

# The Signal in the Noise: MasterControl Strategic EDA

Identifying the Ideal Customer Profile (ICP) for Mx Expansion

MSBA Capstone Group 3

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## 1 □ Phase 1: Business Understanding

### 1.1 1.1 The Client: MasterControl

MasterControl provides software solutions for the **Life Sciences** industry (Pharmaceuticals and Medical Devices). Their clients operate in high-stakes, regulated environments where compliance is mandatory.

### 1.2 1.2 The Business Problem

We are analyzing a performance gap between two product lines: 1. **Qx (Quality Excellence)**: The legacy product. Converts at **~19.7%**. 2. **Mx (Manufacturing Excellence)**: The new product. Converts at **~12.7%**.

**The Objective:** The 7.0% performance gap suggests a targeting misalignment. Following the **CRISP-DM** lifecycle (learned in MKTG 6487), our goal in this EDA phase is to understand the data structure and identify features that differentiate successful Mx leads from failed ones.

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## 2 □ Phase 2: Data Preparation

We utilize **Python** (pandas, numpy) for data manipulation, leveraging skills from **IS 6493**.

```
# =====
# 1. CORE ARCHITECTURE
# =====
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import re
from pathlib import Path
from scipy import stats
```

```
from sklearn.feature_selection import mutual_info_classif
from sklearn.preprocessing import LabelEncoder
from sklearn.feature_extraction.text import CountVectorizer
import warnings

warnings.filterwarnings('ignore')

# --- THE PROJECT PALETTE ---
# Teal = Success/Mx (Goal). Orange = Failure/Qx (Gap).
PROJECT_COLS = {
    'Success': '#00534B',
    'Failure': '#F05627',
    'Mx': '#00534B',
    'Qx': '#F05627',
    'Neutral': '#95a5a6'
}

sns.set_theme(style="whitegrid", context="talk")
plt.rcParams['figure.figsize'] = (12, 7)
plt.rcParams['axes.titlesize'] = 16
plt.rcParams['axes.labelsize'] = 12

print("□ Environment Initialized")
```

□ Environment Initialized