

Challenges faced by a Product based Startup and how they can be Overcome?

Bhavook Chitkara, Syed Mohd Jamal Mahmood

Abstract: *In the last five years, India has become a land of startups. It stands third in the world. It has given lot of employment to the youth, but the bitter truth is that 90% of startups get failed. There always remain the collective contribution of founders, employees and investors in a product based startup. A lot of study on the failure of operations, marketing, sales, and delivery has been already done but very less work has been done on the study of the failure of product development. This paper explores the crucial product development parameters that can lead to the failure of the product based startup/organisation.*

The evolution cycle of a product based startup can be considered in three stages:

- Starting Phase
- Stability Phase
- Growth Phase

Symptoms which can occur in the above three phases were discussed and the issues which appear were analysed.

Keywords: *Startups, product based startup, startup failure.*

I. INTRODUCTION

The concept of startups or the whole idea is more of a new venture. It in general, creates more employment by incorporating innovative ideas as well as replicable models from the past. They're capable of achieving great growth with exclusive cash-flow. For instance, if you see the growth graph of India of the last five years, the nation has approved the tremendous achievement with technology based startups success stories. Software product startups are the startups which get maximum number of fundings. If right product is designed and developed then that company can give good returns in the long period of time. But the bitter truth is that 90% of startups get failed. The stages of a startups company is split into three parts- Starting Phase, Stability Phase and Growth Phase. The Product development issues of each phase have been examined which usually leads to the failure of the startup/organisation. The symptoms of these issues are reviewed and analysed and possible required solution is provided.

II. STARTINGPHASE

The first phase of any product based startup can be considered as the Starting Phase and this is the phase between product designing and first sale of the product.

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There always remain a vision and idea behind every product based startup. The entrepreneur who came with a unique idea and plan to implement that to give a form of product analyse the market opportunities and plan which technology can be best suited for that to fulfil the requirement. It usually starts with a small space and with a few numbers of resources. The money always remains a concern until they get any funding from the investors. These entrepreneurs themselves know the coding, They themselves handle the account and HR. They usually hire the developers and designers who all work in a small room with very high spirits. Few are some of the issues related to the Development and Executive team respectively.

2.1 Less Experienced Designers and Developers:

Symptoms: Developers worked very hard in writing the code but unfortunately, the product delivery timelines rarely meet. There always remain issue with the proper QA(Quality Analysis) of the functionality, in fact, during the final delivery of the product, some of the required functionality doesn't work. It has also been noticed that when they try to fix any pending functionality/bug or when ever try to add new functionality the older code gets affected. They take more time to fix the bugs and also creates other defects while fixing the one.

Analysis: The above issue occurs due to lack of funds, they do not hire proper QA Team, who could do the Manual and Automation testing of the product thoroughly, So that the product could be delivered bug free and flawless. Also mostly they hire less experienced developers who take less salary as compared to the experienced one but their code doesn't fulfil the required criteria and also they take more time to complete one module, due to which the delivery of the product gets affected.

Solution: The lead developer of the company must be highly experienced, who had worked on multiple products and projects in the past so that it would be expected that he would be familiar with all the possible bugs. He must also have good leadership qualities who can motivate and get the code done with the relatively less experienced team. In-fact the Junior Team Lead should be experienced one so that he could manage the code and work in the absence of the Team Lead.

2.2 Usability of Product

Symptoms: Whenever a product is designed and developed for a specific client, it is coded and delivered as per the requirement of the client but it has been noticed that if that customer wants to upgrade that

product in the coming future then they have to write the complete code again which always proved time-consuming and expensive. In-fact if any other client wants another version of that development then that can't be used.

Analysis: It has been noticed that the product couldn't be developed in such a way that it can be shifted to a new version. When an existing client wants to shift it to a new version then a special team has to be deployed to make the appropriate changes, in fact for the service support and documentations a special team is required. The same developers are used to give support and do the documentation who developed the product.

Solution: The Product should be designed in such a way that the same product can be sold to other clients by making its new versions. In Fact there should be different support teams and separate documentation teams for the handover of the product.

2.3 No Owner of the Product:

Symptoms: No one knows who would have the authority to decide which functionality would be part of the product. If any challenges occur in any of the functionality who would take a call on that. The little authority remains in the hands of a dysfunctional committee.

Analysis: A Tiger is a cat designed by a dysfunctional committee. [2] suggests that if a great product is required then the product should be handled by the small group of same-minded people. There should be proper coordination between the group of developers and the founded entrepreneurs. If inputs from external different sources come into the picture for the feature selection then it doesn't move for a longer period of time.

Solution: There should be a proper team that consists of a couple of individuals from the client and a couple of individuals from the development team. So that proper decisions could be taken at the right time. Chaos could be avoided and the final product could be delivered on time.

2.4: Lack of Strategic plans

Symptoms: It has been noticed that organisations do not define the objectives and goals of the product development in their business plans. The important decisions are taken by the client/product owner only. These decisions are taken on adhoc basis result of which they could not relate them to a greater strategic plan.

Analysis: Product development takes a longer time to complete and so the profit collection. People keep going and coming on that journey. Proper strategy plans are required to plan and implement so that limited cash reserves be used in the best possible way.

Solution: There should be proper strategic plans[4] in all the product development organisations. Long term as well as short term[5] objectives should be properly defined. It also needs to make sure that the organisation's development should be in sync with the defined strategic plans.

III. STABILITY PHASE:

This stability phase starts when the product is successfully handover to the first client. It ends when the product becomes stable enough to be delivered to another client without causing any overhead on the further development. In this stage, the product starts delivering to the multiple clients/users. Better Tech support is required in this phase. The entrepreneur plans to reach to the investors to get the funding for the further development of the product and to take it to a higher level. Unresolved matters of the Starting Phase should not be carried forward in this Stability Phase also need to make sure that no new issues could emerge.

3.1 Confusion in the Founders

Symptoms: In the second phase as new fundings come in, new executives become the part of the organisation. The conflict occurs between the original founders and the new joined executives. Though new leaders joined the organisation but the older employees keep their bend towards the founders of the product and they expect them to guide and provide further directions.

Analysis: It is needed that the clear roles must be identified and finalised for all the founders, An Army can't have two army chief. In case if the founders were not interested to play the role of subordinates then for sure there will be tension and tussle in the management which will affect the atmosphere and output of the organisation. As the funding comes in the play the changes in the CEO, VP and other Top managerial positions take place and it emotionally affects the founders of the organisation.

Solution: When new executives come on Role then the role of the founders needs to be well defined in advance itself[8]. They could be given the role of mainstream Executives or can be asked to join the board of non-executive directors.

3.2 Tension in atmosphere on the production teams' floor

Symptoms: The new joined experienced developer find the tough time in adjusting themselves with the older developers. Older developers who are part of the organisation from the longer time demand special treatment which is not relevant to their skills and experience.

