



THE RELATIONSHIP BETWEEN DIGITAL ANALYTICS AND BUSINESS SURVIVAL OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) IN ANAMBRA STATE

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ABSTRACT: *Despite the growing relevance of digital technologies, many MSMEs in Anambra State still struggle to leverage digital analytics effectively for sustained business survival and competitiveness. Based on this, the study examines the extent of the relationship that exists between digital analytics and the business survival of micro, small and medium enterprises (MSMEs) in Anambra State. A quantitative research design was employed, using primary data collected via structured questionnaires and interviews administered to 331 purposely selected MSME owners and managers. Descriptive statistics were used to analyze respondents' demographic data, while hypotheses were tested using simple regression analysis through SPSS version 27. The findings revealed that digital analytics has a positive relationship on business survival in Anambra State. Based on the findings, it is recommended that MSME owners and managers in Anambra State should invest in digital analytics training and tools to enhance data-driven decision-making, improve operational efficiency, and ensure long-term business survival in an increasingly competitive digital economy.*

KEYWORDS: Digital analytics, Business survival, MSMEs, Anambra State.



INTRODUCTION

The survival of Micro, Small, and Medium Enterprises (MSMEs) is crucial to economic growth, particularly in developing nations. MSMEs play an important role in the creation of jobs, revenue, and innovation. The International Finance Corporation (IFC, 2020) estimates that MSMEs account for approximately 90% of all businesses worldwide and contribute up to 70% of total employment. MSME survival is crucial to local and national economic growth. In Nigeria, and particularly in Africa, MSMEs play a very significant role in the manner in which they significantly contribute to GDP, as Nigerian MSMEs cater to 50% of the employment sector and over 48% of GDP (Central Bank of Nigeria, 2021). Though significant, MSMEs in developed and developing nations are facing enormous challenges to remain competitive and in operation (Olawale & Garwe, 2020).

Globally, digital technologies have been among the most influential business survival and growth drivers, specifically MSMEs. Through such technologies, firms can automate activities, enhance customer relationships, optimize supply chain management, and use data-driven information to stay competitive. Digital analytics, in particular, has proven to be an essential technology in enhancing business performance and survival. Through data analysis, companies can determine market trends, learn about consumer behavior, and rectify inefficiencies, allowing them to make more informed decisions in improving their capacity to adapt and survive in challenging environments (Marr, 2021). In Africa, where MSMEs do not have access to infrastructure and capital, the use of digital analytics has allowed companies to transcend traditional limitations and react to digital trends (Olawale & Garwe, 2020).

In Nigeria, the nexus between business survival and digital analysis is now being felt as MSMEs are starting to tap into technology to evolve their businesses. Most of the MSMEs in Nigeria are already making use of digital technologies to track consumers' actions, plan marketing campaigns, and manage inventory effectively, all of which increase their opportunities for survival in the competitive marketplace. For example, in Lagos, other small and medium businesses have come up with e-commerce platforms and online marketing, opening new markets and changing rapidly to adapt to changes in customers' needs. These technologies give informative information, enabling MSMEs to predict demand and react immediately to changes in the market (CBN, 2021). Anambra State in the southeast region of Nigeria is an economic hub where MSMEs have a basic role in the local economy. The majority, though, experience similar sets of challenges in doing business in Nigeria beyond Anambra that include limited availability of finances, poor infrastructure, and insufficient level of technology to cater to the technological demands. These notwithstanding, digital analytics are coming in handy as a backup tool against adversity. A good number of MSMEs in Anambra now utilize digital techniques such as social media measurement and web-based business practices as tools for business augmentation, reaching the customer, and marketing more to wider markets. The utilization of such digital technology has enabled MSMEs in Anambra to improve their business, customer satisfaction, and profitability, enabling them to survive in the competitive market (Anambra State Government, 2022).

Although the impact of digital analytics is positive on the survival and expansion of MSMEs, there are obstacles. Among the major barriers to the effective utilization of digital analytics in Anambra are the inadequate digital literacy among MSME owners and employees. As per the Nigerian



Communications Commission (NCC, 2022), while there has been remarkable advancement in internet penetration in Nigeria, there remains a shortage of the digital skills needed to maximize data analytics. The shortage of digital skills prevents several MSMEs from completely leveraging the application of digital analytics in decision-making.

