# Czech University of Life Sciences, Prague

# Faculty of Economics and Management

## Department of Information Engineering



## Diploma Thesis

## on:

## Design Business Intelligence for Sales team.

**Prepared by: Kidus Desalegn Kebede**

**Thesis Supervisor:   Ing. Jan Tyrychtr, Ph.D.**

# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

# DIPLOMA THESIS ASSIGNMENT

Kidus Desalegn Kebede

Systems Engineering and Informatics
Informatics

**Thesis title**

**Design Business Intelligence for Sales team**

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**Objectives of thesis**

The main objective of this thesis is designing Business Intelligence to increase the performance of Email marketing sales team.

The partial goals of the thesis are:
• Identify the key performance indicators of Email marketing.
• Design data flow charts
• Design structure of data to use historical data for the new email generation.
• Design efficient Email generating architecture.
• Design Strategic dashboard based on Email status report.

**Methodology**

Email marketing uses Email as the main communication media to reach customers. To make a sale, we have two general requirements, finding the relevant persons email address and convince a customer to buy (Customer insight). Each of stated objectives and the following methodology are trying to fulfill one of the above requirements. Therefore, the following methodologies can be applied to related sectors which are used Email marketing.

To achieve the specified objectives, the first task is identifying KPI's based on the email platform results. Email metrics can be used as performance indicators. According to researches and literatures on Email marketing the KPI will be specified.

On the second part, design data flow charts that can express the data flow, starting from finding the relevant email address to analyzing the result of email platform. Show input and output relationship data While we are going from one stage to the other

The current trend of email marketing in most of the companies did not use historical data to do analysis on it and to generate new email address. To use the data resource efficiently, based on the data flow chart we must design a data warehouse to keep all processed information (results) and use it for future analysis.

Since, there is limited time to sale a product or deliver a service, thousands of emails should be generated to reach our customers in the specified time interval. Using the above data warehouse, design the architecture that can generate new email address by using historical data as an input.

Finally, to give analysis that can help for decision, develop a Strategic dashboard that track key performance indicators.

**The proposed extent of the thesis**
60 – 80 pages

**Keywords**
Business Intelligence, Email Marketing, Data warehouse, Data Flow, Strategic Dashboard

**Recommended information sources**
ECKERSON, Wayne W. Performance dashboards: measuring, monitoring, and managing your business. John Wiley & Sons, 2010.
CHAUDHURI, Surajit; DAYAL, Umeshwar; NARASAYYA, Vivek. An overview of business intelligence technology. Communications of the ACM, 2011, 54.8: 88-98.
KIMBALL, Ralph; ROSS, Margy. The data warehouse toolkit: the complete guide to dimensional modeling. John Wiley & Sons, 2011.
TYRYCHTR, J. – VASILENKO, A. Business Intelligence in Agribusiness – Fundamental Concepts and Research. Brno: KONVOJ, spol. s r. o. , 2015, 100s. ISBN 978-80-7302-170-2.

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**The Diploma Thesis Supervisor**
Ing. Jan Tyrychtr, Ph.D.

**Supervising department**
**Department of Information Engineering**

Electronic approval: 24. 1. 2019

Ing. Martin Pelikán, Ph.D.

Head of department

Electronic approval: 24. 1. 2019

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 25. 01. 2020

Declaration


I declare that the Diploma Thesis Design Business Intelligence for Sales team is my own work and all the sources I cited in it are listed in Bibliography.


Prague, 2019                                                         Signature

                                                                     Kidus Desalegn

**Acknowledgement**

First of all, I would like to express my thankfulness to almighty God, who gave me the strength, commitment and health to finish this master thesis.

Secondly, I would like to pass my appreciation to my supervisor Ing. Jan Tyrychtr, Ph.D., for his support and advice while the process of writing this thesis work and to the Czech Ministry of Sports and Education for the scholarship that made these master's studies available to me.

I would like also to pass my gratitude to my parents, who were always on the side of me to unleash all the barriers.

Finally, I would like to say thank you all my friends, who have advised me, while writing this thesis.

**Návrh Business Intelligence pro prodejní tým**

**Souhrn**

Tato diplomová práce se zabývá tématem navrhování Business Intelligence (BI) pro prodejní tým zabývající se e-mailovým marketingem v malém rozsahu.

Úvodní část obsahuje cíle práce a metodiku pro dosažení cílů. Teoretická část je zejména věnována identifikaci aplikací BI pro malé společnosti zabývající se e-mailovým marketingem, vysvětlení KPI (Key Performance Indicators), zpracování dat a e-mailového marketingového panelu (tzv. dashboardu) pro obchodní rozhodování.

Praktická část této práce definuje KPI na základě výsledků e-mailové platformy. Následně jsou navrženy grafy toku dat, které mohou vyjadřovat tok dat, počínaje nalezením příslušné e-mailové adresy a analýzou výsledku e-mailové platformy. Ukázán je vztah vstupů a výstupů dat.

Použitá jsou historická data, navržena efektivní architektura generování e-mailů a implementována pomocí jazyku Pythonu. Nakonec je vytvořen strategický dashboard, který sleduje klíčové ukazatele výkonu, pro podporu obchodních rozhodnutí.

**Klíčová slova**

Business Intelligence, e-mailový marketing, tok dat, strategický řídicí panel

**Summary**

This diploma thesis deals with the topic of designing business intelligence for sales team specifically small-scale size email marketing sales team.

The introductory part contains the objectives of the thesis and the methodology by which the goals will be achieved. The theoretical part is mostly dedicated to identifying business intelligence applications for small sizes email marketing companies from researches and works of literature which briefly discuss email marking KPIs, data handling and email marketing dashboard for business decisions.

The practical part of this diploma thesis defines KPIs based on the email platform results. Then design data flow diagram that can express the data flow, starting from finding the relevant email address to analyzing the result of the email platform. Show the input and output relationship of a data.

Then by using the historical data, design efficient email generating architecture and implement it using python. Finally, to give an analysis that can help for decision, develop a Strategic dashboard that tracks key performance indicators.

**Keywords**

Business Intelligence, Email Marketing, KPIs, Data Flow, Strategic Dashboard

**Contents**

# 1  Introduction

The field of digital marketing continues to ripen. An explosion of technology over the last two decades; from the emergence of a connected digital world with remote access to a mobile-heavy, device-responsive, persona-driven, data-collecting e-commerce  behemoth, both a marketer's dream and a nightmare have created. (Sterne, 2000) Electronic mail has been used all the time to generate prosperity and challenges for organizations that, until recently, have adopted the digital way of life. Email technology has seen significant advancements in communication capacity, corporate acceptance, and diversity within the industry over the past few years. (Fahey, 2016)

Once again, email marketing has emerged as the highest-rated marketing channel or discipline for return on investment from the Email Census, with almost three-quarters (74 percent) of client-side marketers ranking it as either' excellent' or' good' in this context. Just under one-third (30 percent) of client-side marketers rate email as excellent for ROI, while another 44 percent classify email marketing returns as decent. (2018 Email Marketing Industry Census, 2018)

Marketers have to choose between literally hundreds of email service providers. Some specialize particularly on the vertical industry; others on activated email functionality, and others on sales-assisted messaging. If you feel your current provider is limited, this may be because you've outgrown their capabilities. Or maybe you were a mismatch from the start. (White, 2018)

According to the previous Litmus study, more than 52 percent of marketers says their email systems are either under-staffed or extremely under-staffed. Such projects face an uphill battle because there is a strong correlation between the success of staffing and the system.

For example, marketers who describe their email programs as "very well-resourced" are 7 times more likely to say their programs are "very successful," according to Litmus research, Staffing for Email Marketing Performance executive summary, than those with "adequately resourced" programs.

Email marketing resourcing at almost every company is almost certainly an issue that needs to be addressed, there are never enough hours in the day for all marketing demands. (White, 2018)

Therefore, this thesis works mainly targeted small-scale email marketing companies and design a business intelligence to underpass above mentioned email marketing challenges. It will present step by step customized solution by defining KPIs, designing a dashboard which tracks defined KPIs and managing historical data for new email Lead generation process.

# 2 Objectives and Methodology

## 2.1 Objectives

The main objective of this thesis is to design Business Intelligence to increase the performance of the Email marketing sales team.

The partial goals of the thesis are:

- Identify the key performance indicators of Email marketing.
- Design data flow charts
- Design structure of data to use historical data for the new email generation.
- Design efficient Email generating architecture.
- Design Strategic dashboard based on Email status report.

## 2.2 Methodology

Email marketing uses email as the main communication medium to reach customers. To make a sale, we have two general requirements, finding the relevant person's email address and convince a customer to buy (Customer insight). Each of the stated objectives and the following methodology are trying to fulfill one of the above requirements. Therefore, the following methodologies are applied to fulfill the objective and goal of thesis.

To achieve the specified objectives, the first task is identifying KPIs based on the email platform results. Email metrics can be used as performance indicators. According to researches and works of literature on Email marketing, the KPI will be specified.

In the second part, design data flow diagram that can express the data flow of existing system, starting from finding the relevant email address to analyzing the result of the email platform. Show input and output relationship data while we are going from one stage to the other.

The current trend of small-scale email marketing companies did not use historical data to do analysis on it and to generate a new email address. To use the data resource efficiently,

on this step we will design Entity relationship diagram to keep all historical processed information (results) and use it for future analysis. For historical data design entity relational diagram is used with Chen ERD notation model.

Since there is limited time to sell a product or deliver a service, thousands of emails should be generated to reach our customers in the specified time interval. Continuing the above ER diagram design for historical data then on the next step we will design data flow diagram that can generate new email address by using historical data as an input. Then Implement the data flow diagram will be done by using python excel libraries which helps to generate emails from historical data and lead detail input.

From the two main types of notation used for data flow diagrams are Yourdon-Coad and Gane-Sarson, Gane-Sarson notation is used for the data flow diagram designs.

Finally, to give an analysis that can help for the decision, develop a Strategic dashboard that tracks key performance indicators.

# 3 Literature Review

## 3.1 Email marketing

Electronic marketing delivers a promotional message directly to a group of people via email. Any email sent to a prospective or current customer could be called email marketing in its broadest sense. It usually involves sending advertisements, requesting company, or soliciting sales or donations via email, and is intended to create loyalty, trust, or brand awareness. You can do email marketing to either the lists sold or the current customer database. In general, the term is used to refer to: (Mullen, 2011)

- Sending email messages with the purpose of enhancing the relationship of a merchant with its current or previous customers, to encourage customer loyalty and repeat business.
- Sending email messages with the purpose of acquiring new customers or convincing current customers to purchase something immediately.
- Adding advertisements to email messages sent by other companies to their customers.

### 3.1.1 Steps to Executing an E-mail Campaign

There are nine measures to effectively run an e-mail campaign. Such nine moves should be best e-mail campaign practices. When closely followed a marketer should expect great performance. (Email marketing, 2018)

The nine measures are as follows, and will be addressed in as follows (Email marketing, 2018):

- Strategic planning
- Definition of list
- Creative execution
- Integration of campaign with other channels
- Personalization of the message
- Deployment
- Interaction handling
- Generation of reports

- Analysis of results
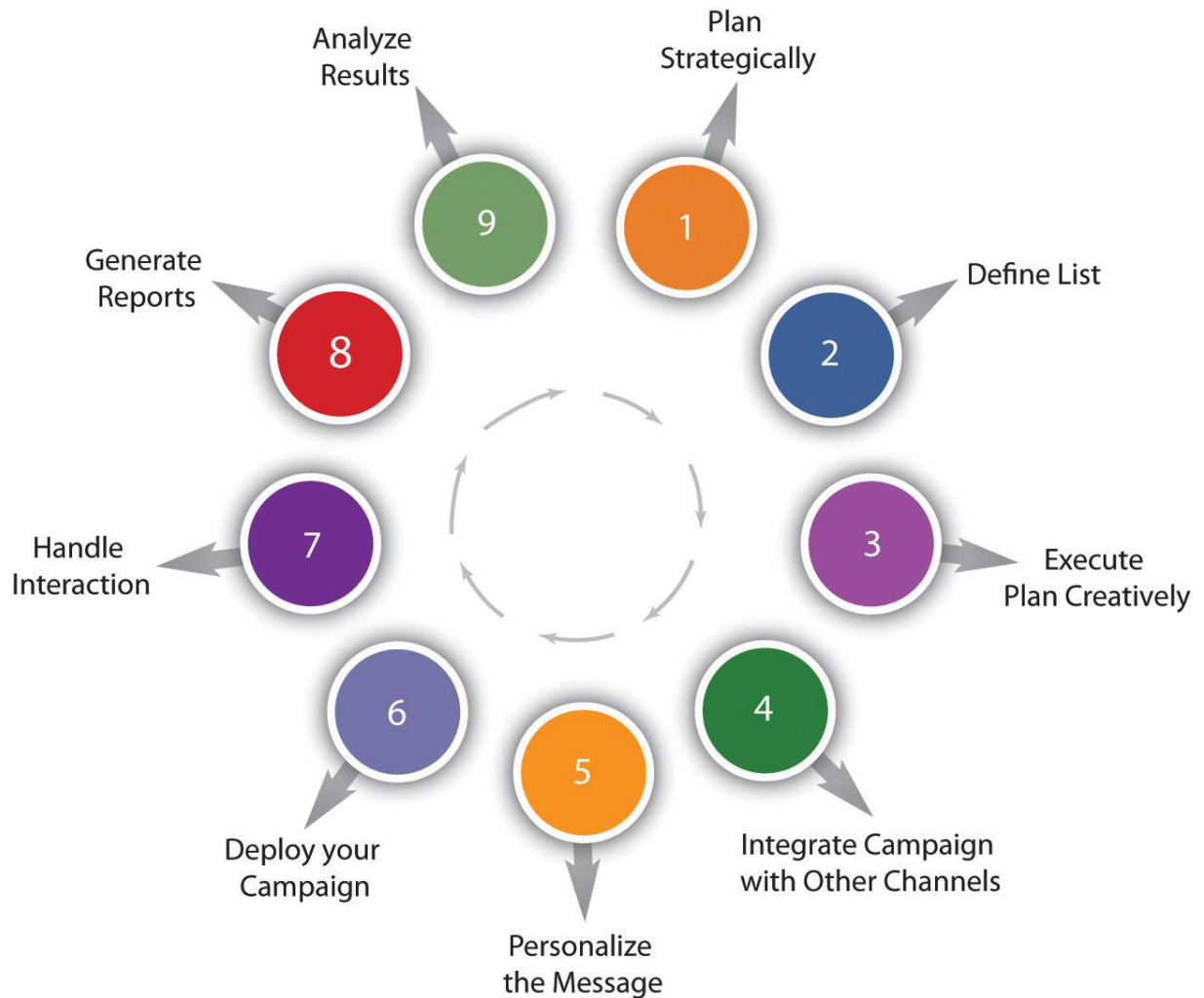


*Figure 1: Steps to Executing an E-mail Campaign* *(Email marketing, 2018)*

### 3.1.2 Digital marketing evolution

The field of digital marketing continues to ripen. The explosion in technology over the last two decades; from the emergence of a connected digital world with remote access to a mobile-heavy, device-responsive, persona-driven, data-collecting e-commerce behemoth, both a marketer's dream and a nightmare have created. Electronic mail has been utilized the entire time equally creating success and hardships for organizations that adopted the digital way of life, until recently. Email technology has seen significant advancements in

communication capacity, corporate acceptance, and diversity within the industry over the past few years. (Electronic commerce: A managerial perspective, 2002)

