

## **COMPARISON OF SCIENCE COVERAGE IN HINDI AND ENGLISH NEWSPAPERS OF INDIA: A CONTENT ANALYSIS APPROACH**

**Dr (Mrs) Meenu Kumar**

Visiting faculty, Center for Science Communication,  
Devi Ahilya University, Indore, Madhya Pradesh, India

Website: [www.dauniv.ac.in](http://www.dauniv.ac.in)

Email: [mn\\_kumar26@rediffmail.com](mailto:mn_kumar26@rediffmail.com)

### *Abstract.*

The present study focuses on coverage of science and technology in major Hindi and English newspapers of India. The objective of the study was to find out the space given to scientific and technological information in newspapers. The comparison has also been made in Hindi and English newspapers in terms of coverage, their preferences in dealing with the subjects, the formats being used in disseminating scientific information, and the sources of information whether Indian or foreign. The research methodology which is being used is content analysis. The result indicates that science gets very little space in newspapers and English newspapers cover science more prominently than Hindi newspapers. It also reveals that the health is the most preferred topic in Indian newspapers followed by environment. However, news is the most favored format for disseminating scientific information in Indian print media.

*Key Words:* Science, technology, coverage, newspapers, News, article,

## *Introduction*

Science has become an indispensable part of life resulting sweeping changes in the socio-economic status, culture, values and environment. The lost glory of the country during British rule could only be revived because of the very clear vision of our national leaders and their firm believe in science who in order to bring the country at the par of global advancement, stressed on the development of science and technology which is reflected in the Scientific Policy Resolution<sup>1</sup> passed in 1958 which states “The dominating feature of the contemporary world is the intense cultivation of science on a large scale, and its application to meet a country's requirements. It is this, which, for the first time in man's history, has given to the common man in countries advanced in science, a standard of living and social and cultural amenities, which were once confined to a very small privileged minority of the population”. It also emphasizes the importance of technology in the development of country. “The key to national prosperity, apart from the spirit of the people, lies, in the modern age, in the effective combination of three factors, technology, raw materials and capital, of which the first is perhaps the most important, since the creation and adoption of new scientific techniques can, in fact, make up for a deficiency in natural resources, and reduce the demands on capital. But technology can only grow out of the study of science and its applications”.

Thus the importance of science cannot be denied but equally important is the dissemination of scientific and technological information to the country people. That's why our Science and Technology Policy<sup>2</sup> (2003) aimed “to ensure that the message of science reaches every citizen of India, man and woman, young and old, so that we advance scientific temper, emerge as a progressive and enlightened society, and make it possible for all our people to participate fully in the development of science and technology and its application for human welfare. Indeed, science and technology will be fully integrated with all Here media can play an important role”.

The science and technology has deep penetration in modern life but the educated mass is only enjoying the advancement of science and technology and mass of lay men are still remaining ignorant of this phenomenon. Developing country like India has to make people informed and update up to grass root level in this field as the scientific illiteracy leads to superstitions, the swaying attitude on the name of religion and the unscientific thinking will hamper all the effort of development of the government.

Media is mainly responsible for dissemination of the information from all over the world and from all walks of lives making people aware and informed. In terms of communicating science, the media are seen as “brokers between science and the public, framing the social reality for their readers and shaping the public consciousness about science-related events. They are, for many readers, the only accessible source of information about science and technology” (Nelkin,<sup>3</sup> 2001). But it is also true that newspapers are not providing sufficient space for science and technology as they are more interested in regional and local

news and political, social, and other issues making them sensational ignoring science which has brought so much change in the lives and will make drastic changes in future too. It is usually said that media publish what people want and what interest the public but at the same time it is also the duty of the media to arouse the interest among them by publishing science and technology in a way people understand and it can be done by proper presentation and interpretation. Because the uninformed coverage of science may lead to what has been referred to as “scientific illiteracy” (Kennedy & Overholser<sup>4</sup>, 2010)

It is in this background the study has been opted to assess the real picture of sharing of science and technology news especially in the context of fast pace of development in the field of science and technology.