Another significant issue is the astronomical cost of digital infrastructure and technology adoption. The majority of MSMEs in Anambra do not have sufficient funds, which makes it difficult for them to invest in the necessary digital equipment. While some of the companies have opted for affordable substitutes, the unstable provision of power in the state complicates things by interfering with business processes and contributing to the challenges faced by these companies (NCC, 2022). The government of Anambra State has sought to counter these challenges by setting up programs that will enhance digital potential among MSME owners and managers. Programs such as the Anambra State Digital Economy Initiative have been set up to train MSME owners and managers on digital platforms and tools. State government-private sector collaboration has also aided in making digital tools available to MSMEs (Anambra State Government, 2022). But these have been marred by low levels of awareness among entrepreneurs and inconsistent implementation, which have resulted in sluggish adoption rates. In spite of all these, there are still core problems because of infrastructure deficiencies, most notably the unstable power supply and weak internet connectivity in the rural regions. Moreover, while there have been some government programs towards MSME development, there has been incomplete support coupled with a lack of a harmonized national digital policy, which restrained the mass-scale use of digital analytics by MSMEs across the state (CBN, 2021; Olawale & Garwe, 2020).

LITERATURE REVIEW

Conceptual Issues

Digital Analytics

During the era of digital transformation, small businesses are being increasingly forced to leverage the strength of technology to survive in the long term and grow in the future. Within the core skill sets of entrepreneurs, digital analytics skills are now a strict necessity (Bertino et al., 2020). They encompass the capability to collect, evaluate, and interpret digital data from various digital sources to drive business decisions and plans. With so much information being produced every day nowadays, these competencies are most important for entrepreneurs of small businesses (Narayanan et al., 2020). Digital analytics make it possible for business owners to understand customer conduct, make choices on market fashion, and gauge their online effectiveness, thereby empowering more data-oriented, informed business decisions (Schneider et al., 2019).

Business Survival

The survival of MSMEs has been characterized by Omhonria and Needorn (2022) as the ability of a business to operate continuously, often referred to as managing to stay in business. To cope with the challenges that provide continuity of operations, organizations are continually being



reorganized in an effort to accommodate impending challenges (Ukpai, 2019). In response to such challenges, businesses must strategize and develop the best possible framework for adaptation, which will enable them to utilize maximum available resources and leverage them to achieve their organizational objectives.

Theoretical Framework

The Diffusion of Innovation Theory

The Diffusion of Innovation Theory, introduced by Everett Rogers in 1962, explores how, why, and at what rate new ideas and technologies spread through cultures. Innovation is presumed to be passed through particular media eventually among members in a social system, and that adoption occurs systematically with various types of adopters like innovators, early adopters, and laggards. One of the major critiques of the theory is that it may oversimplify the process of adoption, as at times it does not account for individual or situational drivers of technology adoption. However, the theory continues to be significantly relevant in envisioning how MSMEs are capable of leveraging digital analytics towards competitiveness. Under the theory, it emphasizes identifying and adopting innovations as a significant determinant of survival for businesses. By the use of digital analytics, businesses can identify future trends and make data-based decisions to adopt new strategies, enhancing their growth and sustainability (Rogers, 1962).

Review of Empirical Literature

Okolo-Obasi et al. (2025) conducted a study on the relationship between digital commerce and MSMEs output in Sub-Saharan Africa: The Nigeria experience, covering the period from 2018 to 2023. Using econometric analysis of secondary data from the World Bank and Nigeria's statistics bureau, they found that digital commerce—driven by analytics—significantly boosted productivity and resilience across sectors, including MSMEs in Anambra. Nwagbala et al. (2024) examined how digital business models, entrepreneurship, and supply chain management impacted selected SMEs in Anambra from 2020 to 2023. Using a cross-sectional survey and statistical analysis, they found that incorporating analytics into operations improved supply chain efficiency, lowered transaction costs, and fostered sustainable growth.