Analyse: In the starting phase of the organisation, relatively less experienced developers were hired, but with time they getting older in the organisation, in the stability Phase when new experienced developers were hired at the senior positions, the older developers could not find comfortable as they were supposed to work under the new joiners (who joined at the senior position). The management team has to make sure that new experienced developers could sync with the older employees of the organisation. In fact some find it difficult to work under the joiners and they put the resignations.

Solution: It is needed that older developers who showed good leadership and technical skills in the past in the organisation should be promoted. If in any

case, any wrong hiring takes place that need to be fired as soon as possible. Outstanding performance should be promoted on the basis of people's strength[6]. The void space must be filled with the best available resource available in the market.

3.3 Unreliable Product

Symptoms: Any bug in the product causes the critical customer issues and those should be resolved with the best care under the supervision of an experienced developer. Usually, the development of new features takes time to code and develop.

Analysis: This is caused due to the inexperienced developers or by the delivery of an unready product. If any bugs come then inexperienced could not fix them on time, they take much time to resolve them. In the hurry of delivery of the unready product on a fixed delivery date cause the problem as unready and flawless functionality of the product affect the reputation of the organisation.

Solution: Fixing of a large number of flawless functionality and other bugs takes time and hard work to fix. The need to be fixed carefully with the usage of the best management. The experienced resources[10] must be hired permanently or on a contract basis who could fix the bugs effectively.

IV. GROWTH PHASE

In the beginning of Growth phase one can commission the product for a fresh client without needing to create any pressure on the development team. In the end, after the success and establishment of market size, share and growth rate, each business practice is done to make sure that product development and sales targets are met.

During this phase, the brand gets more attention than ever and the market will see a blueprint for future product development. Also, trade sale or ITO come into the picture during this phase only, if required.

Now let's discuss the issues that can drastically affect the company's capability of product development.

4.1 Lack Of Skills Delays Development

Symptoms: Product development is a process that can be undertaken by a handful of talented people who behave as a bottleneck during the process. Since the set of skills and knowledge that they possess are unavailable in the marketplace, there is no chance to build these skills in new joining.

Analysis: The employees who had served the company for years or since the beginning of the startup, develop a broader skill-set even on ad-hoc. These skilled, experienced individuals hold the capability to become team heads down the road with the growth of development. This is how they will help develop the required skills in the new recruits when they get a chance. Else just the most socially active and determined new employees will get a chance to acquire the essential skill-set and grow rapidly.

Solution: Analyse and notice the critical skills and identify individuals who have it[9]. Pass on this knowledge to the entire team by utilising the approaches like shadowing, documentation, buddy programming and lunchtime seminars etc. Make sure that the duration for learnings and transfer of skills falls into the development phase. Identify who is teaching and who is learning.

4.2 Platform Creep Slows Down Development

Symptoms: The need of the product is on several platforms but has an indefinite cost justification. Resources and workforce expenditure increases during the product development phase but doesn't escalate features productivity. Moreover, several other parts of the business are probably not ready to support the updated blends of platforms.

Analysis: When a product is provided with an extra platform combination, it escalates the count and time of permutation required for testing. It can even increase by a factor of ten, in some cases. Thus, the possible result for every other platform combination that's new/fresh has to be offset against an extra cost in the development phase of products.

Solution: The most suited solution for this problem is to build a business case before including the other, added platform components in the product development. Make sure the entire expenditure falls under the budget made for the requisite resources for development, inside and out.

4.3 An Aimless Product Strategy

Symptoms: Businesses would not be able to fulfil the future product development demands. It can get confusing and mundane with tiny product improvements. Several ideas for new products can be handy, but no feasible way to decide on resources assignment.

Analysis: Several product businesses are unable to take their first achievement any further or increase or even maintain the availability of new products. To solve this problem, the startups will have to come up with new product ideas in sync with the strategy and product pipeline. Businesses can do this with the existing product platforms, teams and skill-sets. And as we all know that one has to be inspired and self-driven to make wonders, the companies must combine all these ideas, skills and resources with a potent product planning or strategy. An appealing product pathway is the secret ingredient to bring business value in an IPO or trade sale.

Solution: Bring resources to the table for help keeping up with the development plan of new products. The pipeline must involve the projected revenues as well as estimated price for development of the products. All areas of the startup ought to support product proposals, and planning incorporating the budget, total earnings, net profit, costing, risks factors and problems faced by the company. Development resources might also be required for resolving critical technology hurdles before the business develops a solid, fool-proof planning.

4.4 Weak Product Introduction

Symptoms: While introducing a new line of product or its idea, it can take a long time. This is since the actions take place in series instead of being processed in parallel or in coordination. During this time, the teams are constantly trying to delay the improvement and it eventually leads to more time.

Analysis: As the organisation develops, new item presentation requires a planned program of exercises crosswise over utilitarian zones including item advancement, proficient administrations, backing, deals and promoting. This program ought to be controlled by the item proprietor, upheld by a program supervisor.

Solution: Create a powerful procedure for new item presentation which the company can use further on repeat. Run a changed program to implant it in the organisation. Include all partners completely and include exercises that can be done in parallel and assets that can be made accessible in an opportune manner.

V. MATURITY PHASE

The Maturity is the phase of development where the organisation has developed from a startup into a develop association. Market size, offer and development rate have been built up. All procedures important to help item improvement and deals are set up.

Product advancement contains a various group of multi-talented people, maybe remembering authorities for structure, improvement, testing, setup the board. quality affirmation, documentation and user interface design. Every individual knows how their actions helps the business strategy while showcasing the personal objectives related to that plan.

The business has a product which is doing well in the market and meeting the needs of customers, it will surely evolve through its experiences and processes. The product is a result of a technology platform that is potent or could produce the idea for other products for all kinds of markets, not necessarily the similar one. Timely investment in new product study has lead to the idea and invention of new products attracting more investment and elevating brand's value overall.

Product development is a potent and predictable process dedicated to the invention of new products along with their development and introduction. An extensive range of customers can use the product to offer their input to business' future development. These development processes are enough to fulfil more than ten lakh quality standards without requiring a certification. Resources like Capability Maturity Model can be utilised to further enhance the Product Development Process [7].

VI. CONCLUSION

Early acknowledgment and the executives of basic issues, for example, those distinguished in this paper can expand the odds of achievement for a product startup.

Fruitful advancement of new programming items is a key esteem driver for a few new businesses. An organisation which can show that it has created at least one fruitful product in a commercial centre, and has the vision, and capacity to deliver more can expect an exchange deal at a decent valuation. Initial public offering might be conceivable if different areas and strategies of the process are powerful. The author welcomes the comments, inputs and experiences of startups who want to share.