A delicate push-and-pull balance in digital marketing strategies has consistently placed email as the medium of choice for data-driven companies that want structured demand generation and sales programs. Currently, inside their transactional phase, email powers 90-100 per cent of communications for e-commerce companies. (Chaffey, 2019) Consumer behavior has changed as online communications diversify, use of inboxes has decreased with the use of social media and text messaging, but email communication is still in the center of business-to-consumer interaction. From the outset, email has been statistically a significantly more effective way of acquiring and retaining customers than any other digital medium; survey data showed a 40 percent higher rate of customer acquisition than social media. (Fahey, 2016)

US customer-acquisition growth by channel,
% of customers acquired
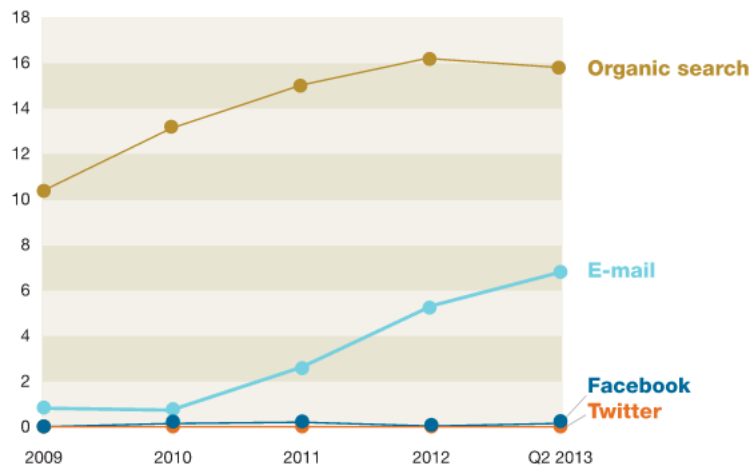


Source: Custora, *E-Commerce Customer Acquisition Snapshot,* 2013; McKinsey iConsumer survey, 2012

*Figure 2: E-Commerce customer Acquisition survey 2013 (Fahey, 2016)*

### 3.1.3 Email marketing growth worldwide

Once again, email marketing has emerged as the highest-rated marketing channel or discipline for return on investment from the Email Census, with almost three-quarters (74 per cent) of client-side marketers rating it as either' excellent' or' good' in this context. Just under one-third (30 per cent) of client-side marketers rate email as excellent for ROI, while another 44 per cent classify email marketing returns as good. (2018 Email Marketing Industry Census, 2018)

- Exceptional performance in email marketing is getting harder, however, as competition intensifies. Fewer respondents than last year rate their company's email campaign performance as' excellent' or' nice' (48% overall, down from 52% last year and a high of 56% in 2016), while more respondents classify email performance as' average' or' bad' (52%, up from 48% in 2017 and 44% two years ago). (The importance of digital marketing. An exploratory study to find the perception and effectiveness of digital marketing, 2013)

- Although email continues to outperform business value, the gap between the percentage of email marketing budget spent and the percentage of channel revenue is slowly narrowing. The average share of the email budget stayed at 15%, the same percentage as in 2017 and 2016. The average share of email revenues, however, is 19 per cent, down three percentage points from last year.         (Kaufman, 2014)

Industry growth for email marketing has been the trend year-over-year. The increase in the number of email accounts generated worldwide is forcing the industry to develop offerings. In 2013, approximately 3.9 billion accounts were registered, ramping up until 2017 where experts believe that 4.9 billion email addresses will be online. User email accounts currently sit about 76 per cent of the attribution worldwide, placing business-to-consumer marketers in front of massive potential audiences. The sector is far from dead. (Fahey, 2016)

## Email Account Growth Worldwide

*4.9 Billion Email Accounts Worldwide*

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Consumer | 2970 | 3142 | 3331 | 3548 | 3782 |
| Business | 929 | 974 | 1022 | 1078 | 1138 |

■ Business Email Accounts (Million)   ■ Consumer Email Accounts (Million)

*Source: The Radicati Group, Inc , Email Statistics Report 2013-2017*
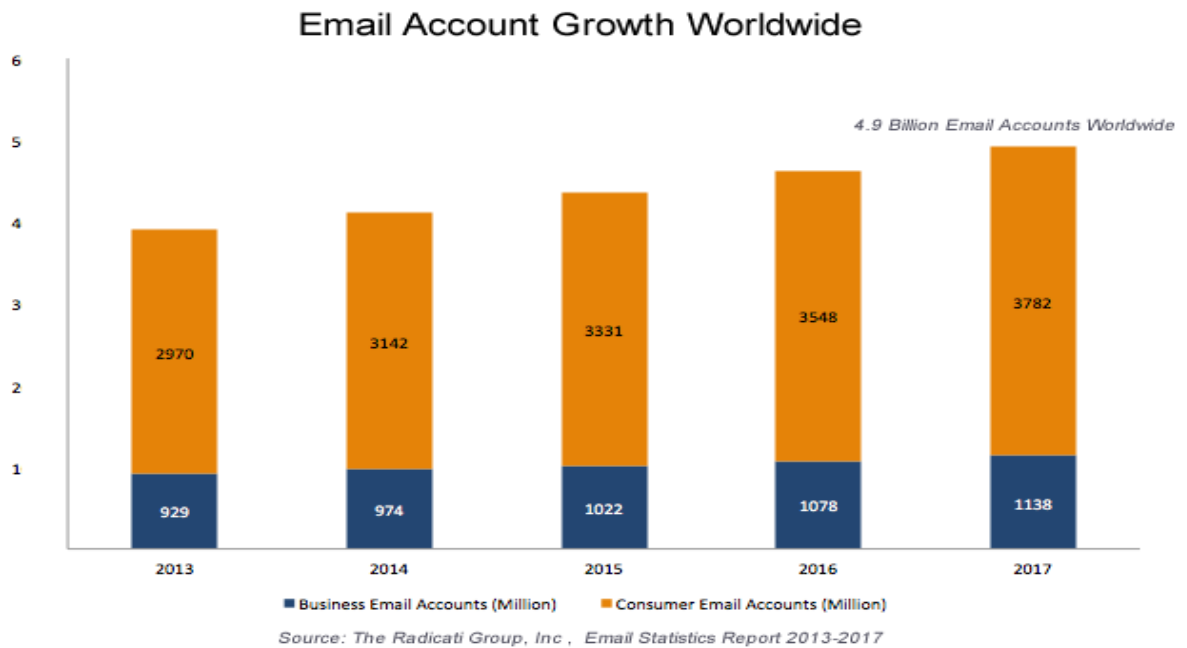
*Figure 3: Email marketing growth worldwide (Kaufman, 2014)*

Marketing is perhaps one of the most interesting issues in business relationships as producers and consumers could not trade without discovering one another. This is the reason why the marketing tactic helps people meet eliminators of their needs. Internet Marketing is a type of targeted marketing which helps websites by increasing the number of visitors and by introducing products or services via the Internet. (Chaffey, 2009) Marketing is a story that used to encourage and convince people to trade. There are two basic methods of marketing which are traditional and modern. Traditional marketing used to speak increasingly attracting clients to buy their goods or services. Modern marketing is the new method of using modern facilities and technology to draw customers. E-marketing is a term referring to the use of the Internet / Web and associated information technologies for marketing purposes. (Krishnamurthy, 2006).

E-marketing is a new form of marketing that marketers use to reach their business goals using new factors such as electronic media, digital technology and the Internet. One of the forms of direct marketing is email marketing which exploits electronic tools to deliver business

messages to listeners. Quality in small businesses depends on maximizing the revenue while reducing the costs. Email letting people do both. A good campaign for email marketing will help folks: (Salehi, 2012)

- Increase their Sales Conversion

That means how goods or services are, so tourists would not be quick to buy the product at the first visit of the website.
- Generate Repeat Sales

As we know the price of advertising repetition is too high, this price will be decreased with email marketing and advertisements will be subsequently sent.
- Up-sell and Cross-sell Products and Services

We will launch the latest goods or services by email while updating.
- Gain Valuable Feedback from Visitors

By using email as a feedback tool, we can adapt and develop business to what the market wants.
- Drive Web Users to Make Offline Purchases

If we run a traditional offline business, we can use email marketing to push through the door to the foot traffic. (Salehi, 2012)

Comparing all forms of marketing, Internet Marketing is a more cost-effective and easier way to get directly to the customer and is the ideal way for companies to advertise locally or globally. Therefore, when compared; all marketing styles will help traders and marketers do business. Each has both advantages and drawbacks. (Chaffey, 2009) Consumers can see and touch the real goods or service in traditional marketing, but the sphere of impact is small, while using e-marketing will go beyond the borders and bring goods and services to internet users ' demographics. It would also be more chipper to use the internet, quicker and more convenient for marketing. Around the benefits of e-marketing are far greater than the benefits of traditional marketing. (Salehi, 2012)

### 3.1.4 Email marketing in Small Business Enterprises (SBE's)

Small Business Enterprises (SBEs) play a major role in the global economy and are recognized as one of the major contributors to economic, development and growth in employment. According to Mulhern (1995) 99 percent of all European companies are small and medium-sized enterprises (SMEs) and from 1985-1995 66 percent of European employment was created. This is also true in Less Developing Countries (LDC's), as small businesses make up a high percentage of the total number of businesses. (Reid, 2007)

No matter how important small businesses are to every economy, it is found that identifying it has always been a difficult thing to do. Accordingly, there is a little consensus on what constitutes a small business between academics, professionals, financial institutions and government agencies. Based on this, small businesses in different parts of the world had been described in deferent ways according to national and local needs. (Down, 2010) Table 1 offers a description of the official or most common SBE meanings used in some countries around the world.

| Country | No. of employees | Other criteria |
|---|---|---|
| USA | Under 100 | Less than $ 5 million annual sales |
| European Union | 10 to 49 | Annual turnover or global balance less than 10 million Euros<br><br>+<br><br>Independence<br><br>(Not exceeding 25% of the capital or voting rights withheld by one or more companies (or public bodies) which are not themselves SME's) |
| Australia | Under 20 | None |

| Canada | Under 500 in mfg and 50 in services | Less than $ 5 million annual sales |
|---|---|---|
| India | None | Total investment (not exceeding 10 million Indian Rupees in industrial enterprises and 1 million in service enterprises) |
| Mexico | Under 50 | None |
| Thailand | Under 200 in labour intensive | None |
| Turkey | 10 to 49 | None |

*Table 1: Criteria of defining SBE's adapted by some countries (El-Gohary, 2008)*

It is noted from table 1 that the number of employees is the most frequently used factor in most countries in deciding the type of SBE's. It also noted that there is a lack of agreement on what constitutes a small business, which is why a common definition is strongly required for Small Business Enterprises. (El-Gohary, 2008)

According to previous Litmus study, more than 52 per cent of marketers say their email systems are either under-staffed or extremely under-staffed. Such projects face an uphill battle, because there is a strong correlation between the success of staffing and the program. (Forecasting: issues & challenges for marketing management, 2005)

For example, marketers who identify their email programs as "very well-resourced" are seven times more likely to say their programs are "very successful" than those with "adequately resourced" programs, according to our executive summary of Staffing for Email Marketing Performance.

"First of all, brands, email marketing services are almost certainly an issue that needs to be addressed," "There's never enough hours in the day for all demands on marketing." (White, 2018)

## 3.2    Email marketing challenges

Marketers want to reach their full potential through their email marketing platforms, but there's something to hold them back. Or rather, there's a whole range of things that hold them back.

Litmus was questioning hundreds of advertisers about the biggest challenge facing their email program. While there was insufficient communication between the email program and other marketing systems, the other seven email marketing issues that we asked about were very similar to that. (Aaker, 2010)
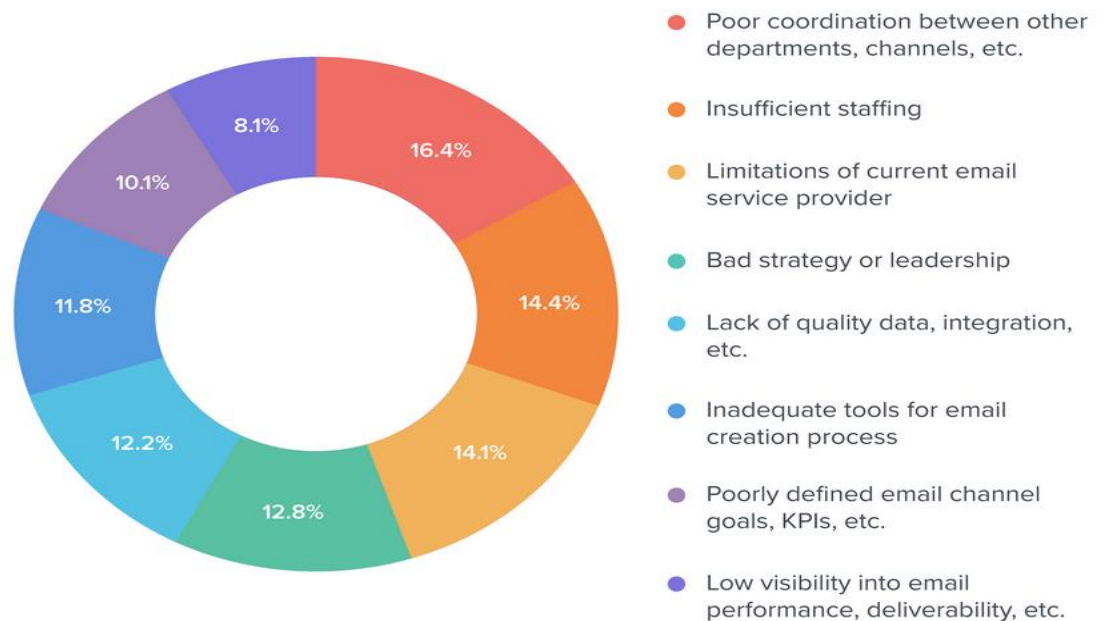


*Figure 4: Challenges facing email marketers in 2018 (Aaker, 2010)*

### 3.2.1    Limitations of current email service provider

Marketers have to choose between literally hundreds of email service providers. Others specialize particularly on vertical industry; others on activated email functionality; and others

on sales-assisted messaging. (Email marketing: using email to reach your target audience and build customer relationships, 2000)

If you feel your current provider is limited, this may be because you've outgrown their capabilities. Or maybe you've been a mismatch from the start.