Ukabi (2023) highlighted the imperative application of ICT skills to ensure the survival and sustainability of small businesses. The methodology employed in the study was quantitative in nature. Data were gathered through structured questionnaires administered to small business owners and managers in various industries. The sample size was purposively selected to include small businesses that are actively engaged in utilizing ICT tools. The data collected were analyzed using statistical methods, with descriptive statistics employed to understand the profile of the respondents and inferential statistics used to assess the relationship between ICT utilization and business survival. The study underlined that small businesses, in effective utilization of ICT skills, can improve the efficiency of operations, decision-making, and quick response in the competitive business sector. It was concluded that acquiring and applying ICT knowledge is the key to the survival of the business, especially in the backdrop of current-day technological progress.



Okoli and Nwosu (2023) investigated how digital transformation influenced the performance of Micro, Small, and Medium Enterprises (MSMEs) during the COVID-19 era in Anambra State. Focusing on the years 2020 to 2022, their research used surveys distributed to SME operators in Awka and Onitsha. The results showed that digital tools, particularly social media and analytics, played a vital role in helping these businesses stay afloat and adapt by enhancing their market reach and communication with customers. Njelita, Onyeagwara, and Okafor (2023) studied how online marketing and digital tracking tools affected SME performance in Anambra between 2018 and 2022. Using quantitative analysis of data from 120 SME owners, they found a strong link between the use of digital marketing analytics and improvements in customer retention, sales, and brand awareness.

Okeke and Onyia (2023) explored the influence of digital platforms and analytics on the competitiveness of SMEs in Anambra from 2019 to 2022. Through a combination of questionnaires and interviews, their mixed-methods study concluded that businesses utilizing analytics were better at managing inventory, forecasting demand, and responding to market shifts—key factors in staying competitive. Okafor and Okafor (2023) assessed the effects of online marketing and analytics on SME performance in Anambra from 2017 to 2022. Employing a descriptive survey approach with 150 MSMEs, they discovered that real-time analytics on customer engagement led to better marketing effectiveness, enhancing both customer retention and business growth. Ade-Ibijola and Okonkwo (2023) examined the issue of underdeveloped data ecosystems in Nigeria and South Africa between 2019 and 2022, which they found to be a barrier to AI and analytics adoption in SMEs. Nevertheless, early adopters in areas like Anambra saw gains through customized, data-driven strategies.

Ifeanyi et al. (2022) looked into the link between awareness of digital analytics and market positioning among MSMEs in Asaba, Delta State, from 2017 to 2021. Based on structured interviews and regression analysis, the study revealed that businesses leveraging data analytics achieved more effective product development, better customer targeting, and stronger long-term viability. Makina (2022), in a qualitative study spanning 2016 to 2021, analyzed the hurdles South African SMEs face when integrating big data tools. His findings showed improved customer targeting and market fit among users, though challenges like poor data handling and limited funding remained obstacles. Mbohwa and Seseni (2021) evaluated the impact of big data on SMEs in South Africa from 2015 to 2020 using surveys and secondary data. Their research concluded that firms investing in big data saw increases in profitability and competitiveness, underlining the importance of digital skills and infrastructure for SME success.

Ongori and Migiro (2010) provided a continent-wide literature review on ICT adoption in SMEs from 2000 to 2009. Their study concluded that although digital tools like analytics fostered innovation and competitiveness, their usage remained limited due to infrastructural shortcomings. Chibelushi (2008) analyzed technology adoption in small tech-focused firms across Africa from 2004 to 2007 through case studies and interviews. He found that businesses using analytics adjusted more quickly to market demands and had better survival rates, despite facing challenges such as high costs and skills shortages.



METHODOLOGY

Research Design

The study employed a quantitative research design to gain a deeper and more holistic insight into the research problem. This approach enabled the incorporation of varied perspectives from key stakeholders—such as MSME owners, employees, customers, and policymakers—thereby offering a balanced and comprehensive understanding of the entrepreneurial ecosystem.

Area of the Study

The study was conducted in Anambra State in southeastern Nigeria. Bordered by Kogi, Enugu, Abia, Imo, and Delta states, Anambra lies at coordinates 6.2209° N and 6.9370° E, comprising 21 local government areas such as Awka North and South, Onitsha South, Nnewi North, and others. Awka, the state capital, serves as the administrative center, while other key towns include Onitsha and Nnewi. Anambra hosts several tertiary institutions and various public and private organizations. The state's economy is largely driven by commercial activities, with a vibrant presence of MSMEs engaged in trade, transport, education, healthcare, media, and light industry. Aptly known as the “Light of the Nation,” Anambra remains a major hub for entrepreneurial and economic activity in the region.