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Importance of Web Analytics for the Success of a Startup Business

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Abstract. Businesses today are discovering the significance of an online presence. However, only a handful of them, know the importance of identifying what users are doing on their blog or business website. Here Web Analytics plays a critical role. Web Analytics, also known as Web data analytics, help boost website traffic & provide the website visitors' data. This study shows how web analytics help in collecting the important information of users behaviours, age, demographics, gender, conversions & source of traffic details. Startups & small businesses can optimise their content based on users' interest & take productive decisions. India which has become a hub of the startups in the world. Studies have showed that 90% of the startups get failed, in this paper it has been tried to find out how can Web Analytics play the role of catalyst for the success of the startup business. The sooner businesses embrace web analytics, the better.

Keywords: Web analytics · Google analytics · Startup · Web analytics tool · Startup success

1 Introduction

1.1 Startups and Web Analytics

The surge in the activity of Startup is due to the current set up that had its roots in the post-liberalisation economic activities [12]. The funding picture looks upbeat as the startup investments are reaching more than the US \$10 billion. The insight unleash that the heightened competition were cost-effectiveness, reliability, and skilled professionals that are always a service bank to foreign companies [2, 9]. And this is the reason for continuous growth where some of the well-known companies in the market are of vital importance in the Indian market.

The thriving ecosystem has three major flourishing elements that included - a high-quality talent hub, a large market, and financial access. These parameters are the productive indicators of entrepreneurship activities and offer engaging studies [3, 7].

Startups are the youthful organisations that have several tasks running parallel with such a fast pace that people acquire the background of a multi-tasker. Being controlled by the inside as well as outside factors, India is the 4th destination of promoting startups biologically after the UK, US, and Israel [7, 10]. The inside factors include the organisation's idea and its execution, whereas the outside factor is the Indian government.

India is the third largest startup economy in the world, India is a land where 3000+ new startups incorporated every year. Startups have given employment to around 300K individuals. 70% of the startups started in Delhi/NCR, Bangaluru and Mumbai regions. Bangaluru is also known as the Silicon Valley of India which has witnessed as the biggest investment destination in the previous years. Bangaluru itself accounts for more than 40% of the fundings [20].

Expanding step-by-step, the government also is focusing on improving methodologies and bringing changes to enhance the ease of doing business [15, 17].

Web Data Analytics is the study of web patterns and trends of the performance of the website at a specific or any region. It is a technique which is used to measure and analyse the performance of the website by collecting and analysing the website data in the form of reports [6, 8].

Web analytics is used to analyse the primary metrics and user's activity with traffic flow and pattern on the website.

Web analytics can be considered as a data analysis process which involves:

- Collection of patterns of visitors' data (website data)
- Analysing of the collected data and generating reports
- Generating insights by Understanding the reports
- Optimising the website
- Importance of Web Analytics

1.2 Why Web Analytics Is Needed?

Web Analytics is needed to determine the success rate of a business website and the brand associated with this [11, 13]. Following activities can be achieved by Web Analytics:

- Assess of web content problems
- Insight of website trends
- Monitoring of web traffic and users' pattern
- Demonstration of goals acquisition
- Figuring out of potential keywords
- Identifying the segments which needed the improvement

2 Web Analytics Process

Web Analytics Process gets completed in six steps; whenever a user visits the website, it gets recorded by the webserver. This data is then processed with Web Analytics, generating an in-depth report in tabular & chart form. The very first step of Web Data Analytics' process is to determine your goals. It is the most crucial step of any Web Analytics Process as all other levels revolve around this only. To get the desired outcome, the Goals need to be defined clearly. After defining the Goals, the next process will be to track the Goal's achievements and that can be tracked by KPI (Key Performance Indicators) - considered as the second step of the process. On the behalf of

Key Performance Indicators, the data is accumulated and then this “Collect Correct and Suitable Data” is the Third step of the process. Once correct and suitable data is found, it is analysed and this “Analyse Data” is considered as Web Analytics process’ Fourth step. Fifth Step of the Process is “Test Alternatives” and it’s done on the behalf of Analysed data. Last but not least is the Sixth Step of the Web Analytics Process which is Implementation of the insights [1, 5]. So the Web Analytics Process can be represented in Six Steps:

- **Goals** (Set the required business goals)
- **Important Performance Indicators** (to track the goal achievement)
- **Accumulate correct and suitable data**
- **Analyse data** (to get the insights)
- **Test alternatives** (Based on analysed data)
- **Implement insights** (Fig. 1).

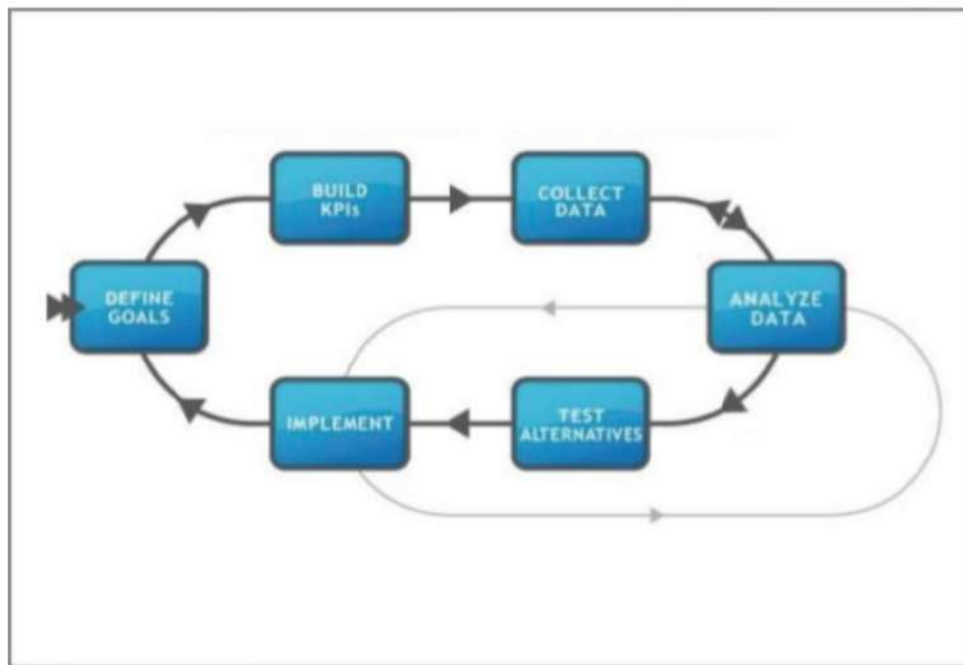


Fig. 1. [24] A fig showing Web Analytics Process

3 Web Analytics Tools

There are several tools available to undergo the Web Analytics of a website. These tools can be used to analyse and generate the customised report as per the requirement. They provide the overall performance of the website [13, 16]. There are tools which also provide the in-depth lacking details by analysing the On Page and Off Page Search Engine Optimisation parameters [18]. Following are the tools which are mostly used for the Web Analytics purpose:

- Google Analytics Tool
- KISSmetric

- Adobe Analytics Tool
- SEMRush Tool
- Hubspot Analytics Tool

Google Analytics Tool: Google Analytics is probably most reliable web analytics tool which offers a detailed statistic of your online traffic. It's used by more than 60% of the total startups. Google analytics tool also helps in the tracking and measuring website visitors, traffic sources, goals, conversion, along with other metrics (as you can see in the above image).