### **Objective of the study:**

The study has been carried out with the following objectives:

1. To study the overall coverage of science and technology in Indian newspapers.
2. To compare the coverage of science and technology in Hindi and English newspapers of India.
3. To compare the preferences of subjects within science by Hindi and English newspapers of India.
4. To compare the formats in which science is published in Hindi and English newspapers of India
5. To compare the sources of news published in the Hindi and English newspapers of India.

### *Literature Review*

India has made a great stride in field of science and technology after independence. But only a small percentage of country people may be aware about these developments and tremendous information are still lying embedded in the research and development laboratories of the country. In spite of emergence of more sophisticated and user friendly mass media like television and internet, the dependence of people on traditional print media for news and other information still make it to flourish as a result its number is multiplying .

Numerous research studies have been carried out to find out the status of science and technology in newspapers and magazines which are as following:

Lusia Massarani, dorfman Buys Brunom Amorim, Luis Henrique and fernanda Veneu<sup>6</sup> analysed seven Latin American newspapers quantitatively and qualitatively to find out the way in which journalistic coverage of science and technological theme is being carried out and was reported to be very few.

Further, Kumar Arya Umesh<sup>7</sup> used the Content analysis for studying the coverage of research news in five English newspapers of India and revealed that research news items were published on medical sciences, physical sciences, social sciences, business items and IT but the frequency of them is negligible. It also showed that there was strong relationship between a newspapers' readership and frequency of research news appearance. Newspapers reported Indian research news followed by US and UK.

Fifteen South African publications were analyzed by Carine van Rooyen<sup>8</sup> of South African Foundation for Education over a period of three months from March 2002 to June 2002. He found that only a small percentage of science and technology articles were published during the research period. It was also revealed that the small number of the publications depend upon foreign publications and agencies in the provision of science stories.

Marianne G. Pellechia<sup>9</sup> of USA analyzed the content of three major dailies of US- The New York Times, The Chicago Tribune's and The Washington Post to study the coverage of science over a period of three decades. He found that though the coverage of science articles is very small but it has steadily increased with each time period. He reported that the articles published in the newspapers had omitted the methodology and contextual information and feature were too critical for a complete journalistic account of science.

Similar study was also carried out by University of West England in which science, health and medicine were examined in five UK national newspapers: three broadsheets, a tabloid and a mid sheet. The content analysis of these newspapers confirmed that medicine and health topics were privileged over science in reporting. The study also reported that medical journals to be the main source of the news stories, but general science and medical news were drawn from variety of sources. (Emma Weitkamp<sup>10</sup>)

Fiona Hyden and Chris King<sup>11</sup> conducted a survey of UK newspapers in 2003 and found that life science gets preference than technology and earth science.

Bharvi Dutta<sup>12</sup> analyzed the content of English newspapers –The Hindu, The Times of India and The Pioneer and reported that the Indian newspapers devoted space less than 1 % of the total printed space to articles and stories related to science and technology. The study also indicates that the greatest proportion of newspaper space was devoted to nuclear science and technology, followed by defense, space research, and astronomy.

In India, Vigyan Prasar<sup>13</sup> commissioned a survey of science coverage in media. The study comprised of 52 newspapers, 31 in Hindi and 21 in English for November, December and January 1999-2000. The study revealed that on an average only 3.3 % science items are given in the media -4.3 % in English and 2.5 % in Hindi. It also reported that maximum no of science stories were published from the field of health care/medical (31.8%) irrespective of language, place of publication and day.

Another study assesses the role of Indian newspapers in creating mass concern with environmental issues. The content of three leading dailies were analyzed and it was found that these newspapers published news items, editorials and articles on environmental issues of local, national and international interest. This was also revealed that environmental problems were brought into focus with scope and time (T. Sekar<sup>14</sup> 1981)

Bharvi Dutta, K C Garg and Suresh Kumar<sup>15</sup> have studied 36 newspapers from March 2008 to May 2008. The Times of India emerged as the leading newspaper carrying the maximum number of items (577) allocating maximum space (77,412 cm<sup>2</sup>), followed by The Asian Age (177 items and 34,451 cm<sup>2</sup>), The Hindustan Times (155 items and 29,508 cm<sup>2</sup>).

In another study content analysis method was used to compare the coverage of science and technology in national and regional newspapers by the author<sup>16</sup>. The result indicated that the regional newspaper( Free Press) give more space 1.32% than the national newspaper( Times of India) which was only 0.96%. It was also reported the both the newspapers give priority to health and medicine over other.