Population of the Study

The study population consisted of owners and management staff of registered MSMEs across the three geopolitical zones of Anambra State. Based on the 2022 report by the Anambra State Chamber of Commerce, a total of 1,919 registered MSMEs were identified in Onitsha South (Anambra North), Nnewi South (Anambra South), and Awka South (Anambra Central). The selection of MSMEs was guided by sectoral relevance and included enterprises in hospitality (hotels and fast-food businesses), hypermarkets, bakeries, beauty and hair salons, and various service-oriented firms such as consultancies and research organizations. These sectors were chosen due to their significant economic contributions within the state.

Sample Size Determination and Sampling Technique

To determine the appropriate sample size for the study, the Taro Yamane formula (1967) was employed. This formula is particularly suitable for studies involving a finite population and provides a simplified method for sample size determination. The formula is stated as:

$$n = \frac{N}{1 + N(e)^2}$$

Sample size would be determined using Taro Yamane's formula:

$$n = N/(1+N(e)^2)$$



N = Population of Registered MSME

e = Error Ratio

$$n = 1919 / (1 + 1919(0.05)^2)$$

$$n = 331$$

Therefore, we adopt the sample size of this study as 331.

- The study utilized a Non-Probability Purposive Sampling Technique to select 331 registered MSMEs across the three geopolitical zones of Anambra State. This method was chosen due to the impracticality of reaching all MSMEs in the regions under review. Two non-probability sampling techniques were combined for this purpose:
- Convenience sampling: Participants were selected based on their availability and willingness to participate. This approach is easy to implement, though it may not perfectly represent the entire population.
- Theoretical purposive sampling: Participants were chosen for their ability to provide valuable insights into the specific research questions or theoretical concepts being explored. This method focused on individuals whose experiences or characteristics were particularly relevant to the study.

Sources of Data

The survey questionnaire was the core tool for primary data collection in this study, carefully designed to be the key instrument for obtaining detailed information on digital analytical skills. It played a crucial role in gathering comprehensive data that would support the study's objectives.

Method of Data Collection

This study employed a structured data collection approach using a five-point Likert scale questionnaire. The questionnaire is specifically designed to assess the perceptions, attitudes, and behaviors of MSME owners regarding digital analytics. The scale ranges from 1 ("strongly disagree") to 5 ("strongly agree"), enabling respondents to indicate varying levels of agreement or disagreement with each statement, thereby allowing for the capture of detailed and accurate opinions.

**Table 1: Questionnaire Distribution, Collection and Analysis**

S/N	Towns	Distributed	Retrieved	Analyzed
1	Awka	90	85	80
2	Onitsha	131	118	112
3	Nnewi	110	97	90
Total (Percentage)		331 (100%)	300 (90.6%)	282 (85.2%)

Source: *Field Survey 2024*

Table 1 illustrates the distribution, collection, and analysis of the questionnaires. As detailed in the table, 331 questionnaires were distributed according to the study's sample size. A total of 300 questionnaires were returned, representing 90.6% of those distributed. However, only 282 questionnaires, or 85.2% of the total distributed, were analyzed, as 18 questionnaires were excluded due to incomplete responses that could not effectively reflect the respondents' views.

Validity of the Instrument

The study employed content validity by submitting a copy of the developed questionnaire to my supervisor for assessment and revision. The questions were modified and restructured to align with the study's goals. As a result, the content of the questionnaire was deemed appropriate and relevant for the research.

Reliability of the Instrument

The study utilized the test-retest method to assess the reliability of the questionnaire. A total of 15 copies of the questionnaire were distributed to respondents at pharmaceutical companies (Emzor and Joez Pharmaceuticals Nigeria Ltd), which were not part of the main study sample. After a period of fifteen days, the questionnaire was revised and redistributed to the same set of respondents. The reliability of the responses was tested using Rank correlation analysis, yielding a reliability coefficient of 0.98, indicating that the instrument is highly reliable. Below is a table showing reliability figures.

