**Implementing bigdata analytics for small scale business**

Gaurav Agarwal. (B. Tech), Keerthi Reddy. (B. Tech), Shivanandham J.S. (B. Tech),Sirishma.(B.Tech)

*Department of Computer science, Hindustan Institute of Technology and Science, Padur.*

*Abstract: Small businesses provide opportunities for entrepreneurs, jobs for neighbors and gathering places for communities. They're rooted in the landscape where they grow, and they give back vitality and sustenance. Although running a small business involves taking greater risks than working for a large, established company, the rewards are both quantitative and qualitative, including broad-based prosperity and a web of symbiotic relationships. That’s where bigdata will be helpful, as a new solution in policy and practice in all sorts of applications context and domains. Many small businesses believe they are too small for big data. This is far from the truth as small businesses need big data to succeed, just as much as larger corporations. Data provides businesses with actionable insights needed to become more efficient and profitable. This paper will assess the options and the extent to which big data can be harnessed for small business growth.*

1. Introduction

Big data is not too big for small businesses. In fact, it’s needed to reveal hidden patterns, market trends, customer preferences, and other meaningful insights. With big data, small businesses can make the smart decisions they need to make to get ahead of their competition and increase their profitability. Using Big Data has been crucial for many leading companies to outperform the competition. In many industries, new entrants and established competitors use data-driven strategies to compete, capture and innovate. In fact, you can find examples of Big Data usage in almost every sector, from IT to healthcare. These days, consumers are smart and understand their priorities. Before making a purchase, consumers look around and compare different options. They even talk to businesses through social media channels and demand special treatment. In fact, most customers want to be thanked for buying products from a company.

Big Data allows a business organization to profile such customers in a far-reaching manner. This allows a business to engage in a real-time, one-on-one conversation with consumers. In tough competitive times, this isn’t a luxury. You need to treat customers how they want. A good example is about a customer entering a store. When a customer enters the shop, the clerk can use Big Data to check his or her profile in real-time. The clerk can learn about the customer’s preferences and desires. This allows him to advise relevant products and services to the customer.

Big Data also plays an important role in integrating physical and digital shopping spheres. An online retailer can easily suggest an offer on the mobile carrier. This can be done on the basis of a consumer inclined toward increased social media usage.

1. Literature Review

Lawal, et al (2010) opines there is no universal definition of small scale industry. Definition also changes overtimes, owing to changes in price level, advances in technology and other considerations. Criteria that may be used in the definition of small scale enterprises(SSEs) often include turnover, gross output and employment. These factors are usually used because they are functional and easy to measure. According to Rouse, (2011) SME is a convenient term for segmenting businesses and other organizations that are somewhere between the "small office-home office" (SOHO) size and the larger enterprise. The European Union has defined an SME as a legally independent company with no more than 500 employees. Small andmedium-sized enterprises (SMEs) are a veryheterogeneous group. SMEs are found in a wide arrayof business activities, ranging fromthe single artisanproducing agricultural implements forthe village Implementing bigdata analytics for small and medium enterprise (SME) regional growth DOI: 10.9790/0661-17643543 www.iosrjournals.org 36 | Page market, the coffee shop at the corner, the internet café in a small town to a small sophisticatedengineering or softwarefirmselling in overseas marketsand a medium-sized automotive partsmanufacturer selling to multinational automakers in the domestic and foreign markets. The owners mayormaynot be poor; the firms operate in verydifferentmarkets(urban, rural,local, national, regional andinternational); embodydifferent levelsof skills, capital, sophistication and growth orientation, and maybein the formal or the informal economy(Organisation for Economic Co-operation and Development (OECD), 2004). Statistical definition of SMEs varies bycountryand is usually based on the numberof employees, and value of sales and/or value of assets (Ayyagariet al, 2003). Due to its ease of collection, the most commonly used variable is the number of employees. The EU and alarge number of OECD, transition anddeveloping countries set the upper limit of number of employees in the SMEs between 200-250, witha few exceptions such as Japan(300 employees) and the USA (500 employees). At the lowerend of the SME sector, a large number of countries define a group, which is a mixture of the self-employed and ―micro‖ enterprises, with less than 10 employees. Irrespective of the level of development of an economy,asignificant proportion ofmicro and, sometimes, small enterprises are found in the informalsector or the shadow economy (OECD, 2002).OECD (2004) in Schneider (2003)compared the size of theinformal sector in 22 transition (former SovietUnion and Central and Eastern Europe) and 21 OECDeconomiesfrom 2000-2002 and found that the sizeofthe informal sector amounted to an average of16.7%, 29.2%and 44.8%of GDP in OECD, Central and Eastern Europe and the former Soviet Unioneconomies, respectively.