Google Analytics Tool generates reports on –

3.1 Audience Analysis

Audience analysis provides a detailed report of the visitors, following useful parameters can be tracked under the Audience Analysis:

- Demographics (Age and Gender of the website visitors)
- Geo (location and preferred Language of the visitor)
- Interests (affinity reach and market segmentation of the website visitor)
- Behaviour (New and consistent visitors, their visiting frequency, and engagement)
- Technology (Browsers, OS, and networks of audience)
- Device (Mobile, laptops, iPads & Desktops)
- Benchmarking
- Users flow (User flow activity) (Fig. 2).

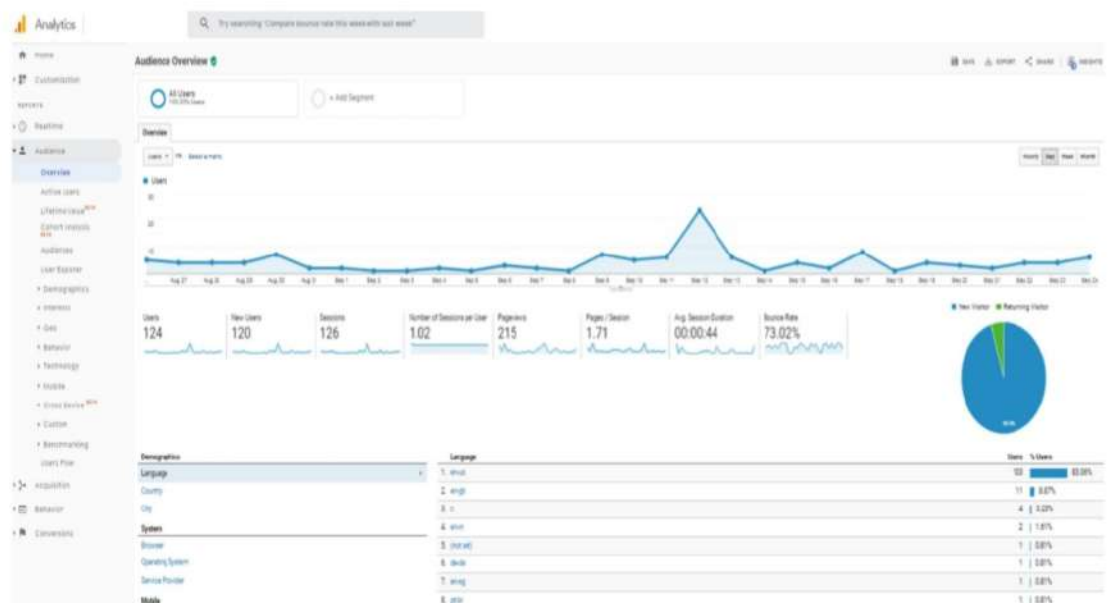


Fig. 2. [25] A fig showing overall Audience Analysis

Age Analysis: With the help of Age Analysis, the website owner can identify the age group of users who are visiting the site; accordingly, the looks and feel of the website

can also be designed. As in this specific case, it has been noticed that the age group of 33.50% of the Total visitors is 25–34. It can easily be noticed that max user for this specific products/service are under the 50 years of the age group (Fig. 3).

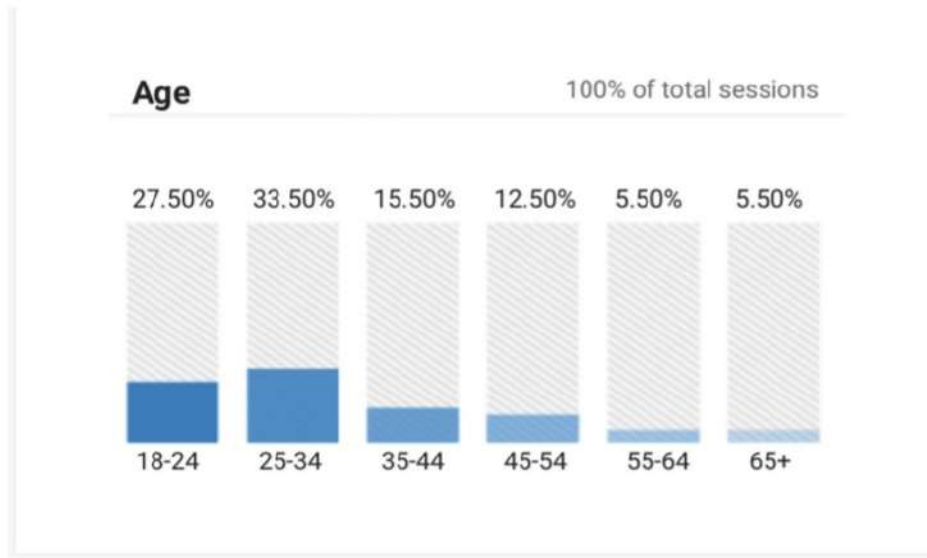


Fig. 3. [25] A fig showing Age Analysis

Gender Analysis: With the help of Gender Analysis, business owner can determine the Gender percentage and can plan his business strategies accordingly [1]. Let's say if there is a website of a unisex saloon, then he can plan the rates of the services as per the Gender visitors. In this particular case approx. 54% of the total users are the Male and rest are the Female. The business strategy can be drafted and implemented accordingly (Fig. 4).

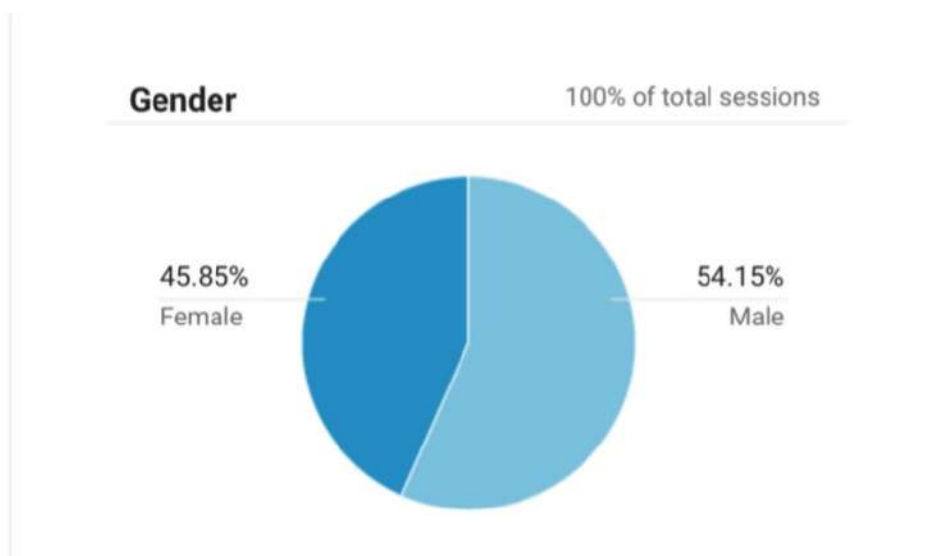


Fig. 4. [25] A fig showing Gender Analysis

Audience Interest Category Analysis: This analysis provide the details of the Interest categories of the visitors. This is very useful analysis for the business owners who are planning to start a new venture parallel with their existing one. It helps make the decisions basing on the audience Interest Category Analysis (Fig. 5).