Table 2: Reliability of the Instrument Test Table

Options	Number of distributed questionnaire	Pre-test	Re-test	Differences (D)	D ²
Strongly agree	15	5	7	-2	4
Agree	15	7	4	3	6
Disagree	15	2	2	0	0
Strongly Disagree	15	1	1	0	0
Undecided	15	0	1	-1	1
					$\Sigma d^2 = 11$

Source: *Field survey, 2024.*



$$\text{Formula : } 1 - \frac{6\sum di^2}{n(n^2-1)}$$

d = deviation / differences

n = number of paired items

1= unity

Substituting,

$$r = 1 - \frac{6 \times 11^2}{15(15^2 - 1)}$$

$$r = 1 - \frac{66}{15(225 - 1)}$$

$$r = 1 - \frac{66}{3360}$$

$$r = 1 - 0.0196$$

$$r = 0.98$$

Method of Data Analysis

The study used descriptive tools such as frequency distributions, percentages, means, and standard deviations. These techniques were essential in examining the central tendencies and variability of the responses, facilitating a thorough analysis of the research objectives.



DATA PRESENTATION AND INTERPRETATION OF RESULTS

Data Analysis

Demographic Distribution

Table 3: Respondent Demographics

Demographic Variables	Categories	Frequency	Percentage
Gender	Male	110	39
	Female	172	61
Age Group	18 - 29 years	164	58
	30 - 39 years	68	24
	40 - 49 years	34	12
	50 - 59 years	16	6
Highest Educational Qualification	Diploma	80	28.3
	Bsc	116	41.4
	Msc	60	21.2
	PhD	26	9.1
Business Scale	Micro	85	29.9
	Small	119	42.3
	Medium	78	27.8
Combined Experience	Less than one year	29	10.6
	1 - 2 years	30	10.8
	2 - 5 years	43	15.1
	5 - 10 years	136	48.3
	10 - 15 years	26	9.1
	More than 15 years	18	6.1

Source: Field Survey 2024

Data collected from a survey conducted over a five-month period (January to May 2024) is summarized in Table 3. The first section of the survey gathered demographic details from 282 individuals working in MSMEs across the three geopolitical zones of Anambra State. Questionnaires were distributed via email, with biweekly reminders. Of the respondents, 39% were male and 61% were female. A majority (58%) were between the ages of 18 and 29. In terms of educational qualifications, 41.4% held a bachelor's degree, and 21.2% had a master's degree. Most respondents (48.3%) had 5 to 10 years experience. Regarding company size, 27.8% worked for medium-sized businesses, 42.3% for small businesses, and 29.9% for micro-sized enterprises. Percentages were calculated using the formula: Percentage = (Frequency of occurrence/Total number of respondents) × 100.



Relationship between Digital Analytics Skill and Business Survival

Table 4: Distribution of Responses for Analytics Skill and Business Survival

Questionnaire Item	SA	A	UD	D	SD	Mean	Decision
Digital Analytics							
How often do you use digital analytics tools in your business?	56	161	23	39	3	3.80	Accepted
How would you rate your proficiency in digital analytics?	41	115	44	78	3	3.39	Accepted
How does digital analytics help your business survive and grow?	39	139	33	68	3	3.50	Accepted
Social media analytics shaped my marketing strategies?	50	135	41	56	-	3.62	Accepted
Business Survival							
I believe my business can survive in a competitive market.	47	119	34	79	3	3.45	Accepted
I have contingency plans to ensure business continuity.	53	160	25	44	-	3.78	Accepted
I am confident in my ability to navigate challenges that threaten my business.	23	184	24	51	-	3.63	Accepted
I regularly assess external factors that may impact my business's survival.	39	138	33	69	3	3.50	Accepted

Source: Field Survey 2024

Table 4 shows the distribution of responses for digital analytics skills and business survival. The analysis is conducted on the mean of the respective questionnaire items. There is an acceptance threshold for any questionnaire item with a mean of 3 and above and rejects questionnaire items with a mean of less than 3. All the items for measuring digital analytics ability and business survival were positively established.

Hypothesis Testing

H04: There is no substantial relationship between digital analytics capability and survival of MSMEs in Anambra State.

HA4: There is a strong relationship between digital analytics capability and MSME business survival in Anambra State.