Massimiano Bucchi and Renato G. Mazzolini<sup>17</sup> of University of Trento, Italy, studied the science coverage by the leading Italian newspaper, over a period of fifty years using the content analysis and reported that science coverage is expanding over period of time. Results also showed that the typical science story dealt with biomedical issues, referring to a geographical context outside Italy.

#### *Research Design:*

*Sampling:* Four newspapers available from 10 leading newspapers published by Registrar Newspapers India, has been selected for the study. These newspapers are- The Times of India and The Hindu in English and The Dainik Bhaskar and Patrika in Hindi. Time period of study is June 20011 to June 2012. The sample of 36 issues of each newspaper out of 365 issues has been selected by systematic sampling method of probability sampling. In total 144 issues have been analyzed.

*Methodology:* The aim of the study was to find out the coverage of science and technology in Indian newspapers for which quantitative assessments based on content analysis was used. It is a method of studying and analyzing communication in a systematic, objective and quantities manner for the purpose of measuring variables. (Kerlinger F<sup>18</sup>1986). Scientific And technological information which were published anywhere in the newspapers were treated as a unit of analysis and were coded on a number of variables like the area, topics, format of publication and the sources of the information.

The total printed area for news and editorial content has been derived by deducing advertisement space from the total space of newspaper. The content is further categorized in different scientific fields like health, environment, space, astronomy etc and its area was calculated.

*Statistical tools*

Only percentage has been calculated to see the coverage of science and technology in newspapers.

*Data Collection and analysis:*

1. *Coverage of Science and Technology in Indian newspapers.*

The coverage of science in comparison to the total space available for printing news and editorial content in national newspapers has been given in the Table No 1. It shows that out of 1889739 cm square space available for editorial and other contents; only 38549.75 cm square space was dedicated to science and technology which accounts for 2.04% of total printed area.

*Table No 1*

*Coverage of Science & Technology in Indian Newspapers*

<i>Total space ( in cm square)</i>	<i>Space for S &amp; T( in cm square)</i>	<i>Percentage of S &amp; T</i>
1889739	38549.75	2.04%

2. *Comparison of coverage of science and Technology in Indian Newspapers:*

The Table No 2 deals with the space and the percentage of coverage of science and technology in the Hindi and English newspapers together. The result clearly shows that English newspapers allocates 21699.5 cm sq to science and technology out of 925272 cm sq space available for publication and the Hindi newspapers has given 16850.25 cm sq space out of 964467 cm sq. Thus English newspapers are giving more space to science and technology, In term of percentage also English newspapers are dedicating 2.34 % in comparison to Hindi newspapers which are giving only 1.74 percent materials on science and technology. This indicates that English newspapers give more priority to science and

technology than Hindi newspapers. Fig No 1 also shows the comparison of science coverage in Hindi and English newspapers in terms of percentage.