To overcome the challenge of email marketing. First, consider exploring the possibility of modifying ESPs, but remember that this is a major undertaking that has risks on its own. Are the risks of staying larger or smaller than switching to a new platform? (Electronic mail communications system with client email internet service provider (ISP) polling application and related methods, 2010)

Additionally, consider accepting an external ESP that provides features or a specialization that you are lacking from your current provider. According to our 2017 State of Email Workflows survey, 46 per cent of brands use two or more email service providers. Four or more ESPs are used by over 7 per cent.

According to our survey of over 3,500 marketers here is a list of the most common ESPs: (White, 2018)

**Email Service Providers Used**

Which email service provider(s) or platforms does your company currently use to send its marketing emails? (Those used by 1%+ shown.)

2,196 respondents

Helped by acquisitions, the top 10 email service providers used by our respondents now have nearly 58% market share, up from just shy of 56% in 2015. However, there continues to be a vibrant long-tail of smaller ESPs to serve brands.
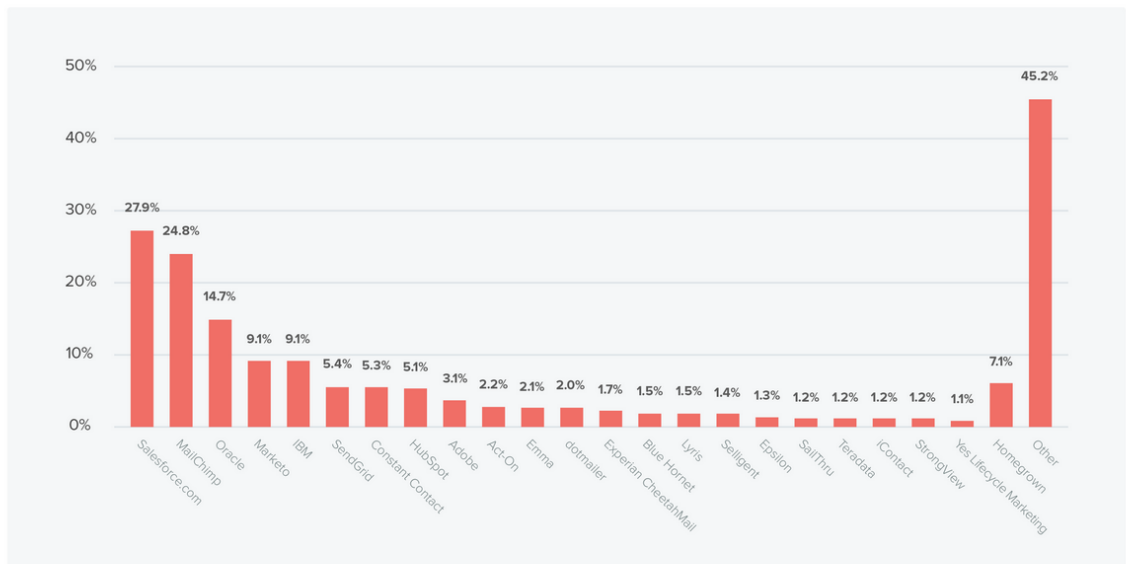
**Source:** Litmus' 2017 State of Email Survey, which was completed by more than 3,500 email marketing professionals between Dec. 13, 2016 and Jan. 31, 2017

*Figure 5: Survey Email service providers used (White, 2018)*

### 3.2.2    Poorly Defined Email Channel Goals and KPIs

What's worse than not having achieved your goals? Hit your goals but don't achieve because you set the wrong targets and the wrong key performance indicators.

The New Year's Mark is a fantastic time for email marketers to step back and redefine, or perhaps even set, channel targets and KPIs. How can the lens grow toward a tiered macro view beyond microchannel goals and metrics like marketing objectives, corporate goals, consumer metrics and brand metrics? (Rautanen, 2012)

To conquer the obstacle of email marketing. First, take a look at the metrics you actually use as KPIs. What are the forms of metrics? Are they mainly metrics at the campaign level, including openings and clicks? Is your company looking at email channel safety measures like inactivity and deliverability levels that are major indicators? Are you looking at a lifetime value for a client or subscriber? (Cichocki, 2009)



## Email Metrics Matrix

|  | Email-centric | Business-centric |
|---|---|---|
| **Customer-Level** | **Subscriber Optimization**<br>• subscriber lifetime value<br>• subscriber RFM (recency, frequency, monetary)<br>• length of email inactivity | **Business Success**<br>• customer lifetime value<br>• customer RFM (recency, frequency, monetary)<br>• length of customer inactivity |
| **Channel-Level** | **Email Channel Health**<br>• hard and soft bounce rates<br>• spam complain rate<br>• delivered rate<br>• inbox placement rate<br>• inactivity rate<br>• open & click reach<br>• engagement reach<br>• acquisition source metrics<br>• metrics per ISP<br>• list size & growth rate<br>• list churn & list churn rate | **Email Channel Success**<br>• email marketing revenue<br>• revenue per email<br>• revenue per subscriber<br>• sales conversions & conversion rate<br>• email marketing profit<br>• email return on investment<br>• incremental lift across all channels from email<br>• lead generation |
| **Campaign-Level** | **Email Campaign Optimization**<br>• unique & total opens<br>• open rate<br>• unique & total clicks<br>• click rate<br>• click-to-open rate<br>• mobile/desktop opens & clicks<br>• mobile/desktop opens & click rates<br>• engagement rate (opens or clicks)<br>• spam complaint rate<br>• unsubscribes & unsubscribe rate<br>• shares & share rate | **Email Campaign Success**<br>• email campaign revenue<br>• email conversions & conversion rate<br>• post-click metrics (browsing, carting, etc.) |

*Figure 6: List Email Metrics matrix (Cichocki, 2009)*

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### 3.3 KPI of email marketing

The next thing email marketers need to do is find out which indicators to track to assess how you're going towards that target.

In your email marketing campaigns, you should pay attention to the metrics. We're going to start with the metrics every email marketer should be monitoring and then we're going to look at how to connect those metrics to your specific objectives. (Kolowich, 2016)

1) Clickthrough Rate

Clickthrough rate (CTR) is probably the first response you'll get when you ask an email marketer what metrics they're following. It's what I like to call the "day-to-day" email marketing measure, because it helps you to quantify success easily for every single email you send. From there it is possible to track how the CTR changes over time. (Regelson, 2006)

CTR is also often used to assess the outcomes of A / B tests, since these tests are often designed to find new ways to get more clicks in your emails. For all email marketers to be monitoring, clickthrough rate is a very important metric, as it offers you direct insight into how many people on your list connect with your content and are interested in learning more about your brand or deal. (Dave, 2010)

2) Conversion Rate

Normally the next step after an email recipient has clicked on your email is to get them to convert on your offer— in other words, to take the action that your email has asked them to take. So, if you're sending an email to give your followers the chance to download, say, a free ebook, you'd find a conversion to anyone who actually purchases the ebook. (Mullen, 2011)

Because your conversion meaning is directly linked to the call-to-action in your newsletter, and your call-to-action should be directly linked to the overall goal of your email

marketing, conversion rate is one of the most important metrics to determine the extent to which your goals are being achieved. (Rautanen, 2012)

You'll need to combine your email platform and Web analytics to calculate the conversion rate on your emails.

3) Bounce Rate

Two types of bounces are possible to track: "hard" bounces and "soft" bounces.

Soft bounces are the result of a temporary issue with a valid email address, such as a complete inbox or a server problem for the receiver. Such emails may be kept for delivery by the recipient's server once the problem is resolved, or you may try to re-send your email to soft bounces. (Budac, 2016)

Hard bounces originate from a null, deleted, or inexistent email address, and those emails will never be delivered successfully. You can delete hard bounce addresses from your email list immediately, because Internet service providers (ISPs) use bounce rates as one of the key factors in determining the credibility of an email sender. Getting too many hard bounces will make an ISP appear like a spammer in your company's eyes. (Aaker, 2010)

4) List Growth Rate

Apart from the call-to-action metrics (CTR, conversion rates), you'll also want to keep tabs on growth and loss in your catalog. Of course, you will continue to broaden your list with the goal of increasing your scope, growing your audience and placing yourself as a leader in industry thinking. Yet believe it or not, the email marketing list is inevitably diminishing, and it expires by around 22.5 percent every year— which means it is more critical than ever to pay attention to that your subscription list and maintaining it at a healthy size. (Ramos, 2016)

5) Email Sharing/Forwarding Rate

The rate at which your email recipients forward or exchange your email with others may not seem all that important, but it is probably one of the most important metrics you ought to be following. (Sahni, 2018)

Why? For what? Because the way you create new connections is this. The people on your mailing list are in your database already. And, while conversion remains a primary focus, it doesn't help attract new leaders. Encourage your readers to send your email to a friend or colleague if they find the content useful and start tracking how many new people that can be added to your database.

Keep a close eye on your sharing level to figure out which types of articles and deals are most likely to be exchanged, and use that information when planning future email campaigns. (Chaffey, 2019)

6) Overall ROI

As with every marketing channel, the total ROI of your email marketing should be calculated. If you haven't already set up an SLA program by which you assign different values to different types of leads based on their probability of generating revenue for your company. (Pavlov, 2008)

How many of those kinds of leads have you created through email marketing? How does this turn into earnings? True income? These are the types of metrics that will help you illustrate how important email marketing is to your manager and sales team as a tool that produces actual, tangible results. (Ramos, 2016)

**How to Know Which Email Metrics to Track, Based on Your Goals**

Your email marketing target may differ greatly from the goals of another business like yours and may even vary over time within your own company. But again, before you begin (or continue) to send and calculate your emails, it's important that you determine exactly what you're looking to achieve with your email marketing. (Ratcliff, 2014)

Here's how you can match with key metrics your specific goal.

Subscriber List Growth Rate

If you're focused on growing the top of your funnel— bringing more visitors to your site, signing up more blog subscribers, getting more people to use your free tools, that sort of thing— your target is likely to increase your subscription list. Your emails will likely contain calls-to-action such as "Subscribe to Our Blog" or "Join Our Weekly Email List." So, of course, your subscription list's growth rate is the most important metric you can monitor for this target. (Ratcliff, 2014)

Unengaged Subscribers

Just as you want your subscribers to track and expand, it's also important to keep an eye on your unengaged subscribers— and consider removing them entirely from your list. Why? For what? Since sending emails to people who aren't engaged with your emails (known as "graymail") will affect your email delivery overall. Email customers may get tipped off by low engagement rates and deliver email directly to the "junk" folders of recipients from known-graymail senders, meaning your emails will be sent and delivered theoretically, but not actually seen. (Cichocki, 2009)

Number of New (or Total) Leads Generated

You might want to concentrate on rising lead generation, instead of concentrating on subscribers. If this is the case, you can send emails providing lead generation material, in other words, content requiring the user to fill in a lead capture form to access it.

If your email marketing target is lead gen, you can track how many leads you collect each day, and every month. Depending on your preferences you may decide to focus on any leads created, or only new ones added to your database. (Salehi, 2012)

Lead-to-Customer Conversion Rate

Finally, let's presume you want to concentrate more on your marketing funnel's middle / bottom and transform more of your current leads into customers. If that's your goal, the emails you send will likely provide more closely related content to your company and your product or service. Your calls-to-action may include "Get a Demo," "Play a Video of Our

Product in Action," or "Start a Free Trial." If this is your goal, your lead-to-customer conversion rate should be monitored. (Email marketing, 2018)

You'd be shocked, as simple as this all seems, how many email marketers decide their targets and then don't bother monitoring their success against them. Be sure you are able to monitor how closely you progress towards your target at any point during the month, and look carefully at any shifts in the month to month of these indicators. (2018 Email Marketing Industry Census, 2018)

### 3.3.1    Unreliable Email Marketing Metrics

It is worth mentioning that there are also a few email marketing metrics which are not worth closely monitoring. (Kolowich, 2016)

Open Rate

What Is: The percentage of email recipients opening a given email address.

Many email marketers also seek to refine their subject lines for higher open rates. While this can have a positive impact and more opportunities are a great thing to be focusing on, then, improving their clickthrough rates. (Electronic commerce: A managerial perspective, 2002)

The truth is, open rate is, for a few reasons, a very deceptive metric. More notably, an email is only counted as "opened" if the recipient receives the images contained in the message as well. And a large percentage of your email users probably have activated image-blocking on their email client. This means they will not be included in your open rate even if they open the file, making it an outdated and ineffective measure for advertisers because it underreports the true numbers.

If you use this as a comparable metric, you can get some benefit out of open rate as a metric. For example, when you compare the open rates of email sending this week to last week's email sending (both to the same lists) it could give you some insight as the variables are somewhat regulated. (Aaker, 2010)

Unsubscribe Rate

As with open rate, the unsubscribe rate is not a reliable picture of your email list's safety. Many subscribers who are sick of getting your brand's email messages won't bother going through the structured unsubscribe method. They're just about to stop opening, reading and clicking on your post.

That's why measuring subscriber engagement by clickthrough rates and conversion rates is far more successful. From there, you can keep an eye out on uncommitted subscribers so that at some point you might consider removing them, as we went past. However, monitoring your monthly rate of un-subscription is helpful in estimating your overall rate of growth in the list, so keep an eye on that periodically. (Budac, 2016)

The lower ones. Be smart about which metrics you are monitoring, and make sure you are able to measure your individual email success efficiently, your email list's wellbeing, and your progress towards your overall objectives. If you can decide each one of these, you're on the right track for more successful email marketing.

Relying on superficial metrics without considering the bigger commercial picture (Kolowich, 2016)

> • While more marketers claim they use metrics such as conversion rates and email earnings than last year, many companies rely primarily on the most readily available performance reference points, such as click-through rates and open rates, which do not fully reflect the commercial effect of the email marketing channel.

> • The proportion of customer-side marketers using the click-through rate (CTR) as a measure for evaluating the success of their email campaigns remained at 91 percent, while 78 percent of responding companies now report open rates, down from 80 percent in the previous year.

> • In the ability to measure the true performance of email marketing as a medium, the inability to use more strategic measures–and multi-touch attribution models–impacts. More than two-thirds of client-side respondents (67 percent) say they are monitoring the conversion rate, up from 62 percent in 2007. However, only a quarter (25 per cent) of businesses report

earnings per email, up from last year's 23 per cent. (2018 Email Marketing Industry Census, 2018)

## 3.4 Data in email marketing and Lead generation

### 3.4.1 Lack of quality data and integration

Data integration is already a huge challenge for email marketers, but it will become the problem that distinguishes world-class marketing organizations from the rest of the pack in the next few years, (Six Spins on Six Holiday Email Marketing Traditions, 2016)

When we gradually move towards using machine learning and AI for analytics, segmentation, content, testing, and other processes and activities relevant to email marketing, data is everything, he says. "Competitors who master data integration will be left behind by those email marketing organizations that are unable to feed wide-ranging, comprehensive, recent, accurate and meaningful data into the machines." (Redman, 2001)

To conquer the obstacle of email marketing. You don't have to do a project with destructive, high-risk data integration, where you tear out and upgrade several devices, says Watson.