**Table 5: Correlation between Digital Analytics and Business Survival**

Correlations			
		Digital Analytics	Business Survival
Digital Analytics	Pearson Correlation	1	.863
	Sig. (2-tailed)		.000
	N	282	282
Business_survival	Pearson Correlation	.863	1
	Sig. (2-tailed)	.000	
	N	282	282

Source: SPSS 23 Outputs

Result Summary

Table 5 reveals a strong positive correlation between digital analytics and business survival, with a correlation coefficient of $r = 0.863$, a sample size of $n = 282$, and a p-value of 0.000 ($p < 0.05$). Based on this result, the alternate hypothesis is accepted, indicating a statistically significant positive relationship between digital analytics and the survival of MSMEs in Anambra State.

DISCUSSION OF FINDINGS

This study investigated the relationship between Digital Analytics Skills and Business Survival, revealing a significant effect ($r = 0.863$, $n = 282$, $p = 0.000$, $p < 0.05$), thereby supporting the hypothesis. The findings align with previous studies, such as Ukabi (2023), which emphasized the importance of ICT skills for the sustainability of small businesses.

The research sub-question explored is, "What is the extent of the relationship between digital analytics skills and business survival of MSMEs in Anambra State?" The objective was to examine the nature of this relationship.

Digital analytics involves using data to make informed decisions, optimize operations, and predict market trends. This skill is crucial for business survival as it enables MSMEs to remain agile, adapt to changes, and make data-driven decisions that improve efficiency and competitiveness. The positive relationship found indicates that mastery of digital analytics contributes to better business survival by helping businesses navigate market complexities and maintain a competitive advantage.

The Diffusion of Innovation Theory, proposed by Everett Rogers, explains how and why new ideas and technologies spread through cultures. This theory is particularly relevant for understanding how digital analytics helps drive new innovations. By analyzing data, businesses can identify emerging trends, customer preferences, and technological advancements, allowing them to adopt innovations more effectively. For instance, an MSME using digital analytics may identify increasing demand for a product feature and rapidly incorporate it, staying ahead of competitors and meeting customer needs.



Once an innovation is adopted, successful implementation is key to realizing its benefits. Digital analytics supports this by monitoring performance and impact. Businesses can track key performance indicators (KPIs) and adjust their strategies in real time. For example, after implementing a new customer relationship management (CRM) system, an MSME can use digital analytics to assess its effectiveness and optimize its use to maximize benefits. This aligns with the Diffusion of Innovation Theory's focus on optimizing innovation use for desired results.

The theory also highlights the importance of communication channels in spreading new ideas. Digital analytics can enhance these channels by offering insights into the most effective platforms and messaging strategies. By understanding which communication strategies resonate with their target audience, businesses can promote their innovations more effectively. For example, an MSME might discover through digital analytics that social media campaigns are the best way to reach early adopters, accelerating the adoption of new products. This strategic communication supports the broader adoption of innovations.

CONCLUSION AND RECOMMENDATION

The finding of the research recognizes the central role digital analytics capability plays in propelling the business survival of MSMEs in Anambra State. The research confirmed that there is a high level of positive correlation between digital analytics use and business longevity, highlighting the fact that firms with such capabilities are better equipped to cope with the evolving market situation. With the use of digital analytics, MSMEs are able to gather valuable data on the behavior of consumers, efficiency of operations, and direction of the market with direct impacts on their competitiveness and survivability. As the business landscape becomes increasingly driven by data, the ability to make informed decisions through digital tools becomes a key determinant of success. For MSMEs, this implies that investment in digital competencies and analytics not only enables day-to-day business but also sets firms to be capable of addressing problems in advance, discovering new opportunities, and ultimately realizing sustainable growth. This research helps support the case that digital transformation is no longer a choice but a requirement in conducting business in the competitive market today. In conclusion, the study highlights the importance of training MSME owners and managers on the technical skills and capacity needed to propel digital analytics successfully. This capacity helps organizations remain agile, optimize performance, and stay competitive, leading to survival in a dynamic economic landscape. For Anambra State MSMEs, adopting digital analytics is one of the necessary conditions for their market survival and sustainability in the long term.

It is recommended that small businesses invest in the continuous development and enhancement of ICT skills among their management and staff. This can be realized through training workshops and collaborations with technology suppliers to update businesses with recent technological innovations. Policymakers should also influence small businesses to embrace digital technology by offering incentives in the form of grants or subsidies for ICT training and equipment.



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