III. Characteristics of Bigdata solution in Small scale buisness

Here are three characteristics small businesses should seek in a big-data solution:

1.1. Flexibility and choice

Big-data solutions targeted at large enterprises are typically an all-or-nothing proposition, requiring customers to gut existing systems, thereby imposing a heavy cost and time burden on information-technology departments. This simply doesn‘t work for small businesses. When the marketing department of a small company needs a marketing-automation system, it typically acts independently of the IT department, laying out its requirements, cost justifications and system requirements and then researching and choosing the best solution to meet its needs. As a result, small businesses regularly deploy a variety of solutions throughout the organization, including desktop software for business tasks, a software as a service solution like those of Salesforce or Workday for marketing or HR, a public or private cloud for development and perhaps some custom-built solutions to meet specific needs. This leads to an environment with many different types of data. A big-data solution for small businesses must allow them to choose only the capabilities they need and leverage the solutions and systems already in place. The solution should be complete in having everything a customer might need in one pre-integrated package, but the vendor shouldn‘t force a company to replace a capability it already has implemented and adopted.

1.2. Simplicity

A big-data solution for small businesses should be easy to deploy and use and take only a few days or weeks for a company to start using it not months or years. All the capabilities of the system should work together seamlessly. And if the customer is integrating new capabilities with existing systems, it should be possible to accomplish this without the need for expensive specialists. In addition, the system should not require staffers to undergo a lot of training and should include self service capabilities so a broader audience of analysts and business users can use it without the need for the IT department to become involved.

1.3. Cost

Finally, a big-data solution for small businesses must be priced right. Customers should be able to pay for only the capabilities they need, and the licensing strategy should allow them to start small and scale up as the need for analytics increases. This approach is particularly useful for a rapidly growing small business, where it‘s critical for the cost and capabilities of software investments to align with the rate of growth and expansion of the operation. The transition from an intuition-driven company to an analytics-driven company is one small-business owners can embrace. Finding the right IT solution, one geared to the specific needs of the small business, can help make it practical and affordable to benefit from the opportunity big data affords.

## IV. Bigdata analytics for Small scale business

## 1.Google Analytics

You don't need fancy, expensive software to begin gathering data. It can start with an asset you already have – your website. Google Analytics, Google's free digital analytics platform, gives small businesses the tools to analyze website data from all touchpoints in one place.

With Google Analytics, you can extract long-term data to reveal trends and other valuable information so you can make wise, data-driven decisions. For instance, by tracking and analyzing visitor behavior — such as where traffic is coming from, how audiences engage and how long visitors stay on a website (known as bounce rates) – you can make better decisions when striving to meet your website's or online store's goals.

You can also analyze social media traffic, allowing you to make changes to your social media marketing campaigns based on what is and isn't working. Studying mobile visitors can help you extract information about customers browsing your site on their mobile devices so you can provide a better mobile experience.

## **Google Analytics Basics**

If you want to skip the details and just get started, here's a rundown of how to set up Google Analytics on your website:

•   Sign in to Google Analytics with your Google account

•   Click the Admin button on the bottom left sidebar of your dashboard

•   Select an account or create an account

•   Click on the dropdown menu to create a property

•   Click on Website and add your site's name and URL

•   Choose your industry

•   Choose your time zone

•   Click on Get Tracking ID

•   Install Tracking ID on your website

Here are also a few terms you should know:

**Account**— where each property lives in your dashboard. You can set up multiple properties in one account or have multiple accounts for different properties