"Be creative but find a route in smaller steps to go forward," he says. "So often the only way to create the perfect system seems to start from scratch. The risk and time to implement such an approach, however, means it is better to be prepared to consider compromises that reduce risk and enable faster forward movement. Evite custom creation, search for simpler solutions and get the best fit off the shelf— not perfect fit.

The enemy of good enough is ideal once more. "It would be nice to require every bit of data to be used for marketing, but it will be much easier and faster to produce a condensed dataset

of just key data," he says. "Stop trying to be perfect but go with realistic instead." (Breur, 2009)

Process and culture can be just as much of an integration impediment as technology, says McDonald, who suggests three measures to get buy-in on the need for better data integration: "First, educate management and other departments on the value of data and its basis for the future of AI and machine learning. Second, understand the type of data that is really important to achieving your consumer, company, and marketing goals — and where and in what form these data are available. (Redman, 2001)

"And third, consider a marketing initiative that you can work on as a test case with other departments and networks to illustrate what both of the challenges are, but also what is possible to succeed," he says. "Consider creating scrum teams and getting people to sit together or at least have daily lunch together and try to break down barriers. Set mutual goals and show other teams how it helps the entire organization by offering their data and services, not just email marketing.

Use this project as a design proof to get the buy-in to implement broader improvements, systems, and processes across departments and networks. "It's not going to be easy and it's going to take 18-24 months," he says, "but ultimately it's going to be changing game for your organization." (Sharda, 2013)

### 3.4.2 Inadequate tools for Lead generation process

Development of e-mails is difficult and there are many situations where things can break down. When we looked at 20 Things Successful email marketing programs do, successful programs use comprehensive checklists and produce email briefs at much, much higher rates than less successful programs for every email they develop. We also made the list with a year-round email quality calendar. (Ramos, 2016)

It's easy to see systems not getting enough time for A / B research, using dynamic content, and making animated GIFs in the sense of that inefficiency.

To address this email marketing challenge, there are many resources that can help email marketers not only speed up their manufacturing process but incorporate quality control steps. You will read about many of them and how often they are used in the State of Email Workflows study for Litmus 2017. Use that report's results to benchmark the company's email workflow, and advocate for new tools and process improvements to make it more efficient. (White, 2018)

**LinkedIn Search for company domain and Leads**

LinkedIn Lead Quest, LinkedIn hands down one of the strongest lead generation platforms. LinkedIn is a vibrant social network overflowing with daily users-to be exact, over 500 million of them. And it has over 9 million company profiles from more than 200 countries. (Linkedin, 2020)
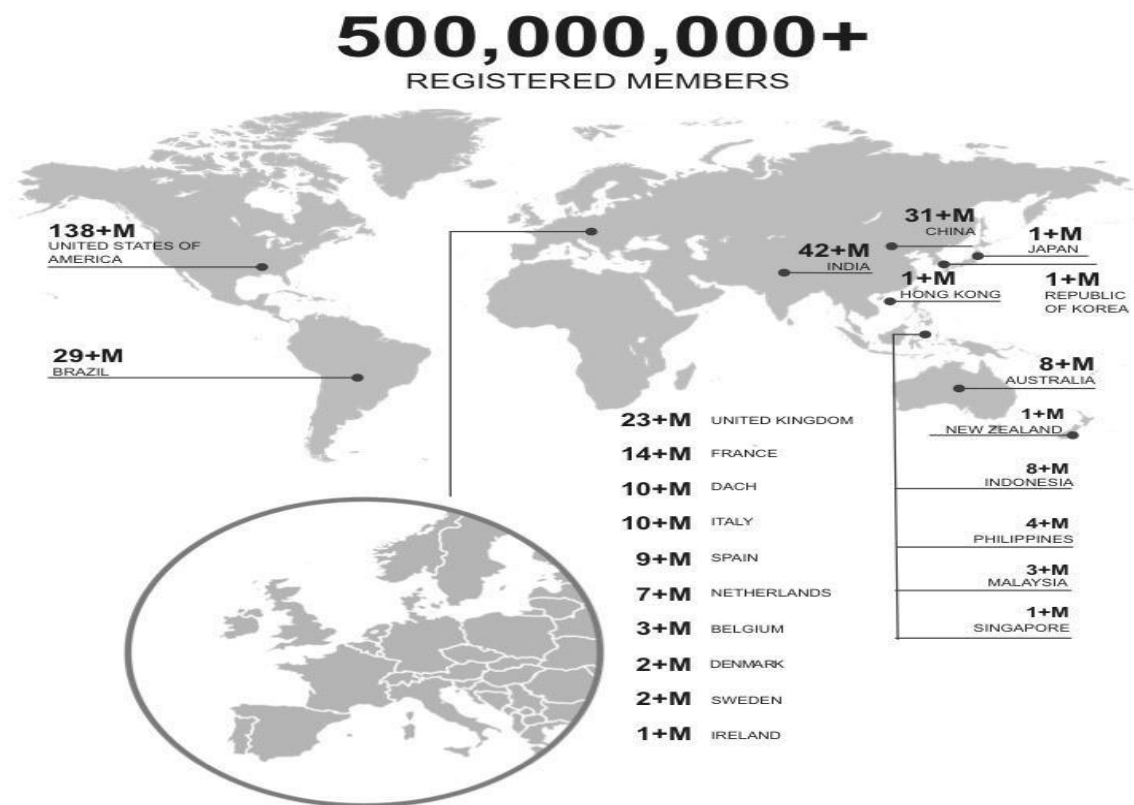


*Figure 7: LinkedIn Lead Search statistics (Neil Patel, 2019)*

This form of interaction helps explain why LinkedIn produces more leads than blogging, tweeting or posting on Facebook, which in turn leads to some of the highest conversion rates among any of the major social media sites.
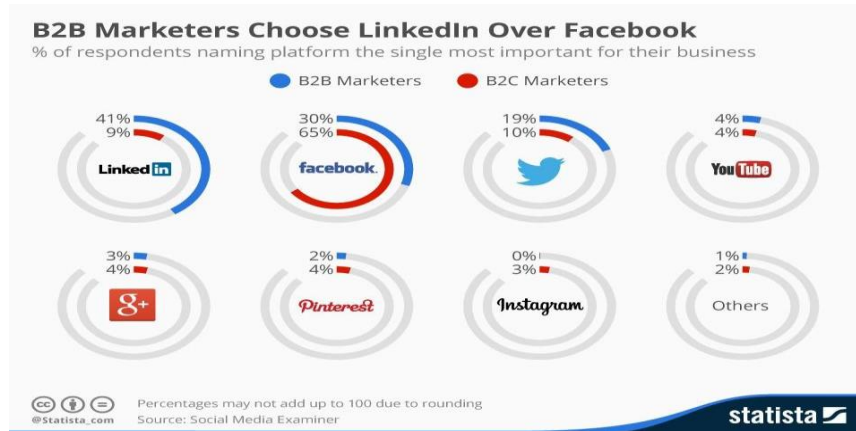


*Figure 8: Social media B2B and B2C comparison (Neil Patel, 2019)*

After running a search filter in Sales Navigator, you can filter your results on sales navigator using a variety of filters in the left rail of the page.

- Leads and Accounts: Results are automatically divided for both individuals and organizations that suit the search parameters. To view people, click Leads in the top left corner of the page, and click Accounts to view company. The results page shows 2,500 links.

• The latest automated Account search recognizes if you enter a company name in the search keyword and shows relevant results at the top of the list, followed by the list of options for the client.

- Keywords: You must type in keywords that you want to search by in the Keywords box above the filter list. See the search filters suggested that change dynamically as you type, interpret your queries, and broaden your search.

- Exclude saved leads: Selecting Exclude saved leads from the search results will exclude any of your saved leads from the filter list. This option is available only for filter segment Leads.

- Exclude viewed leads: Selecting Exclude viewed leads from the filter list will exclude any of the leads you see from your search results. This option is available only for filter section Leads.

- Exclude contacted leads: Selecting Exclude from the filter list contacted leads will exclude any of your contact leads from the search results. This option is available only for filter section Leads.

- Search within my accounts: Selecting Search inside my accounts just pulls the search results from the companies that you saved. This option is available only for filter segment Leads.
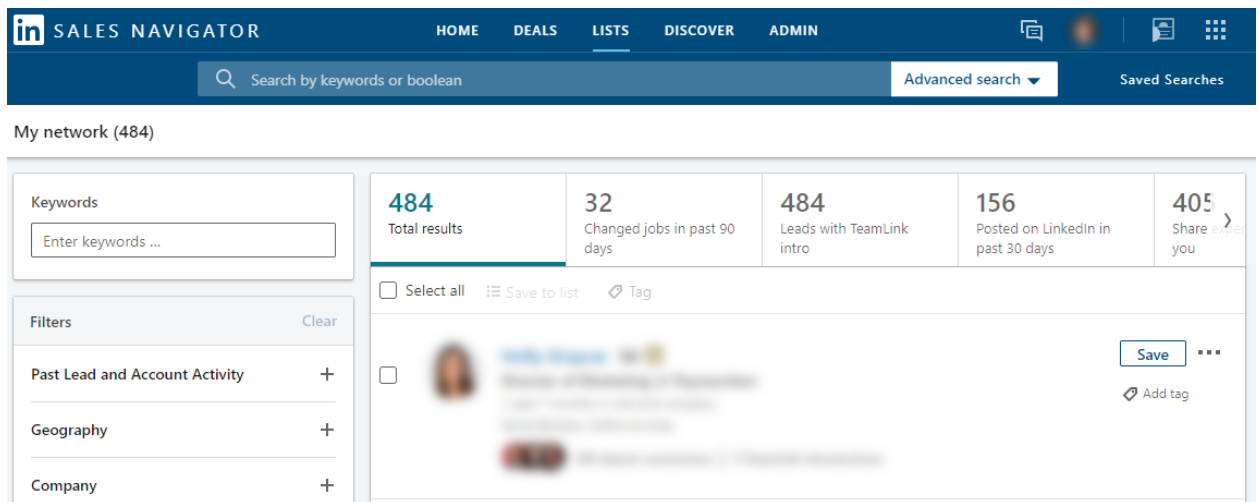


*Figure 9: LinkedIn sales navigator (Linkedin, 2020)*

Left rails filters:

- Geography: In the Geography filter, it is possible to select the countries that match your search parameters.

- Custom lists: In the Custom lists filter, it is possible to select by filtering your lead searches within your existing lead lists.

- Company (current, past, current not past, and past not current): This specific filter shows you leads in companies that match your search parameters, and are sorted as Current, Past, Current or past, and Past not current.

- Industry: In the Industry filter, it is possible to select the industry within which you wish to find leads.

- Company headcount: In the Company headcount filter, it is possible to select the headcount or size of companies you'd like to find leads in.

- Function: In the Function filter, it is possible to select the types of roles that match your search parameters.

- Title: This specific filter can show you job titles to choose from, and are sorted as Current, Past, Current or past, and Past not current.

- Seniority level: To add seniority levels, which allow to find specific leads and accounts as per your parameters.

- Tags: It is possible to add tags to saved accounts and leads to help organize the workflow in a way that works for you. This filter allows you to quickly locate specific kinds of accounts and leads you've saved. Check out how to add tags in Sales Navigator for more information.

- Relationship: Relationship filter can show you how closely you are connected to a lead on LinkedIn.

All advanced filters: you can add

| Under Profile filters | First name | Under Role and tenure filters | Under Company filters | Under Other filters |
|---|---|---|---|---|

| • Keywords<br>• Geography<br>• Relationship<br>• Industry<br>• Postal code<br>• School | • First name<br>• Last name<br>• Profile language | • Function<br>• Title<br>• Seniority level<br>• Years in current position<br>• Years at current company<br>• Years of experience | • Company<br>• Company headcount<br>• Past company<br>• Company type | • Tag<br>• Groups<br>• Member since<br>• Posted content keywords<br>• CRM contacts |
|---|---|---|---|---|

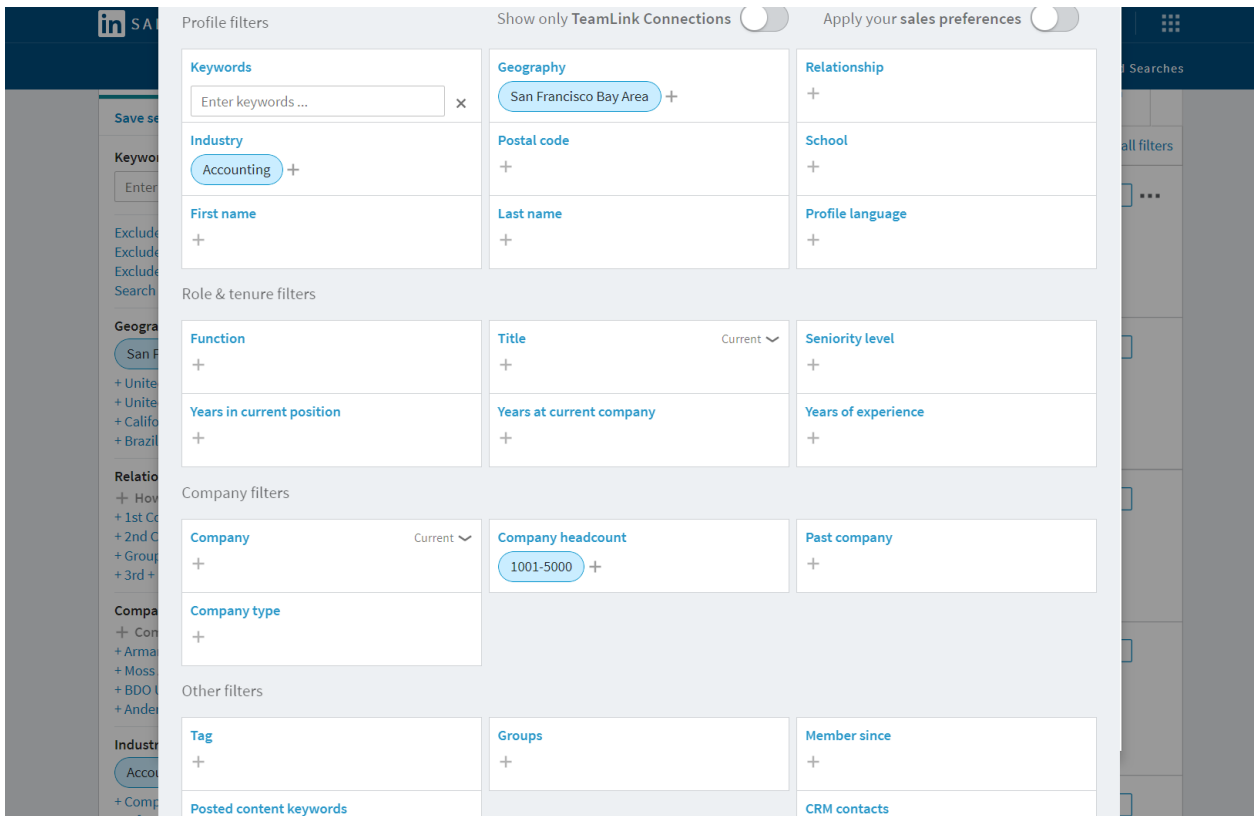*Table 2: LinkedIn advance filter attribute options (Linkedin, 2020)*



*Figure 10: LinkedIn sales navigator Leads profile filters (Neil Patel, 2019)*

### 3.4.3   How GDPR affects permission

The EU Global Data Privacy Regulations (GDPR) marked the rules for the first big instance in this area. With the Internet's rapid growth and the exponential increase in online shared data, these rules were created to counter spam, unwanted solicitation and even data theft. (Laybats, 2018)

In general, GDPR enacts some pretty important guidelines for the future of email marketing and digital communication. Opt-in email marketing becomes more critical, as approval takes precedence as one of the main things marketers need to remember before adding a subscriber to their mailing list.