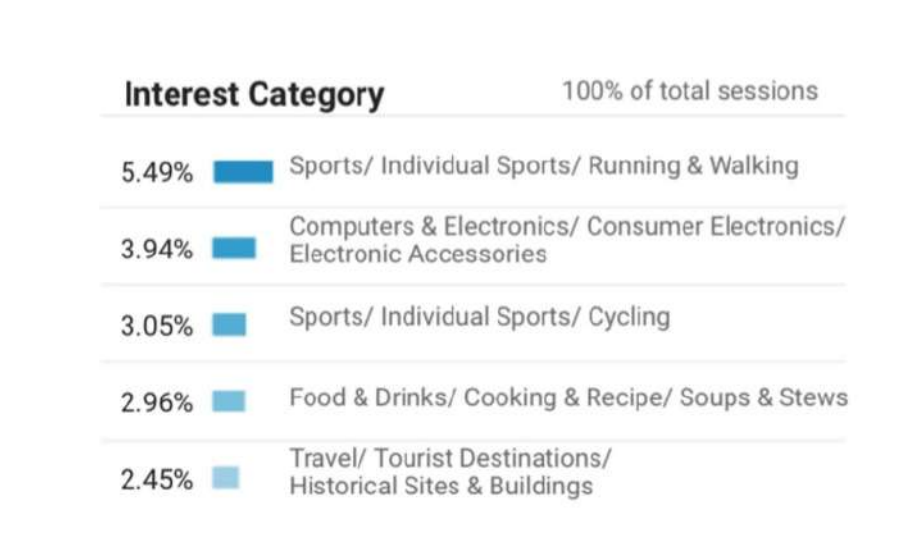


Fig. 5. [25] A fig showing Interest Category Analysis

Active User Analysis: This type of analysis helps the business owner in determining the Active Users or visitors of the site. This is tracked any time, and helps the owner to determine the number of users that appear usually at a time of the day. Thus, the Ad words can be set up accordingly (Fig. 6).

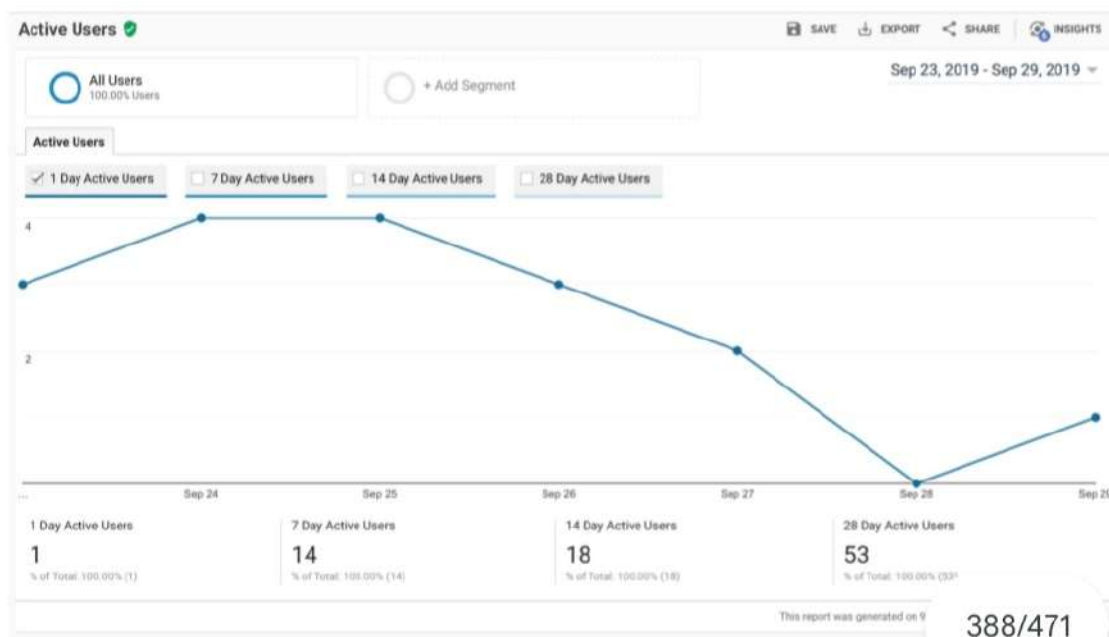


Fig. 6. [25] A fig showing Active User Analysis

Location Analysis: The location analysis lets the website owner know visitors' geographic location when they visits the website. Location Analysis also gives the detailed report on the basis of country as well as on respective state of that country [13]. In this case it has been noticed that out of 14 users 8 came from United States, 3 came from and 1 each from Argentina, Australia and China. Out of 14 Users the 10 are the New Users and out of these 10, 4 users visit from United States, 3 from Japan and 1 each from Argentina, Australia and China (Fig. 7).

Secondary dimension ▾

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Country ▾	Acquisition		Behavior				Conversions Goal 1: Create an Account Goal ▾		
	Users ▾	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Create an Account Goal (Goal 1 Conversion Rate)	Create an Account Goal (Goal 1 Completions)	Create an Account Goal (Goal 1 Value)
	14 % of Total: 100.00% (14)	10 % of Total: 100.00% (10)	21 % of Total: 100.00% (21)	42.86% Avg for View: 42.86% (0.00%)	5.14 Avg for View: 5.14 (0.00%)	00:08:58 Avg for View: 00:08:58 (0.00%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. 🇺🇸 United States	8 (57.14%)	4 (40.00%)	15 (71.43%)	40.00%	4.40	00:04:31	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. 🇯🇵 Japan	3 (21.43%)	3 (30.00%)	3 (14.29%)	33.33%	12.67	00:40:08	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. 🇦🇷 Argentina	1 (7.14%)	1 (10.00%)	1 (4.76%)	0.00%	2.00	00:00:13	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. 🇦🇺 Australia	1 (7.14%)	1 (10.00%)	1 (4.76%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. 🇨🇳 China	1 (7.14%)	1 (10.00%)	1 (4.76%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)

Show rows: 10 ⏮ Go to: 1 1 - 5 of 5 ⏭

Fig. 7. [25] A fig showing Location Analysis

New vs Returning Visitors Analysis: This report is very useful for any business owner, as it gives the analysis of the new and returning visitors. In this specific case, it can be noticed that out of 14 users; 10 are the new Visitors and 5 are the Returning visitors. The business strategy for the returning visitors can be drafted accordingly. It is very useful analysis for the startups which majorly runs on mobile app [23] (Fig. 8).

