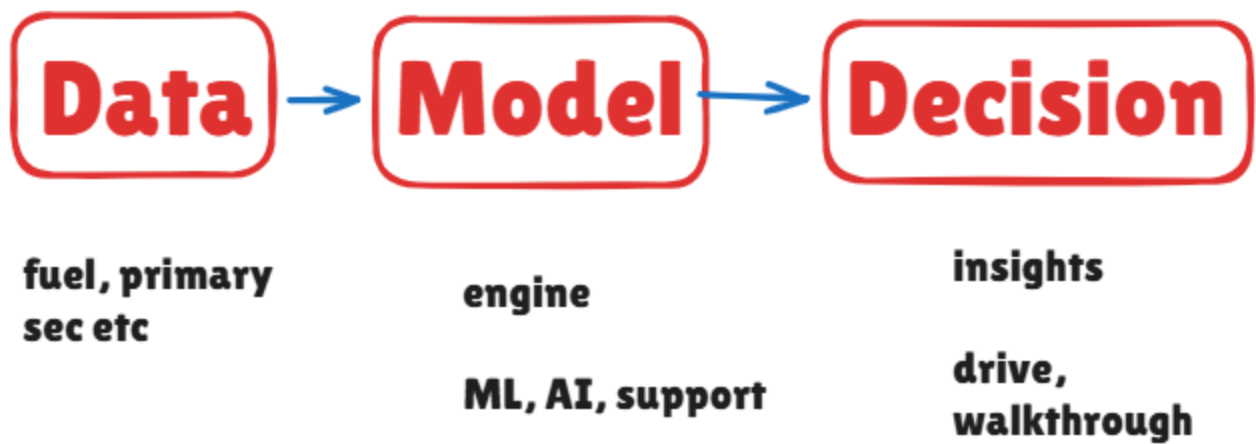
- We simulate 40 days: Ad_Spend_USD → New_Customers
- Visualize using a scatter plot.

2. Model

- Train LinearRegression with one input (ad spend) and one output (new customers).
- Print equation and performance (MAE, RMSE, R²).

3. Decision

- Compare two spend levels (\$500 vs \$800).
- Calculate **extra customers** and **cost per extra customer**.
- Print a simple **recommendation** for a manager (top role).



Scenario 2

multiple linear regression

📌 1. Scenario Overview (Email Marketing Focused)

A company wants to evaluate **how its email marketing activities influence customer conversion**. For 40 days, the marketing team collects detailed email-campaign data.

We use:

6 Input Variables (X): Email Marketing Metrics

1. **Emails_Sent** — total emails sent per day
2. **Open_Rate (%)** — how many opened the email
3. **Click_Through_Rate (%)** — link clicks
4. **Bounce_Rate (%)** — failed email deliveries
5. **Unsubscribe_Count** — number of users unsubscribing
6. **Promo_Code_Used (%)** — discount code usage from email

1 Output Variable (y)

✓ **Conversions (Daily New Customers from email)**

Marketing Manager wants to know:

- Which email activities have the highest impact on conversions?
- Are discounts more effective than click-through rates?
- What happens if we increase email volume by 20%?
- Should we reduce bounce rate or promote more offers?
- What is the future expected conversion based on key email metrics?

Machine learning gives **evidence-backed decisions**, not guesses.

https://github.com/sanjeevlcc/notes_2081/blob/main/DM/MBA%20DMP/LAB_2.ipynb

Decisions

✓ Decision 1: Increase budget

Because the model shows **higher spend** → **more customers** at a good cost.

✓ Decision 2: Improve Email Click-Rate

If CTR has the strongest positive impact, the decision is:

“Focus on better subject lines and call-to-actions.”

✓ Decision 3: Reduce Bounce Rate

If bounce rate has a negative impact:

“Clean email list to improve delivery.”

✓ Decision 4: Promote Discount Codes

If promo-code usage increases conversions:

“Send more promo emails during weekends.”

✓ Decision 5: Stop or Reduce Ineffective Strategy

If a feature has **no impact**, decision:

“Do not spend more on that area.”

Variable relationship:

✓ 1 One Input → One Output (Simple Relationship)

Question:

“How does daily ad spend affect the number of new customers?”

Input (X):

- Ad_Spend (USD)

Output (y):

- New_Customers

Example:

If ad spend = \$500 → customers = 20

If ad spend = \$800 → customers = 32

✓ 2 Multiple Inputs → One Output (Multiple Linear Regression)

Question:

“How do email metrics influence total conversions?”

Inputs (X):

- Emails_Sent
- Open_Rate
- Click_Through_Rate
- Bounce_Rate
- Promo_Code_Used

Output (y):

- Conversions

Example:

More opens + more clicks + more promo code use → higher conversions

✓ 3 Multiple Inputs → Multiple Outputs (Multi-output Prediction)

Question:

“How do marketing activities affect both sales *and* website sign-ups?”

Sanjeev Thapa, Er. DevOps, SRE, CKA, RHCSA, RHCE, RHCSA-Openstack, MTCNA, MTCTCE, UBSRS, HEv6, Research Evangelist

Inputs (X):

- Social_Ad_Spend
- Search_Ad_Spend
- Email_Campaigns

Outputs (Y):

- Daily_Sales
- New_Signups

Example:

Increasing all marketing channels may increase:

- Sales from 50 → 70
- Sign-ups from 100 → 150

 **Ultra-short summary**

Relationship	Meaning	Example
1 input → 1 output	Simple effect	Ad spend → Customers
Many inputs → 1 output	Combined influence	Email metrics → Conversions
Many inputs → many outputs	Predict multiple outcomes	Marketing spend → Sales + Signups

Digital marketing tactic	
1. Social Media Marketing (Facebook Carousel Ads) Input Variables (X): <ul style="list-style-type: none"> • Ad Spend • Audience Targeting • Number of Impressions • Click-Through Rate Target / Output (y): <ul style="list-style-type: none"> • Sales • Brand Awareness (Reach) 	2. Content Marketing (Blogs, YouTube Videos) Input Variables (X): <ul style="list-style-type: none"> • Number of Articles/Videos • SEO Keywords Used • Content Quality Score • Upload Frequency Target / Output (y): <ul style="list-style-type: none"> • Website Traffic • Engagement Time
3. Email Marketing (Discount Email / Newsletter) Input Variables (X): <ul style="list-style-type: none"> • Emails Sent • Open Rate • Click-Through Rate • Discount Offered Target / Output (y): <ul style="list-style-type: none"> • Conversions 	4. Pay-Per-Click (PPC Ads on Google) Input Variables (X): <ul style="list-style-type: none"> • Bid Amount • Keywords Selected • Quality Score • Ad Position Target / Output (y): <ul style="list-style-type: none"> • Clicks

<ul style="list-style-type: none"> Revenue from Email 	<ul style="list-style-type: none"> Leads Generated
5. Interactive / Viral Campaigns (Barbie Selfie Generator) Input Variables (X): <ul style="list-style-type: none"> Number of Shares User Interactions Campaign Reach Target / Output (y): <ul style="list-style-type: none"> Viral Engagement Brand Hype / Awareness 	7. Video Marketing (YouTube Targeted Ads) Input Variables (X): <ul style="list-style-type: none"> Video Views Watch Time Target Audience Selection Ad Spend Target / Output (y): <ul style="list-style-type: none"> Conversions Lead Generation

Scenario 3

Scenario 4