Consumers now have the right to access their personal information, and to know how it is used. We may also revoke their consent, move their data to another service provider and allow companies to inform them of the data they collect. (Phillips, 2018)

These are not the only GDPR changes measures; now users can correct their records, limit processing, object to data processing, and be informed of any data breaches that affect them.

With all those factors in play, understanding the definition of permission is more important than ever. Users must actively opt-in so that they know how their data is being used and so specifically give their consent.

In the past, even if they signed up for something else that had nothing to do with email, it was possible to simply add users to a general mailing list. Users now need to regularly check a box for email newsletters. (Pandit, 2018)

Ensuring that you have permission to send individual campaigns is an important part of email marketing. Businesses that get it right experience high open and click-through rates on their campaigns and can drive significant levels of email marketing sales and revenue.

Permit matters more than ever in email marketing

Opt-in emails are a great way to protect yourself from liability

Double opt-in emails can be the best way to guarantee you have user approval

Companies that get it wrong see low open and click-through levels on their email campaigns and lose out on future sales and revenue.

So, to make sure you get the best results from your business' sending email marketing campaigns, follow the tips and information provided in this guide and focus on building a list of people you are allowed to send campaigns to. (Larison, 2016)

## 3.5    Business intelligence

Business Intelligence (BI) is a paragliding term that includes software, technology and resources, and best practices that enable information access and analysis to enhance and optimize decisions and results. Business Intelligence is the fastest growing part of business informatics. This continuously developing specialization consists of a large set of theories, concepts, methods and technologies. (TYRYCHTR, 2015)

Business intelligence (BI) uses software and services to turn data into actionable insights which inform the strategic and tactical business decisions of an organization. BI applications access and analyze data sets and present analytical results in papers, summaries, dashboards, graphs, charts and maps to give users detailed understanding of the state of the market. (CHAUDHURI, et al., 2011)

The term business intelligence also often refers to a range of tools that provide fast, easy-to-digest access to insights into the current state of an enterprise, based on the data available.

Reporting is a key aspect of business intelligence and perhaps the dashboard is the archetypical BI device. Dashboards are hosting software applications which automatically pull together available data into charts and graphs giving a sense of the company's immediate state.

Although business intelligence does not tell business users what to do or what to do if they take a particular path, neither is BI strictly about report generation. Instead, BI provides a way for individuals to analyze data to understand patterns and extract insights by streamlining the effort required to scan, integrate and review the data needed to make sound business decisions. (Fruhlinger, 2016)

### 3.5.1 Business intelligence software and systems

Various types of methods come under the umbrella of Business Intelligence. The software selection can be breaks down to some of the most important categories and features: (Turban, 2010)

- Dashboards
- Visualizations
- Reporting
- Data mining
- ETL (extract-transfer-load —tools that import data from one data store into another)
- OLAP (online analytical processing)

The dashboards and visualization are by far the most popular; they offer quick and easy-to-digest summaries of data which are at the heart of the value proposition of BI.

In the BI room there are lots of vendors and deals and it can get difficult to go through them. Some of the key players will include: (Fruhlinger, 2016)

- Tableau, a self-service analytics platform provides data visualization and can integrate with a range of data sources, including Microsoft Azure SQL Data Warehouse and Excel
- Splunk, a "guided analytics platform" capable of providing enterprise-grade business intelligence and data analytics
- Alteryx, which blends analytics from a range of sources to simplify workflows as well as provide a wealth of BI insights
- Qlik, which is grounded in data visualization, BI and analytics, providing an extensive, scalable BI platform
- Domo, a cloud-based platform that offers business intelligence tools tailored to various industries (such as financial services, health care, manufacturing and education) and roles (including CEOs, sales, BI professionals and IT workers)
- Dundas BI, which is mostly used for creating dashboards and scorecards, but can also do standard and ad-hoc reporting
- Google Data Studio, a supercharged version of the familiar Google Analytics offering
- Einstein Analytics, Salesforce.com's attempt to improve BI with AI
- Birst, a cloud-based service in which multiple instances of the BI software share a common data backend.

## 3.6 Email marketing business decisions based on data analysis and dashboard

### 3.6.1 Low visibility into email performance and deliverability

Similarly, if you don't have accurate metrics, it's impossible to know if you're meeting even well-designed objectives.

Second, make sure that you completely exploit the current performance data available from your email service provider to address this email marketing challenge. Sometimes that includes one-time attempts at setting up dashboards or reports to see the indicators that you care about.

Sometimes it also means feeding back some of the data into your ESP to make end-to-end success completely available. Some ESPs, for instance, will tell you revenue by email, but only if you feed the sales data back into it. (Erkollar, 2017)

And second, accept that sometimes the ESP just doesn't have all the metrics you want. According to Litmus' 2017 State of Email Deliverability Survey, more than 61 per cent of

marketers complement the data provided by their email service provider with external third-party data sources. And marketers who identified their email systems as effective were 23 percent more likely to use third-party analytics (68.0 percent vs. 55.5 percent) than those with less successful programs. (ECKERSON, 2017)
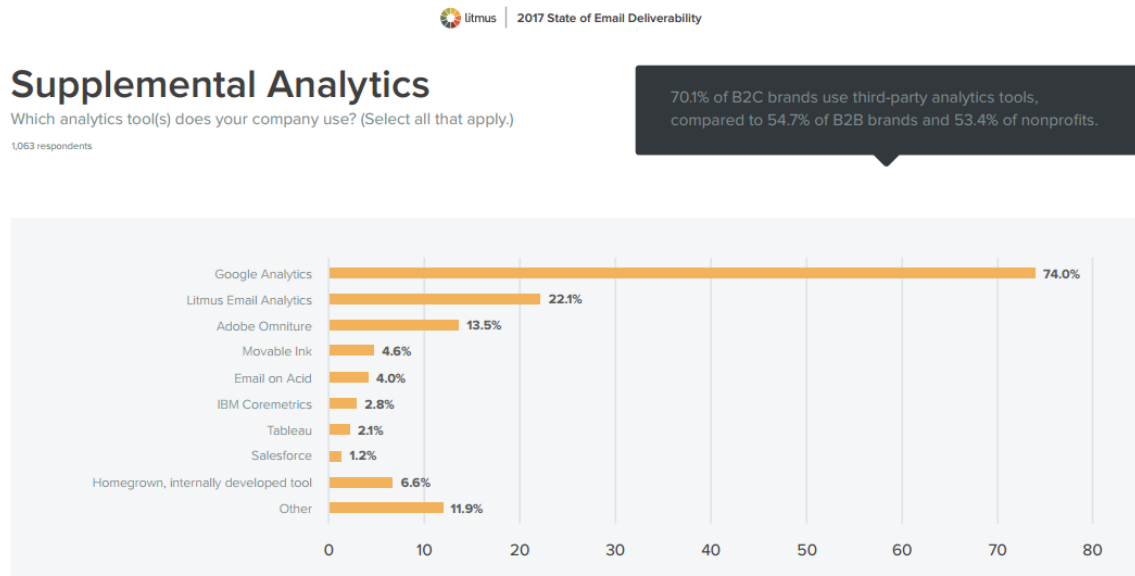


*Figure 11: Email marketing analytics tools used by companies (ECKERSON, 2017)*

# 4 Practical part

## 4.1 Company and sales team profile

Sharonat International is a professional company organizing Summits, Conferences and Training as well as providing Consultancy. The company have diverse expertise in the field of organizing B2B and B2C events and providing consultancy. It conducts thorough market research and deliver the business intelligence the customer needs to excel in the market. It helped companies enter new markets and led businesses to many untapped business opportunities and destinations. Trough conferences and summits, it works to create global opportunities and facilitate the marketing ground for who are looking to increase their sales volume, new markets, to showcase their achievements and launch companies' new findings, products or services

Sharonat International is small scale company who mostly uses email marketing as a marketing channel.

### 4.1.1 Sales representatives roles

These are typically entry-level, customer-facing positions or business-to-business sales roles. The primary goal is to sell the company's products, and they might work from a storefront or travel to cover a territory.

Since Sharonat International is a small-scale company, sales representatives mixed responsibilities, the following are some of the sales representative tasks.

- Market research
- Key word selection
- Scraping data from LinkedIn
- Data organizing and inserting to excel

- Generate email using excel macro application

- Send email

- Follow up on email conversation

- Resend emails with the specified time bound

- Analyze report from email marking tool (i.e. thunderbird)

- Manual fix and resend for undelivered email address

- Store collected data as historical data

### 4.1.2 Sales process in the company

The sales process is operating by the sales representatives, it passes several steps to find the relevant persons email address and convince a customer to buy (Customer insight). In 2018 I have worked for the company for six months; I have been observed and registered the following Frequently occurring problems and variabilities during sales process as empirical research.

The following are empirical research questions and some use cases for frequently occurring problems on the selling process for efficient and productive sales process.

- How to solve frequently occurring mistakes during at the sales work
  - sending email for irrelevant person
  - sending email with wrong dates or wrong agenda(brochure)
  - sending another Agenda for a given product (Summit)
    - Agenda date
    - Agenda discount
  - Sending redundant email for one person
  - Sending a lot of emails(flooding) without considering company size
  - Sending not exempted emails
    - Sending emails for registered delegates
    - Sending emails for speaker companies

- - Sending emails for Unsubscribe person
    - Sending emails after removing undelivered
- How to follow scientific methods in each phase during email marketing.
- How to use historical data to support the sales team or for decision
- Easy way of exemption to filter the required data.
- Use Email marketing tool report for KPI evaluation
- Create workflow diagram
    - To train new employees.
    - To create a common understanding among colleagues about how the work is done.
    - To create company, work trend (common practice)
        - Proper and descriptive file name
        - How to organize data
- How to manage employee performance (Management solution)
- How to manage data i.e.
    - Geographically
    - Industry
    - Date
    - Product

Additionally, to the company way of working, from the literature review and empirical research during I have been working on the company, the following email marketing factors (variabilities) needs to be track down to have efficient sales process.

- How to write attractive email?
    - Appearance
        - HTML email
        - Plain text
    - Content
        - Personalized email
        - For Company
        - Considering company size
        - Considering industry
    - Subject

- Keyword making
- Identify focus industries
- Scraping names from LinkedIn
- Time to send email
- Day to send email
- Managing data (Email)
- Follow up skills
- How many times needs send for one person in a month?
- Email marketing tool (Thunderbird) configuration
- Understanding of LinkedIn Searching algorithm

## 4.2    Selection of the relevant KPIs

On this part, the goal is to specify which KPIs we are going to use for our case based on the literature review discussion on (section 3.3).  Our email marketing target may differ greatly from the goals of another business like ours and may even vary over time within your own company. To figure out what we should be measuring and Considering unreliable email marketing metrics from the literature review (section 3.31). The following five KPIs are selected from the listed email marketing KPIs (Figure 6) on the literature review.

- Clickthrough Rate
- Conversion Rate
- Bounce Rate
- List Growth Rate
- Overall ROI

## 1) Clickthrough Rate

- **Definition:** The percentage of email recipients who clicked on one or more links contained in each email.

- **Calculation:** (Total clicks OR unique clicks ÷ Number of delivered emails) * 100

- **Sample Example:** 500 total clicks ÷ 10,000 delivered emails * 100 = 5% clickthrough rate

## 2) Conversion Rate

- **Definition:** The percentage of email recipients who clicked on a link within an email and completed a desired action, such as filling out a lead generation form or purchasing a product.

- **Calculation:** (Number of people who completed the desired action ÷ Number of total emails delivered) * 100s

- **Sample Example:** 400 people who completed the desired action ÷ 10,000 total email delivered * 100 = 4% conversion rate

## 3) Bounce Rate

- **Definition:** The percentage of your total emails sent that could not be successfully delivered to the recipient's inbox.

- **Calculation:** (Total number of bounced emails ÷ Number of emails sent) * 100

- **Sample Example:** 75 bounced emails ÷ 10,000 total emails sent * 100 = 0.75% bounce rate

## 4) List Growth Rate

- **Definition:** The rate at which your email list is growing.

- **Calculation:** ([(Number of new subscribers) minus (Number of unsubscribes + email/spam complaints)] ÷ Total number of email addresses on your list]) * 100

- **Sample Example:** (500 new subscribers - 100 unsubscribes and email/spam complaints) ÷ 10,000 email addresses on the list * 100 = 4% list growth rate

## 5) Overall ROI

- **Definition:** The overall return on investment for your email campaigns. In other words, total revenue divided by total spend.

- **Calculation:** [($ in additional sales made minus $ invested in the campaign) ÷ $ invested in the campaign] * 100

- **Sample Example:** ($1,000 in additional sales - $100 invested in the campaign / $100 invested in the campaign) * 100 = a 900% return on investment for the campaign

## 4.3    Design data flow diagram for the company

In the traditional way of working the sales representative uses different unautomated separate applications. Each application receives some type of input and give an output for the sales representative. Then the sale representative receives the output of one application, insert the output data (file) to the CSV file and pass to the next application. From this process we understand that the sales representative has a lot of manual works. Since there is not central data storage system and automation, the sales representative used as a middleware for the different applications.

The sales representative uses the following applications.