Filter Rows		Secondary dimension		Sort Type		Default					advanced		   		
☐	User Type	Acquisition			Behavior			Conversions			Goal 1: Create an Account Goal				
		Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Create an Account Goal (Goal 1 Conversion Rate)	Create an Account Goal (Goal 1 Completions)	Create an Account Goal (Goal 1 Value)					
		14 % of Total: 100.00% (14)	10 % of Total: 100.00% (10)	21 % of Total: 100.00% (21)	42.86% Avg for View: 42.86% (0.00%)	5.14 Avg for View: 5.14 (0.00%)	00:08:58 Avg for View: 00:08:58 (0.00%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)					
☐	1. New Visitor	10 (66.67%)	10 (100.00%)	10 (47.62%)	70.00%	4.50	00:12:04	0.00%	0 (0.00%)	\$0.00 (0.00%)					
☐	2. Returning Visitor	5 (33.33%)	0 (0.00%)	11 (52.38%)	18.18%	5.64	00:06:09	0.00%	0 (0.00%)	\$0.00 (0.00%)					

Fig. 8. [25] A fig showing New vs Returning Visitors Analysis

Device/Browser Analysis: This analysis gives the details of the device and browser from where the user has visited the website. Business Owner can predict the user on the basis of Browser (Figs. 9 and 10).

Post Rows		Secondary dimension	Sort Type	Default						
	Device Category	Acquisition			Behavior			Conversions		
		Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Create an Account Goal (Goal 1 Conversion Rate)	Create an Account Goal (Goal 1 Completions)	Create an Account Goal (Goal 1 Value)
		14 % of Total: 100.00% (14)	10 % of Total: 100.00% (10)	21 % of Total: 100.00% (21)	42.86% Avg for View: 42.86% (0.00%)	5.14 Avg for View: 5.14 (0.00%)	00:08:58 Avg for View: 00:08:58 (0.00%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
☐	1. desktop	11 (78.57%)	7 (70.00%)	18 (85.71%)	38.89%	5.78	00:10:27	0.00%	0 (0.00%)	\$0.00 (0.00%)
☐	2. mobile	3 (21.43%)	3 (30.00%)	3 (14.29%)	66.67%	1.33	00:00:04	0.00%	0 (0.00%)	\$0.00 (0.00%)

Fig. 9. [25] A fig showing Device Analysis

Post Rows		Secondary dimension	Sort Type	Default						
	Browser	Acquisition			Behavior			Conversions		
		Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Create an Account Goal (Goal 1 Conversion Rate)	Create an Account Goal (Goal 1 Completions)	Create an Account Goal (Goal 1 Value)
		14 % of Total: 100.00% (14)	10 % of Total: 100.00% (10)	21 % of Total: 100.00% (21)	42.86% Avg for View: 42.86% (0.00%)	5.14 Avg for View: 5.14 (0.00%)	00:08:58 Avg for View: 00:08:58 (0.00%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
☐	1. Chrome	9 (64.29%)	6 (60.00%)	11 (52.38%)	45.45%	6.64	00:14:21	0.00%	0 (0.00%)	\$0.00 (0.00%)
☐	2. Safari	3 (21.43%)	2 (20.00%)	8 (38.10%)	25.00%	4.12	00:03:49	0.00%	0 (0.00%)	\$0.00 (0.00%)
☐	3. UC Browser	2 (14.29%)	2 (20.00%)	2 (9.52%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)

Fig. 10. [25] A fig showing Browser Analysis

Acquisition Analysis: Acquisition analysis is done to explore the web traffic origin sources [11, 13]. It provides us the ability to:

- Capture traffic from different channels (especially from the source or from the referrals)
- Have a look at the built campaigns
- Trace traffic using Adwords [2]
- Track social media traffic
- Analyse the traffic from search engines (triggered landing pages and geographical summary)
- See which plug-ins gave you traffic [13] (Figs. 11 and 12).

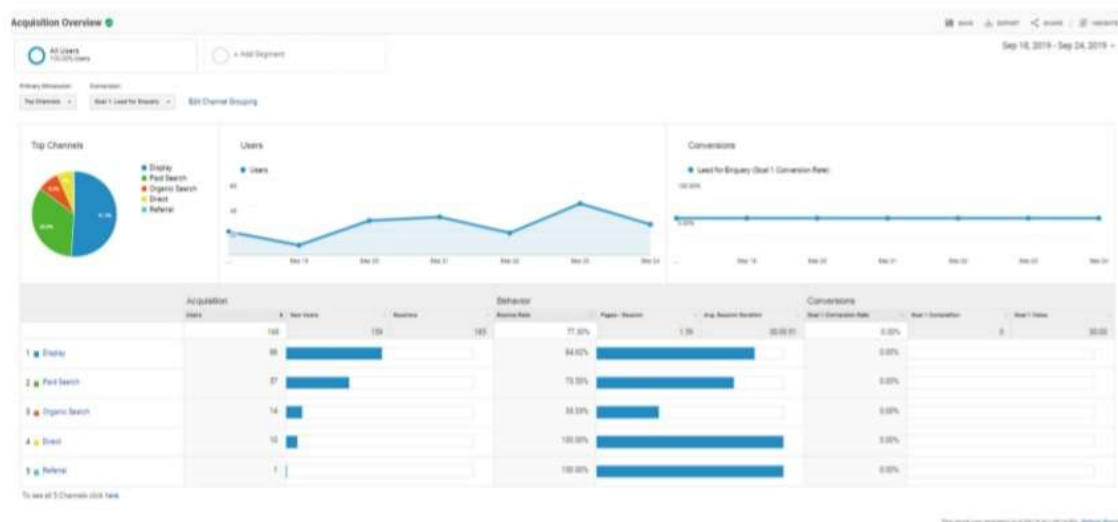


Fig. 11. [25] A fig showing Acquisition Analysis

Source		Acquisition		Behavior			Conversions		
		Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Create an Account Goal (Goal 1 Conversion Rate)	Create an Account Goal (Goal 1 Completions)
		3 % of Total: 21.43% (14)	2 % of Total: 20.00% (10)	6 % of Total: 28.57% (21)	33.33% Avg for View: 42.86% (-22.22%)	2.33 Avg for View: 5.14 (-54.63%)	00:02:31 Avg for View: 00:08:58 (-71.67%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)
1.	baidu.com	2 (66.67%)	2 (100.00%)	2 (33.33%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)
2.	foundationapi.com	1 (33.33%)	0 (0.00%)	4 (66.67%)	0.00%	3.00	00:03:47	0.00%	0 (0.00%)

Fig. 12. [25] A fig showing Referral Sources under Acquisition Analysis

Tree Map Analysis: This Analysis give the overall view of the source of all the users. As in this specific case there are 11 Direct users which means they come directly through the url. Then it shows there are Referral Users which mean these users come through the referral of any another url and 1 entry is through Organic Search (Fig. 13).