**Property**— the website or mobile app you want to track

**Tracking ID** — a unique code added to your site that allows Google Analytics to track it

**Conversion**— visits that turn into customers or potential customers

**Channel/Traffic source** — shows where your traffic came from, such as referrals or links from other sites, search engines, social media and emails

**Session duration** — how long visitors spend on your site

**Bounce rate** — percentage of visitors that view only a single page and then leave

**Event**— specific visitor behavior, such as when a visitor clicks on an ad, watches or stops a video, downloads a file and more

**Landing page**— the first page a visitor sees when visiting your website

**Organic search**— visitors who visit your site from a link on a search results page

**Segment**— a way to filter data, such as by category and types of visitors

And the types of reports you shouldn't miss:

**Acquisition**— shows you where traffic comes from, such as search engines, social media, email marketing campaigns and links from other websites. You'll find this under the Acquisition tab.

**Keywords**— tells you what search words visitors used to find your website on a search engine. You'll find this report in the Behavior tab, under Site Search.

**Conversions**— tracks how many visitors are converting into newsletter subscribers, shoppers and actual customers. Click on the Conversions tab and choose a type or category of conversion to view a report.

**Lifetime value**— currently in beta, Lifetime Value reports track visitors throughout their lifetime, from their first visit to conversions, return visits, future purchases and beyond. This can help you figure out what turned these visitors into customers and what made them keep coming back so you can implement changes. Lifetime value is located under the Audience tab.

**Landing page**— shows you which pages are the most frequent landing pages so you can track down where those visitors are coming from and what's working on those top pages that's attracting customers. You'll find this across different reports under the landing page column.

**Active users**— monitors how many visitors are actually active on your site within a specific time period, such as the past week, 14 days or month. This will show you what pages the most active users are visiting so you can figure out what's keeping their attention and apply it to the rest of your website. You can find the active users report in the Audience tab under Active Users.

Now that you have the basics down, here's more on using Google Analytics as a small business.

## 2. SAS

Being a small business is no longer a limitation to obtaining market and business intelligence, according to [SAS](https://www.sas.com/en_us/home.html), a leader in business analytics software and services since 1976. SAS transforms your data into insights that help inform decision-making and give a fresh perspective on your business, whether your company is a small, midsize or large organization.

Small and midsize businesses (SMBs) face the same challenges as large enterprises. SAS's easy-to-use analytics, automated forecasting and data mining enable businesses without a lot of resources accomplish more with less. These analytics help companies overcome challenges to grow and compete. SAS's message to SMBs is simple: "Identify what's working. Fix what isn't. And discover new opportunities." Contact SAS for more details and pricing and to learn about free software trials.

## 3. ClearStory Data

Analyzing complex business intelligence doesn't have to be rocket science. Clearstory Data offers advanced data mining and analytics tools that also present information in a simple, understandable way.

ClearStory Data works by combining your business's internal data with publicly available information to help you make better business decisions. These insights are displayed using the StoryBoard feature, which allows you to create graphs, storylines and interactive visuals from the dashboard. It also comes with collaboration features that enable team discussion. For instance, you can comment on individual StoryBoards, much like you would on social media.

In addition to business data, ClearStory Data can provide department-specific data, including marketing, sales, operations and customer analytics. The platform also covers a wide variety of industries, such as retail, food and beverage, media and entertainment, financial services, manufacturing, consumer packaged goods, healthcare, and pharmaceuticals. Contact ClearStory Data for pricing information.

## 4. Kissmetrics

Looking to increase your marketing ROI? [Kissmetrics](https://www.kissmetrics.com/" \t "_blank) is a platform that enables you to understand, segment and engage your customers based on their behavior.

With Kissmetrics, you can create, manage and automate the delivery of single-shot emails and ongoing email campaigns based on customer behavior. The platform measures campaign impact beyond opens and clicks. The company has also launched Kissmetrics for E-commerce, which is designed to increase Facebook and Instagram ROI, reduce cart abandonment rates, and drive more repeat purchases.

Kissmetrics users can access web-based training and educational resources to improve marketing campaigns, including marketing webinars, how-to guides, articles and infographics. As part of onboarding, new users get a dedicated customer success rep for the first 60 days and strategic guidance to learn how to get the most from the platform. Plans start at $500 per month.