- Email service provider
- Linked In
- Excel macro application
- Organic search (Search engine)
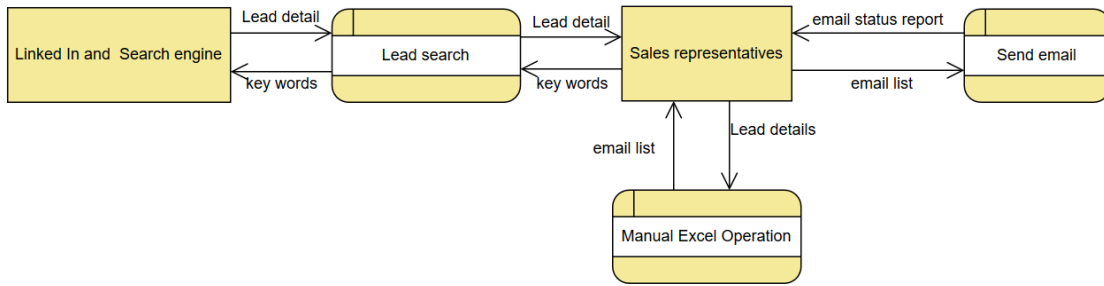
*Figure 12: Existing system Context diagram (Own work)*

The primary source of information to start working on product or campaign is the product agenda (brochure). Then it passes the following phases and sent to the target customer through email.

- Research for Keyword

- Search/ Scraping for Company Domain

- Leads generation

- Email generation using macro excel application

- Perform different type of filtering between email lists

- Sending Email for Leads



*Figure 13: Existing system Data flow diagram (Own work)*

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**Organic search for keywords**

As shown on the data flow diagram, the sails representative prepares a key word which represents the product he/she is working on. Based on this key word the sales representative will search for Leads. The search mechanism can be done on two approaches, Organic search and LinkedIn search.
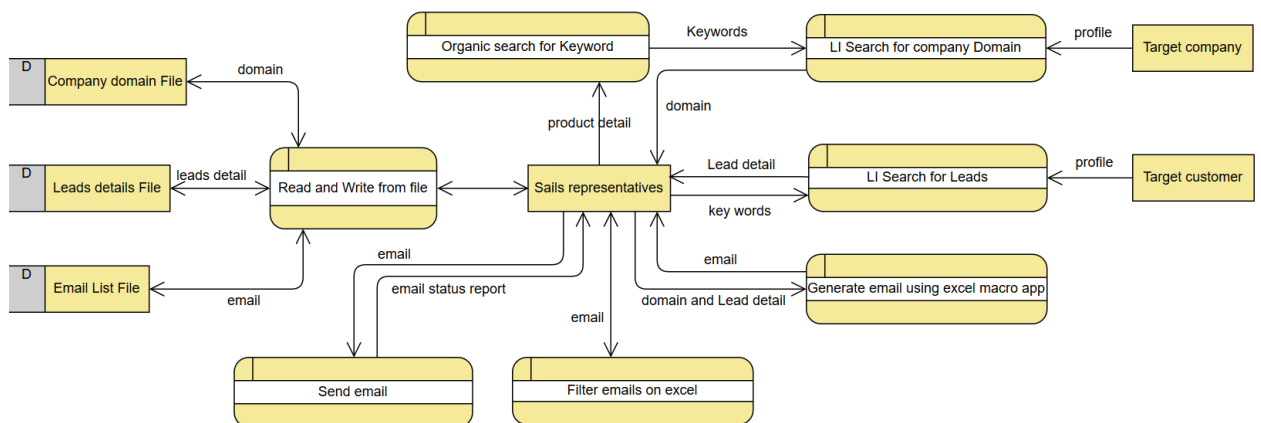
Organic search is a method for entering one or several search terms as a single string of text into a search engine. Organic search results appear as paginated lists, are based on relevance to the search terms, and exclude advertisements; whereas non-organic search results do not filter out pay per click advertising.

**Generate email using excel macro app**

The excel macro app receive customer name, email format for the target customer company and company domain. First the application will filter first name and surname from the given name and concatenate the received inputs to generate the email address. The required input for the email generation are inserted by sales representatives as shown on the above pic.

**Filter emails using excel functionalities**

On this phase the sales navigator could do different type of filtering between email lists. For example, one of common filter is remove Unsubscribed email list from the email list meant to be send. Remove sponsors or speakers company emails from the email list because there are already informed about the product or the summit. Remove customer emails who already purchased the product or summit ticket.

**Send email using email service provider**

On this phase the sales representative sends generated emails and follow up the email status whether it is delivered, undelivered, replays and other information from emailing application.

**4.4    Design structure of data to use historical data for new email generation.**

On this part the goal is to design historical data storage which can be used for the new email generation. The current trend of collection data on the company is one product or summit has separate data of invites or customers. The company organize multiple submits at ones. Since the data is stored separately, they advantage of having central data storage is not applicable on this case.

The second way of collecting data is most of organized summits are repeated every year, for every iteration new Leads data is collected and new email is generated. So, on this part a central historical data storage design is proposed to store multiple products data in one storage and to collect yearly iterative data for a single product. The data is stored on multiple separate file.
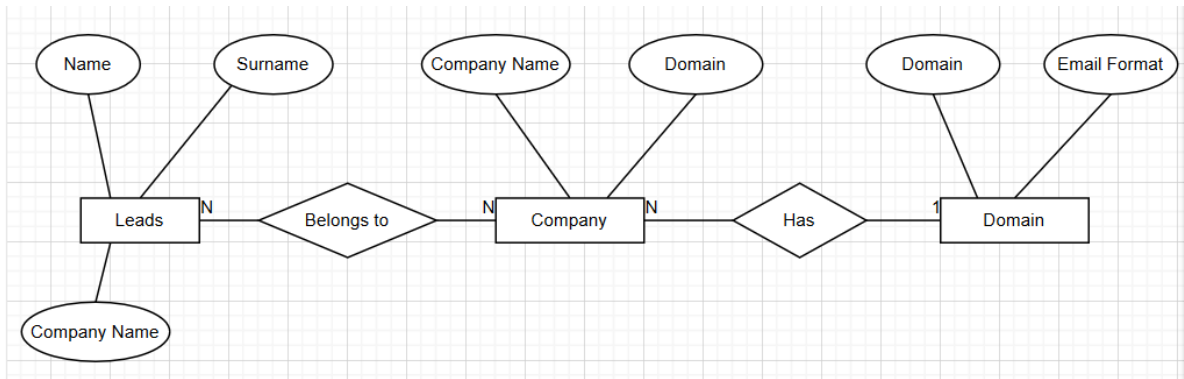


*Figure 14:ER diagram for the historical data. (Own work)*

On the above diagram Company DB and Domain DB are using as a central data storage. The company DB has a content of company name, domain and email format. The second storage domain DB has a content of domain and email format. For the new email generation, we need email format and domain. When we want to generate email for specific company, we check the condition that whether the company name exist on the company DB or not. If it exists on our historical database, we will generate from there. If it is not, we will search for the company email format and domain and it will be stored on the company DB for the next use.

## 4.5    Design efficient email generating architecture

On this phase the goal is to develop efficient email generation technique which uses historical data and implement it using python programming language.
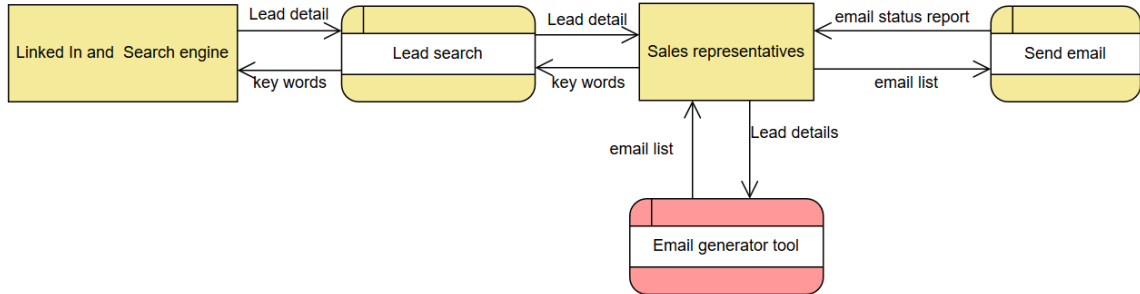


*Figure 15: context diagram for the new system (Own work)*
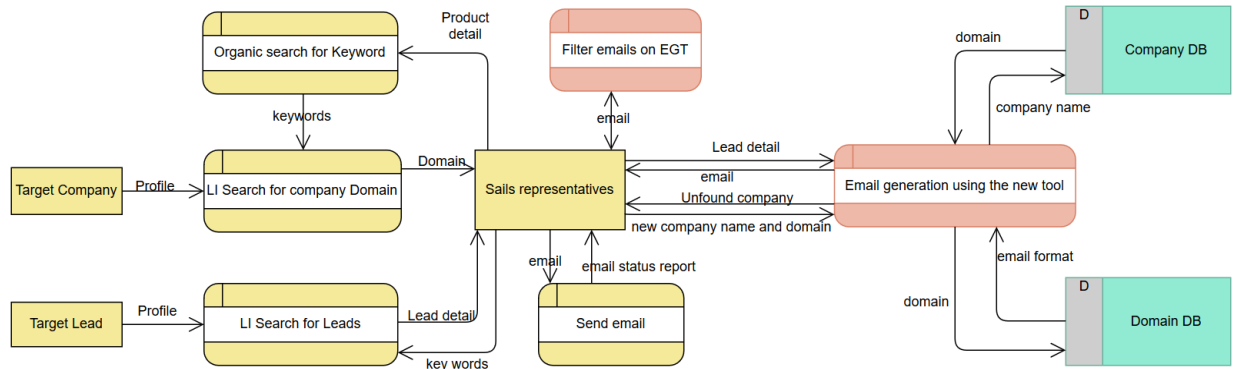


*Figure 16:New Email generator architecture (Own work)*

The tool uses two data storage to keep the historical data. The First one is called Company DB and the second one is Domain DB. The content of Company DB has tree columns Company Name, Domain and Email format.  As shown on the following sample table.

| 1 | 4Dx Limited | 4dx.com | John.Smith |
|---|---|---|---|
| 2 | 72andSunny | 72andSunny.com | John.Smith |
| 3 | A*STAR - Agency for Science, Technology a | a-star.edu.sg | John.Smith |
| 4 | A3Z Advanced ACS | a3zadvanced.wordpress.com | John.Smith |
| 5 | Aalborg University | a.com | John.Smith |
| 6 | Aalto University | b.com | John.Smith |
| 7 | Aarhus University | c.com | J.Smith |
| 8 | Aarhus University Hospital | d.com | John.Smith |
| 9 | aep int. | e.com | J.Smith |
| 10 | Abbott | aa.com | John.Smith |
| 11 | AbbVie | aa.com | John.S |
| 12 | Abcam | aa.com | J.Smith |
| 13 | Ablynx | aa.com | J.Smith |
| 14 | Abzena | aa.com | John.Smith |
| 15 | Academic Medical Center | drbao.com | John.Smith |
| 16 | Academic Medical Center (AMC) | amc.nl | John.Smith |
| 17 | Accenture | accenture.com | John.Smith |
| 18 | acer | Acer.com | John.Smith |
| 19 | ACSL | ACSL.com | John.Smith |
| 20 | Actelion | actelion.com | John.Smith |

*Figure 17: Contents of Company DB*

The content of Domain DB has two columns, Domain and Email format as shown on the following sample table.

| 1 | 360biolabs.com | John.Smith |
|---|---|---|
| 2 | a4f.pt | John.Smith |
| 3 | abanalitica.it | John.Smith |
| 4 | abcam.com | John.Smith |
| 5 | abec.com | JSmith |
| 6 | abeonatherapeutics.com | JSmith |
| 7 | ablynx.com | John.Smith |
| 8 | aboca.com | JSmith |
| 9 | aboca.it | JSmith |
| 10 | abpro-labs.com | JSmith |
| 11 | abzena.com | John.Smith |
| 12 | acadia-pharm.com | JSmith |
| 13 | acceleratedcure.org | JSmith |
| 14 | accelovance.com | JSmith |
| 15 | accelsiors.com | J.Smith |
| 16 | acdbio.com | JSmith |
| 17 | aceabio.com | JSmith |
| 18 | Aceto B.V | John.Smith |
| 19 | achaogen.com | JSmith |
| 20 | achievelifesciences.com | John_Smith |
| 21 | acib.at | John.Smith |

*Figure 18: Contents of Domain DB*

The tool has five functionalities which operates on the historical data. It is developed using python programing language. The data storages are represented by excel files (.xlsx) and the tool uses python excel libraries to operate.

```
from tkinter import *
import tkinter.messagebox
import xlrd
import openpyxl
from tkinter import filedialog
import time
from openpyxl.reader.excel import load_workbook
import os
from fuzzywuzzy import fuzz
from fuzzywuzzy import process
```

*Figure 19: Python excel libraries used in the tool implementation*

The whole source code is available the following  Github link:

https://github.com/KidusKebede/Email-generator-tool.git

**xlrd** is a library for reading data and formatting information from different Excel files, whether they are .xls or .xlsx files.

**openpyxl** is a Python library to read/write Excel 2010 xlsx/xlsm/xltx/xltm files.

It was born from the shortage of existing library to read/write natively from Python the Office Open XML format.

**FuzzyWuzzy** is Python library which is used for string matching. Fuzzy string matching is the process of finding strings that match a given pattern. Basically it uses Levenshtein Distance to calculate the differences between sequences.
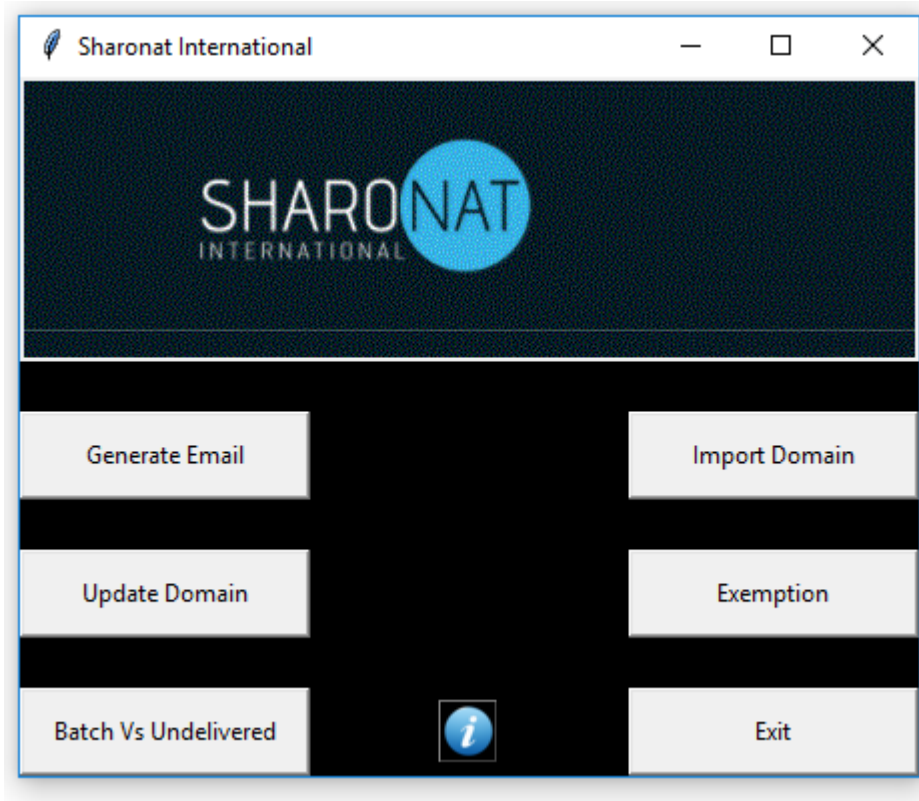
*Figure 20: Email generator tool GUI(Own work)*

**Tool Usage instruction for the five functionalities**

Email Generator Version 1.0

**Generate Email:**

Input: Excel file (Scraped from LinkedIn) with column 1: First name, Column 2: Surname and column 3: company name.