Behaviour Analysis: The Behaviour analysis observes visitors' activities on an online platform [18]. Behavioural data are generally found under the given segments:

- **Site Content:** It provides the details of the pages viewed. It provides the information of the page which the users visit and the page where the user exits from the website [16].
- **Site Speed:** It provides the information of page load time, execution speed, and performance data.
- **Site Search:** It provides the information of how the visitor search across any specific website. It can be analysed what the visitor searched for or how did they land on a particular landing page of the site.
- **Events:** The events are visitors' actions along with content (for example, downloads, sign up, & log-in, etc.). It can be analysed easily (Figs. 14 and 15).

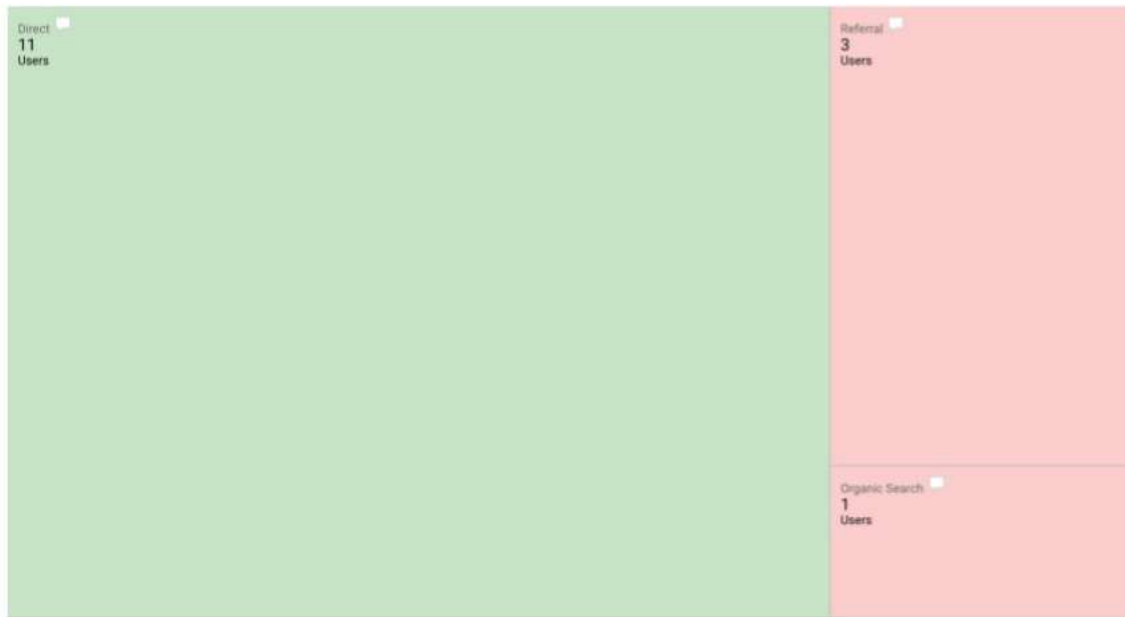


Fig. 13. [25] A fig showing Tree Map Analysis under Acquisition Analysis

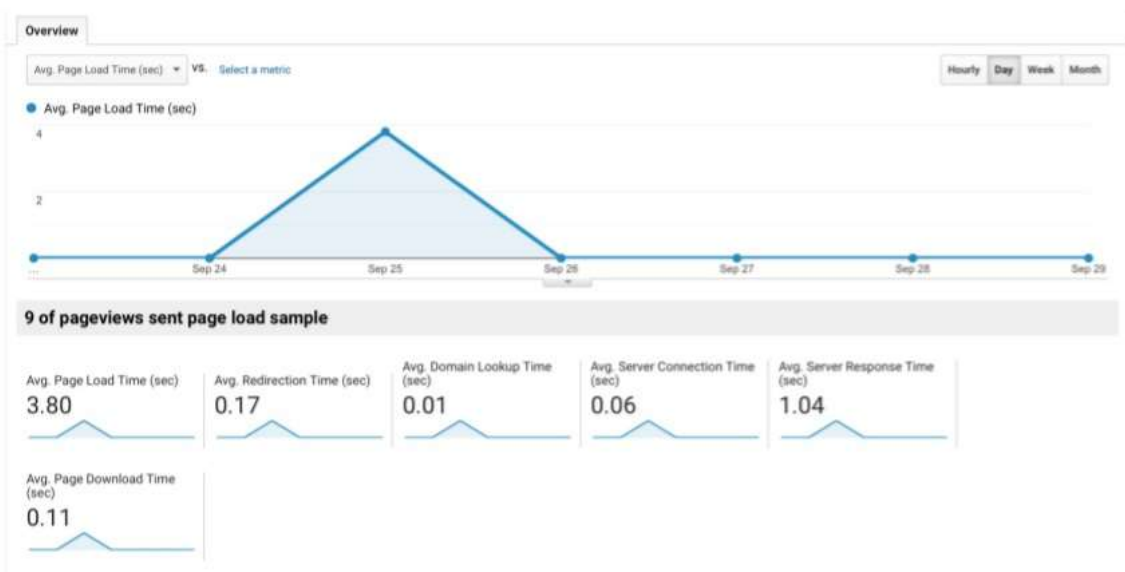


Fig. 14. [25] A fig showing Behaviour Analysis

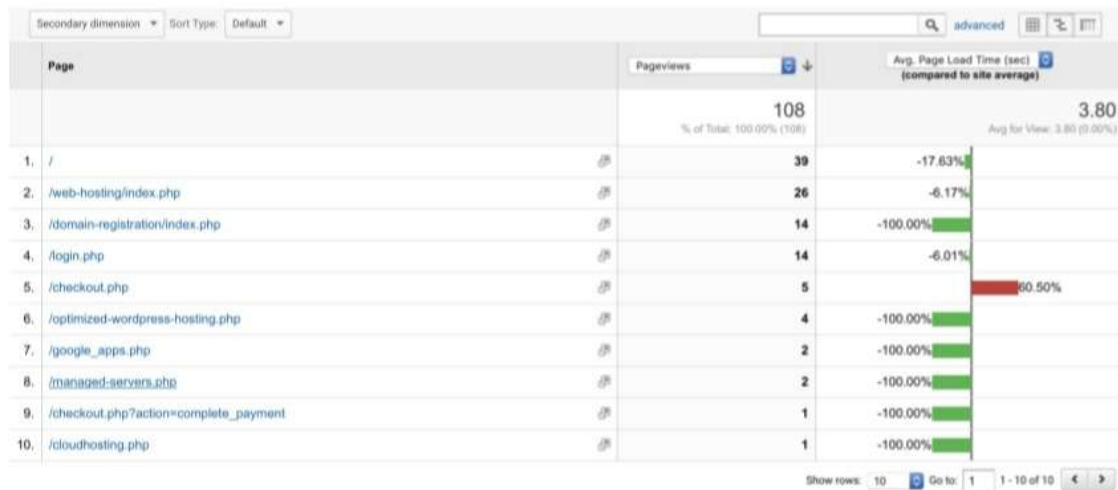


Fig. 15. [25] A fig showing Page Load under Behaviour Analysis

Conversion Analysis: Conversion is a goal completion (download, checkout, buy, etc.) by a user on a website.

- **Goals:** Metrics that find out a profit-making activity which you wish the visitor to fulfill. You can plan and set them for tracking these activities to measure the metrics. Whenever a goal is accomplished, a conversion gets reflected to the data. Thereby, you can observe your goal fulfillment, value, reverse path, & goal flow [22].
- **E-commerce:** You can also set a tracking for eCommerce that allows you to see the products which your users are buying from your business website [9]. It will also let you find out the product performance, sales performance, transactions, and also the estimated purchase time. Based on this information, businesses can also analyse what can be profitable for them and what can incur their loss.
- **Multi-channel funnels:** The acronym for MCF is the Multi-channel funnels, which is a report of the source of conversion. It incorporates the roles that a website will play, referrals' role in the conversion process; and what all slabs did while users were passing through the landing page to conversion. For example, a visitor searched for a query made on the Google search engine page. He then visited the website but could not convert [8]. After some time, he again directly typed your website's name and made a purchase; all these activities get traced by MCF.
- **Attribution:** The attribution modelling supports credit sales or conversions to touch-points in the process of tracking of conversions. Attribution also allows you to decide the platforms, strategies, and modules that are great for your business. Say, an individual stumbled on your site via AdWords ad but did not make any purchase. A month later, he again visits your website through a social platform but again doesn't buy. However, the third time, when he visits your site directly and gets converted. In such a case, the last interaction model can credit directly for the conversion. Whereas the first interaction model offers credit to a paid medium. Hence, you will analyse which module should be credited for the conversion (Fig. 16).



Fig. 16. [25] A fig showing Conversion Analysis

4 Importance of Web Analytics for the Startups

A startup is a new business venture either with a new idea or of an existing idea, in today's digital era all the companies want to register their existence online. They want to market & advertise their products and services online. One of the studies shows 60% of the budget of the marketing goes to the digital marketing [18]. For that every entrepreneur wants to mark his business online through the websites. Web Analytics plays a critical role in understanding the performance of a website.

Following are the parameters which a website owner always keen to improve:

- Bring the website on the Top Searches
- Best ranking for the target keywords
- Ability to track the demographic details of audience
- Ability to track the behaviour of audience
- Ability to track the device and browser used by the audience
- Ability to track the website performance and lacking parameters

The above parameters can be tracked and improved by using the Web Analytics Tool like Google Analytic Tool. The success rates increase for those who successfully can get mark their presence online.

5 Challenges Faced by the Startups

Data Security in Web Analytics: Privacy & data security are raising concern in the world of online marketing and analytics. Especially after the GDPR act, there's a fear in the consumer world about data security. Certain countries have even more stringent rules about the usage of its citizen's personal data by the companies. Non-compliance to data security could cost the organizations dearly. Brands like Google and Facebook faced tough time handling data privacy and security of their users [14]. It's a big

challenge for the startups too, have will they manage the users' data. They will have to draft and implement the tough policies for their employees, being it developers, analysts and marketing team members and will have to make sure that no data of the users should be leaked/used for any purpose.

Failure to Deliver Action Items: Web analytics reports are just tables & graphs with metrics and dimensions. All a tool can offer is to provide you with 'how much' depending on your business [5]. The real challenge is to answer- "So? What should I do about it?" The proper data analytics team is required, who can suggest the management the required strategy which need to be implemented as per situation and requirement.

Troubles in Integration: Each Web analytics tool, at some point, should be joined with some other data source. For instance, the offline sales data, competitor data, third party data, or API. At this point, every major player of the market has a standardised procedure to pull it off. But it's still a challenge for many customised implementations.

Insufficient Knowledge: Web data analytics has been around for 10 plus years now. However, the exact implementations, the best and proven practices, and deriving actionable insights – all are still the mystery. I am quoting it confidently as I've worked with Sr. Account Managers & Support Engineers with almost every primary web analytics tool in the world! – One common thing I can say is that none of them are 100% confident on the way their devices work.

Difficulty in Accessing Content: Users of regional demographics found it difficult to use the English Keyboard also there is less content available for the users in the regional languages. This is the one of the mainstream challenge faced by the website owner, as it has been seen that mostly websites are in Languages, though provision of translating the content into another languages available but it doesn't provide the correct record of the visitors in translated format [6].

Low Data Speed: Websites run on internet and to allow the server to load good animations, video and good quality images good internet speed is required. Having fast internet is a challenge for almost all developing countries including India. Out of 122 countries, India ranked 109 for mobile internet speed.

6 Conclusion

Small businesses and startups should not check their website traffic/data occasionally. It won't just hurt their online reputation, but also draws a negative impact on the revenue and customer interaction. The study made clear that web traffic is not a separate task from its operations. In fact, Web Analytics is a critical process that can help businesses (mainly startups) improve their website traffic drastically. Web analytics helps small, mid-sized business and brands to analyse the key metrics, and visitors' activity along with user's traffic flow and pattern on the website. As about 90% of the startups fail in 5 to 10 years of span, [17, 19] this failure can be avoided [4, 21] if the businesses make a proper strategy of on the basis of the reports generated by Web Data Analytics. With the help of Google Analytics and other Web Analytics tools, the small business & startup

owners can easily track down the age, gender, interest, and location of the visitors [10, 11]. It makes it easy for such companies and brands that have an online presence to observe the user behaviour, know what people are or aren't responding well to, which posts are going well for targeted audience, which keywords to target, which ads to run, and then chalk-out their strategies for success accordingly. Though there are certain challenges that come along with the web analysis process such as the need for fool-proof security, integration hazards, failing in delivering action items, difficulty is accessing content, and low data speed for that matter, Web Analytics practice is much critical for small businesses. Apart from this, the Web Analytics is required to assess the success rate of a site or business that is associated with it. For the startups which run their business majorly online for them it is very beneficial to know the data of the Returning and the New visitors. Coupons, offers and special discounts on the services can also be decided accordingly. With proper Web Analysis process that completes in six steps, and potent web analytics tools such as Google Analytics Tool, Adobe Analytics Tool, SEMRush Tool and more discussed in details in the study, online success seems attainable. Thus, by applying the tactics, advanced practices & in-depth knowledge from this detailed study, startups as well as enterprise companies can achieve all their online business goals, beat their competition, & avoid strategic assumptions or actions that can leave revenue on the table.

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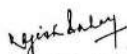
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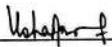
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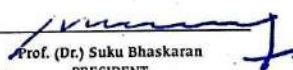
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