Output: New Excel file saved by time. sheet 1: Generated Emails, Sheet 2(batch from LinkedIn): Rows could not find on Database. (This will be input for Import domain button.)

**Import Domain:**

Input: Excel file with column 1: Company Name and Column 2: Domain.

Output: No visible output (The Software will append the input to the main Excel.)

**Update Domain:**

Input: Excel file with column 1: Company Name, Column 2: Domain and Column 3: Email Format.

Output: No visible output (The Software will insert (Update) the input to the main Excel.)

**Exemption:**

Input: Excel file with has two sheets. Sheet1: column 1: main list(it is possible to have multiple column but the operation use column one for exemption condition) and Sheet2:has only has one Column which has exemption list.

Output: The software will create third Sheet (called Exempt S2 from S1) to show the result of exemption.

**Batch Vs Undelivered Filtering:**

Input: Two Excel File: Excel 1: file Previously generated batch file. Which has column 1: Title, column 2: Name, column 3: Surname, column 4: Email and column 5: Company Name. Excel 2: undelivered emails Excel file. Has one Column with list of undelivered email.

Output: The software will create Sheet (called Und from batch) to show the result of exemption. Which has und column 1:Title,column 2:Name,column 3:Surname,column 4:Email, column 5:Company Name, column 6:Percent of Undelivered, column 7:Number of Domains in Batch Excel and column 8:Number of Domains in Undelivered Excel.

**Exit:** To end the program.

## 4.6    Design Strategic dashboard based on Email status report

An email marketing dashboard displays key metrics which enable us to work out our email campaigns' Return on Investment (ROI). Email marketing is a good strategy for digital marketing, because it can target specific customers and clients. Subsequent dashboards are created from email service provider input data.
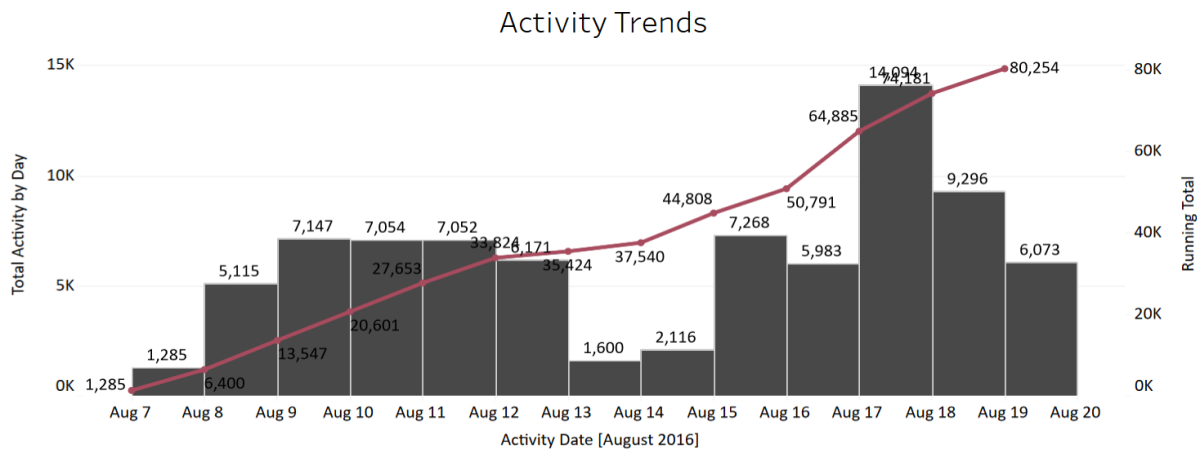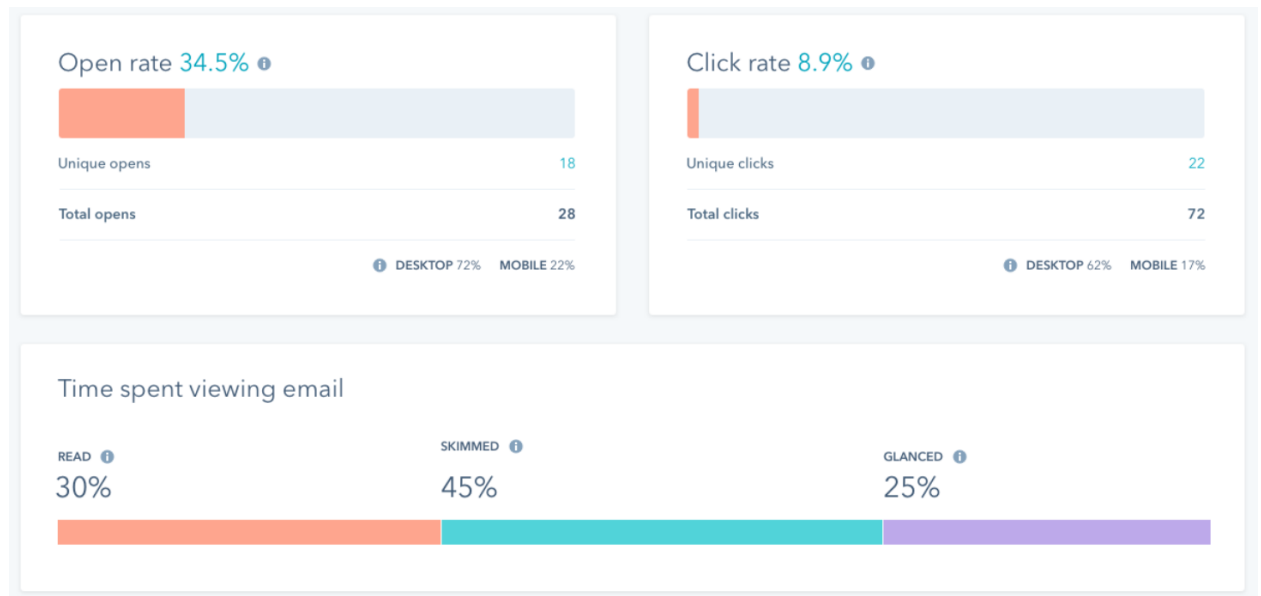


*Figure 21: Activity trends dashboard*



*Figure 22: Open rate, click rate and time spent viewing email dashboard*

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## Email Reporting

Search Your Email Name Here:

[(All)                                                                                    ▼]

Activity Type

[(All)                                                                                    ▼]

### Totals

| Send | Open | Click | Bounce | Unsubscribe |
|------|------|-------|--------|-------------|
| 37,841 | 38,589 | 2,816 | 1,003 | 5 |

### Rates

| Send | Open | Click | Bounce | Unsubscribe |
|------|------|-------|--------|-------------|
| 100.0% | 102.0% | 7.4% | 2.7% | 0.0% |

Effective Rate
(rate of clicks from those that opened)

7.30%

*Figure 23: Email reporting statistics dashboard*

## Links Clicked

| Link | Value |
|------|-------|
| http://scamihorn.com/blog | 77,887 |
| http://scamihorn.com/work | 848 |
| http://www.scamihorn.com/analytics-portfol.. | 554 |
| http://www.scamihorn.com/contact/ | 476 |
| Subscription Center | 316 |
| http://www.scamihorn.com/about | 124 |
| http://scamihorn.com | 49 |

*Figure 24: Links clicked dashboard*

## Total Activity

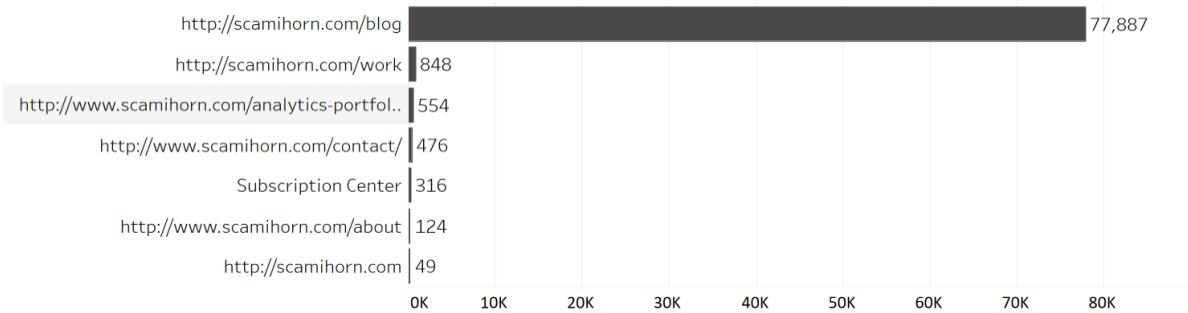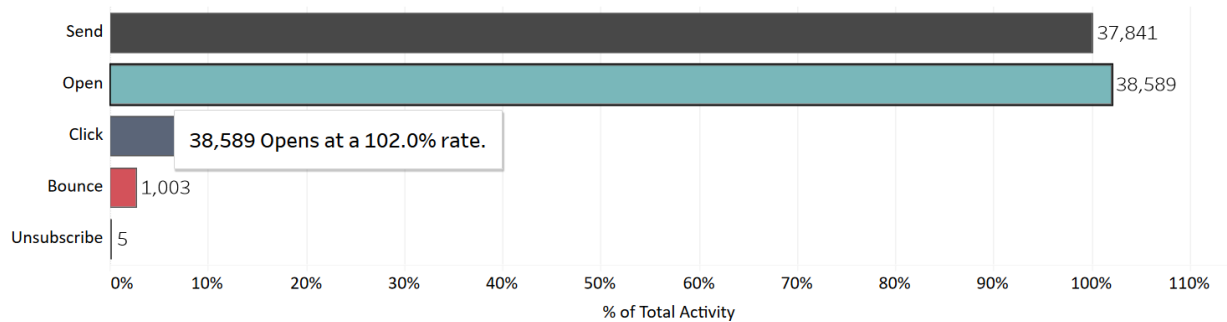| Activity | Value |
|----------|-------|
| Send | 37,841 |
| Open | 38,589 |
| Click | 38,589 Opens at a 102.0% rate. |
| Bounce | 1,003 |
| Unsubscribe | 5 |

% of Total Activity

*Figure 25: Total activity dashboard*

# 5  Result and discussion

## 5.1  KPIs

The world of email marketing is massive. And if you don't follow the right instructions, it is easy to get lost in it. KPIs for email marketing are "leading indicators" which help you design better campaigns for email marketing. We'll direct you so show you exactly what you should do to improve your chances of success.

We need to evaluate it from all angles to figure out why an email marketing campaign worked or exploded. What does not mean that any single metric will give you a clear idea.

It's important that we,

1.  Choose the metrics that help us appropriately gauge the performance of our campaign.

2.  Measure a set of metrics and ensure that we maintain real balance.

From different type of email marketing KPIs the following five KPI are chosen as a result the company decision makers can interpret the KPIs for the following business decisions.
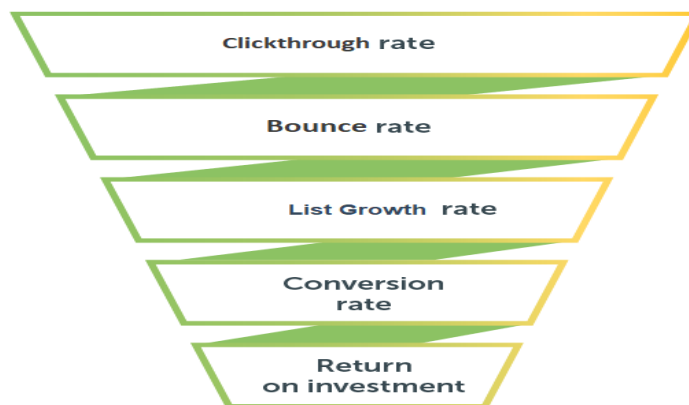


*Figure 26: Selected email marketing KPIs*

**Quality of email content indicator**

Clickthrough Rate: It helps you to measure the output of each email you send quickly. You can watch how your CTR will change over time from there. CTR is also often used to assess the outcomes of A / B tests, since these tests are often designed to find new ways to get more clicks in your emails. By considering the clickthrough rate the company can make a rational decision for the email content.

Conversion Rate: Normally the next target after an email recipient has clicked on your email is to get them to move to your offer in other words, to take the action that your email has asked them to take.

**Quality of email generation technique and spamming indicator**

Bounce rate:  are the product of a null, closed or inexistent email address and these emails are never delivered successfully. Based on bounce rate statistics the organization may choose specific email generation strategies.
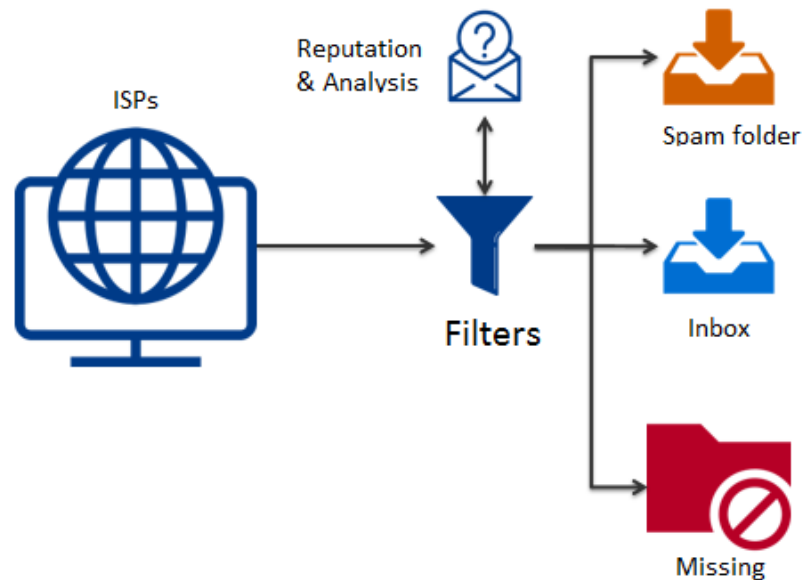


*Figure 27: Email deliverability and spam filter options*

**Quality of Email marketing approach**

List growth rate and Overall ROI: How many of those kinds of leads have you created through email marketing? How does this turn into earnings? True income? These are the types of metrics that will help you illustrate how important email marketing is to your manager and sales team as a tool that produces actual, tangible results. The manager will be given analyzes to compare marketing options

- o Direct call
- o Social media

You will need to incorporate the email platform and web analytics to calculate the conversion rate on your emails. You can do this by creating unique tracking URLs for your email links that mark the click source as coming from a particular email campaign.

## 5.2 Time efficiency and delivery rate

After implementing the tool, I collect all product data and insert to the historical data base, if the data has full information which is company name, email format and domain, it will be inserted to company DB and if the company name is missing and only we have domain and email format it will be inserted to domain DB. After preparing the two historical data storages, the tool is tested to generate email address with the sample data. The outcome was double amount of emails are generated. Which means the daily performance expectation for a single sales representative is to scrap input data from Linked in and organic search and generate one thousand email pers day. By using the tool, the email generation efficiency is increased by two times which helps every sales representative to generate two thousand emails per day.

At the same time the size of the historical data storage is increasing and enhanced through time. This lead to have refined content of data, company name, email format and domain. Then the probability of getting the right email address is increasing and the delivery rate also increase together.

## 5.3 Current email marketing technologies and trends

**Data Privacy**

General Data Protection Regulation (GDPR) in 2018 that changed the way marketers dealt with customer data came into force. One important aspect of GDPR s is that a client must consistently affirm their agreement, such as clicking an unused opt-in box. Capturing consent is advantageous because you are emailing an interested audience who wants to receive and communicate with your content.

**Design Cues from Social Media**

Take what makes social media popular and get it to build your emails. What social experiences are your subscribers having? That material does you like the most. Who is pushing subscribers to step into social life?

How do you put the social media energy into your email design?

- Keep it clear

- Maintain emphasis on a few acts

- Customize and keep it appropriate Take note of content placement.

Keep over your email fold the actions you want the receiver to take. Using broad banners and keep the logo clean.

**Automation and Personalization**

We know you've seen this phenomenon before but there's to keep automated and personalized.

Tailoring and automation go hand in hand. Automatic email campaigns are set up once and are sent when prompted by a subscriber's behavior. For example, let's look at an abandoned cart or an abandoned browse campaign, both are automated and personalized based on a customer's actions. If they do not complete the checkout process, a lost cart email will be

sent to the customer. The email should feature the specific product the customer walked away from and the chance to complete the checkout process.

**Interactivity**

Interactivity has been a top design trend for email marketers for two years in a row and with good reason: it eliminates friction by encouraging subscribers to connect with additional content without leaving their inbox.

Interactivity comes in many ways such as forms, ratings, carousels, hotspots but the most actionable way to use interactive elements is when you ask for customer feedback.

**Artificial intelligence**

The volume of customer data is rising every day, making it harder to manually explore data than ever before. The median number of data sources is expected to rise from 10 in 2017 to 15 in 2019, an increase of 50 per cent in just two years, according to Salesforce Research's marketing report. Although advertisers have more customer data than ever before, many struggles to make sense of all of this. Just 47 per cent of advertisers actually say they have a single view of customer data. Artificial intelligence (AI) promotes the identification and interpretation of patterns and associations. Instead of combining multiple data sources, AI can help you track the health of your subscriber, and offer

## 5.4 Dashboard

Email marketing is an effective way to reach an enormous audience along with your message; however, marketers today have moved away from simply "blasting" their audience with a torrent of emails, and instead are skilled in sharing engaging, appropriate, and meaningful material.

To do so, marketers take a data-centered approach to email marketing by monitoring metrics relevant to each campaign to see what content resonates with their audience, and what content needs to be rethought. Data-driven marketing doesn't just mean evaluating and analyzing data; data-driven marketing uses data to show how marketing campaigns lead to

achieving key business goals, such as new sales. To that end, this dashboard for email marketing integrates email client data (send, select, open) with web analytics and CRM data (visitors, leads) to clearly demonstrate ROI.
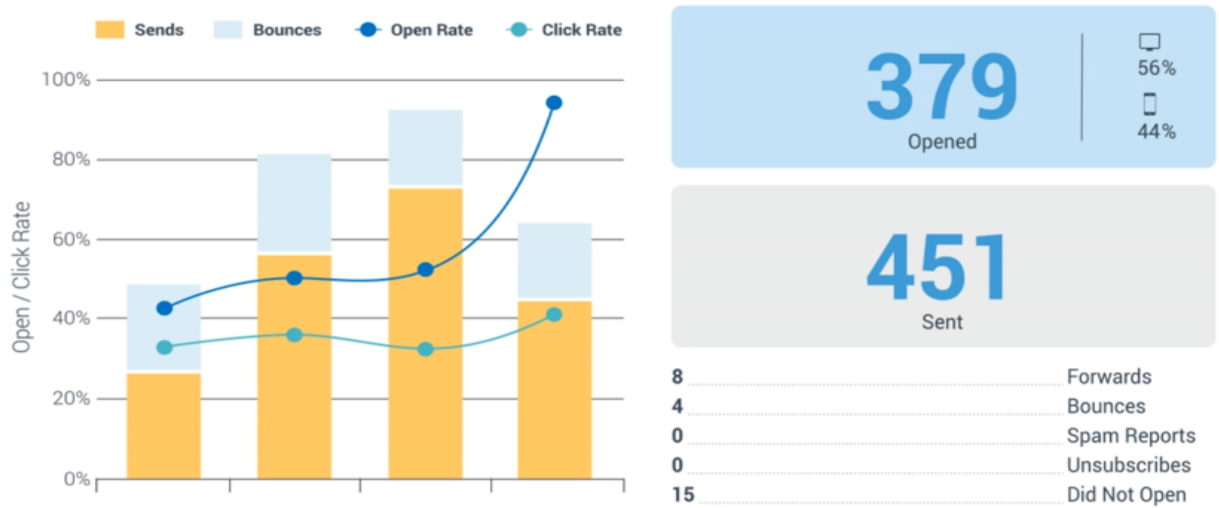


*Figure 28: Open/ Click rate dashboards*

# 6  Conclusion

Now a day's there are hundreds of email service providers in the market which meant for small to large scale email marketing companies. There are multiple variabilities and factors should be tracked and influence the profitability of the company. It is challenging to choose the right tools and track the variabilities. For most of small-scale email marketing companies to make a sale they are usually using manually managed unautomated multiple tools from finding the relevant persons email address to convince a customer to buy (Customer insight).

The main aim was to design customized business intelligence solution for small marketing companies to increase the productivity of sales team. By defining KPIs, designing central data storage, design lead generation technique and designing centralized dashboard which help for business decision.

The proposed BI solutions on this thesis was specific for one company, defined KPIs, lead generation tool and dashboard. However, it is applicable for all small-scale email marketing companies to leverage the sales process.

# 7 References

*2018 Email Marketing Industry Census.* **Econsultancy. 2018.** 2018, econsultancy.com reports, pp. 5-6.

**Aaker, David. 2010.** *Marketing challenges in the next decade.* s.l. : Springer, 2010.

**Bagui, Sikha and Earp, Richard. 2011.** *Database design using entity-relationship diagrams.* s.l. : Crc Press, 2011.

**Breur, Tom. 2009.** Data quality is everyone's business—Designing quality into your data warehouse—Part 1. 2009, Vol. 11.

**Budac, Camelia and others. 2016.** Theoretical approaches on successful email marketing campaigns. 2016, Vol. 16.

**Cichocki, Andrzej and Zdunek, Rafal and Phan, Anh Huy and Amari, Shun-ichi. 2009.** *Nonnegative matrix and tensor factorizations: applications to exploratory multi-way data analysis and blind source separation.* s.l. : John Wiley & Sons, 2009.

**Dave, Kushal S and Varma, Vasudeva. 2010.** *Learning the click-through rate for rare/new ads from similar ads.* 2010.

**Down, Simon. 2010.** *Enterprise, entrepreneurship and small business.* s.l. : sage, 2010.

**ECKERSON, Wayne W. 2017.** Performance dashboards: measuring, monitoring, and managing your business. *John Wiley & Sons.* 2017.

*Electronic commerce: A managerial perspective.* **Turban, Efraim and King, David and Lee, Jae and Viehland, Dennis. 2002.** s.l. : Prentice Hall: ISBN 0, 2002, Vol. 13.

*Electronic mail communications system with client email internet service provider (ISP) polling application and related methods.* **Roberts, Aaron. 2010.** s.l. : Google Patents, 2010.

**El-Gohary, Hatem. 2008.** E-marketing and Small Business Enterprises: A review of the methodologies. 2008.

*Email marketing.* **Bhavesh, Kumar. 2018.** 2018, www.academia.edu.

*Email marketing: using email to reach your target audience and build customer relationships.* **Sterne, Jim and Priore, Anthony. 2000.** s.l. : John Wiley & Sons, Inc., 2000.

**Erkollar, Alptekin and Oberer, Birgit. 2017.** Digital marketing planning with the brand dashboard approach. *Marketing and Branding Research.* 2017.

**Fahey, Jen. 2016.** *www.liveclicker.com.* [Online] 05 24, 2016. https://www.liveclicker.com/2016/05/24/2016-email-marketing-facts-figures-forecasts/.

*Forecasting: issues & challenges for marketing management.* **Makridakis, Spyros and Wheelwright, Steven C. 2005.** s.l. : SAGE Publications Sage CA: Los Angeles, CA, 2005, Journal of Marketing.

*From the digital divide to inclusive innovation.* **Dodgson, M. , Gann, D.., Wladawsky-Berger, I., & George, G. 2013.** s.l. : London: Royal Society of Arts, 2013.

**Fruhlinger, Mary K. Pratt and Josh. 2016.** What is business intelligence? Transforming data into business insights. 2016.

**Chaffey, Dave and Ellis-Chadwick, Fiona and Mayer, Richard and Johnston, Kevin. 2009.** *Internet marketing: strategy, implementation and practice.* s.l. : Pearson Education, 2009.

**Chaffey, Dave and Ellis-Chadwick, Fiona. 2019.** *Digital marketing.* s.l. : Pearson UK, 2019.

**CHAUDHURI, Surajit, DAYAL, Umeshwar and NARASAYYA, Vivek. 2011.** *An overview of business intelligence.* s.l. : Communicaons of the ACM, 2011.

**Kaufman, Ira and Horton, Chris. 2014.** *Digital marketing: Integrating strategy and tactics with values, a guidebook for executives, managers, and students.* s.l. : Routledge, 2014.

**Kolowich, Lindsay. 2016.** Hubspot. *https://blog.hubspot.com.* [Online] 2016. https://blog.hubspot.com/marketing/metrics-email-marketers-should-be-tracking.

**Larison, Drew. 2016.** understanding permissions. 2016.

**Laybats, Claire and Davies, John. 2018.** GDPR: Implementing the regulations. 2018, Vol. 35.

**Linkedin. 2020.** *Linkedin.* [Online] 2020. https://www.linkedin.com/help/sales-navigator/answer/71541/filtering-your-search-results-in-sales-navigator?lang=en.

*Marketing metrics: the definitive guide to measuring marketing performance.* **Farris, P., Bendle, N., Pfeiffer, P., & Reibstein, D. 2010.** s.l. : Choice Reviews Online, 2010. 48(01).

**Mullen, Jeanniey and Daniels, David. 2011.** *Email marketing: an hour a day.* s.l. : John Wiley \& Sons, 2011.

**Neil Patel. 2019.** leads-on-linkedin. *https://neilpatel.com.* [Online] 2019. https://neilpatel.com/blog/leads-on-linkedin/.

**Pandit, Harshvardhan J and Fatema, Kaniz and O'Sullivan, Declan and Lewis, Dave. 2018.** GDPRtEXT-GDPR as a linked data resource. *European Semantic Web Conference}.* 2018.

**Pavlov, Oleg V and Melville, Nigel and Plice, Robert K. 2008.** Toward a sustainable email marketing infrastructure. 2008, Vol. 61.

**Phillips, Mark. 2018.** International data-sharing norms: from the OECD to the General Data Protection Regulation (GDPR). 2018, Vol. 137.

**Ramos, Juanjo. 2016.** *Email marketing.* s.l. : Xinxii, 2016.

**Ratcliff, Christopher. 2014.** *Econsultancy.* [Online] 2014. https://www.econsultancy.com/blog/65590-16-most-important-email-marketing-kpis-for-your-business.

**Rautanen, Matti and others. 2012.** *Email marketing in business-to-business relationship.* s.l. : Lutpub, 2012.

**Redman, Thomas C. 2001.** *Data quality: the field guide.* s.l. : Digital press, 2001.

**Regelson, Moira and Fain, D. 2006.** *Predicting click-through rate using keyword clusters.* 2006. Vol. 9623.

**Reid, Gavin. 2007.** *The Foundations of Small Business Enterprise: an entrepreneurial analysis of small firm inception and growth.* s.l. : Routledge, 2007.

**Sahni, Navdeep S and Wheeler, S Christian and Chintagunta, Pradeep. 2018.** Personalization in email marketing: The role of noninformative advertising content. 2018, Vol. 37.

**Salehi, Mehrdad. 2012.** Dissimilarity of E-marketing VS traditional marketing. 1 1, 2012.

**Sharda, Ramesh and Delen, Dursun and Turban, Efraim. 2013.** *Business intelligence: a managerial perspective on analytics.* s.l. : Prentice Hall Press, 2013.

*Six Spins on Six Holiday Email Marketing Traditions.* **McDonald, Loren. 2016.** 2016, https://www.marketingprofs.com.

**Sterne, Jim and Priore, Anthony. 2000.** *Email marketing: using email to reach your target audience and build customer relationships.* s.l. : John Wiley \& Sons, Inc., 2000.

*The importance of digital marketing. An exploratory study to find the perception and effectiveness of digital marketing.* **Khan, Fawad and Siddiqui, Kamran. 2013.** s.l. : Romanian-American University, Scientific Research Department, 2013.

**Turban, Efraim and Sharda, Ramesh and Delen, Dursun. 2010.** Decision support and business intelligence systems . 2010.

**TYRYCHTR, J. – VASILENKO, A. 2015.** *Business Intelligence in Agribusiness – Fundamental Concepts and.* Brno : KONVOJ, spol. s r. o., 2015. ISBN 978-80-7302-170-2..

**White, Chad S. 2018.** https://litmus.com/. *The Biggest Email Marketing Challenges of 2018.* [Online] 2018. https://litmus.com/blog/the-biggest-email-marketing-challenges.