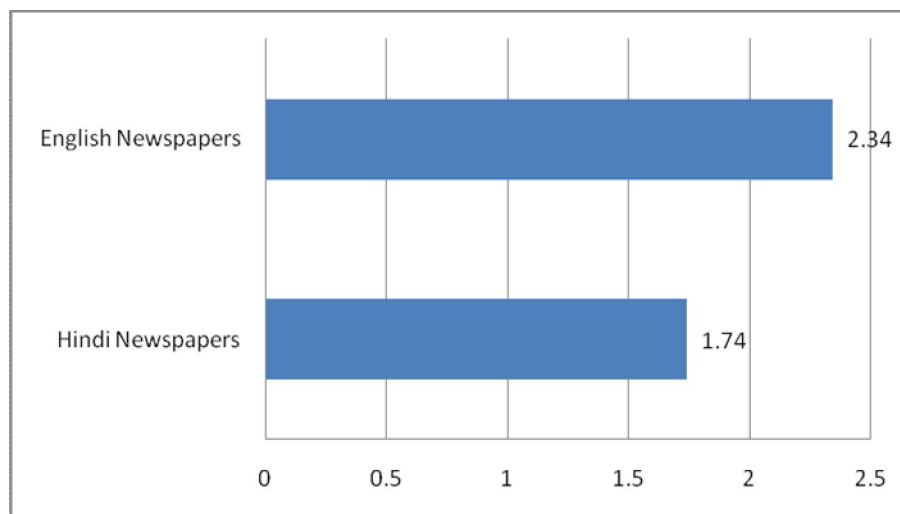
Table No 2

Comparison of Coverage of Science & Technology in Hindi and English Newspapers

S. No	Name of newspapers	Total space (in cm sq)	Space for S & T ( in cm sq)	Percentages S & T
1	Hindi Newspapers	964467	16850.25	1.74
2	English Newspapers	925272	21699.5	2.34
3	Total space	1889739	38549.75	2.04 (Aver)

Fig No 1

Comparison of Coverage of Science & Technology in Hindi and English Newspapers



### 3. Preferences to Subjects by Hindi and English Newspapers:

The Newspapers published materials on different scientific subjects and in the variety of format. However the space awarded to topics differs with different newspapers. The Table No 3 Shows The space allocation and their respective percentage on different topics. On examining the Table, it has been found that both, Hindi and English newspapers have given highest priority to health and published 57.58 percent and 38.57 percent material on it respectively. The space allocation on health is 9702.5 cm square in Hindi and 8371.25cm sq in English.

Environment is found to be the second most important topic which has been covered prominently by newspapers, getting the percentage of 21.78 % in Hindi and 31.78 % in English newspapers. The space

allocation is 3669 cm sq and 6894.12 respectively. The next importance has been given to Astronomy in Hindi newspapers with 1085.375 cm sq and 6.44 percentages. But in English newspapers the Information technology was given third preference with the overall percentage of 6.41 with 1390.75 cm sq followed by Astronomy and space with the percentage of 5.07 and 4.37 respectively.

*Table No 3*  
*Preferences of Subjects of Science & Technology in Hindi and English newspapers*

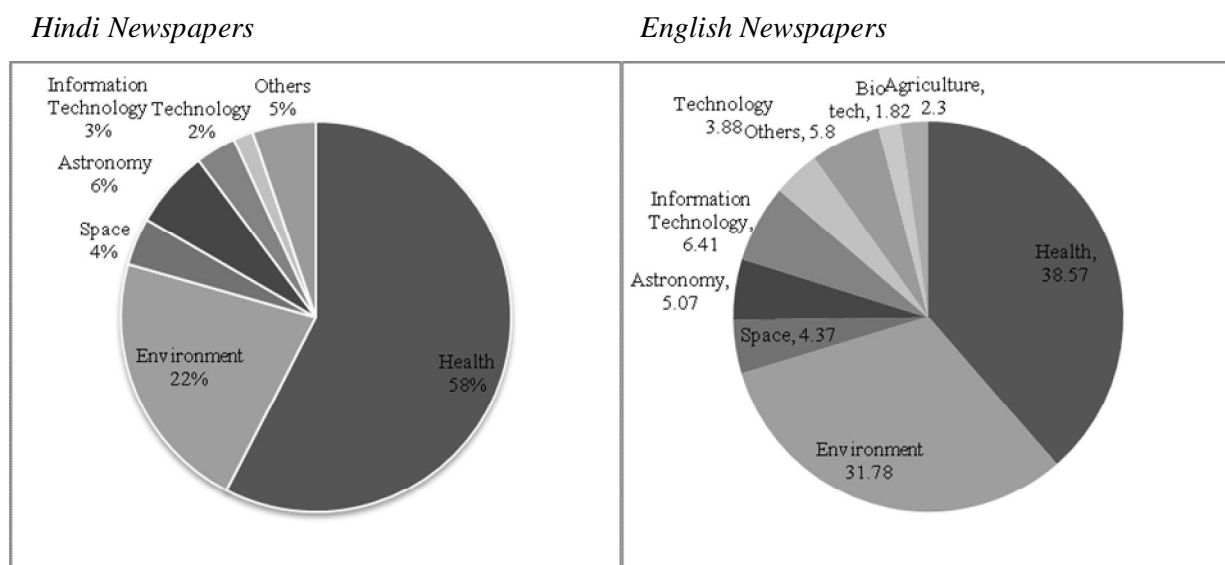
S. No	Subjects	Hindi Newspapers		English Newspapers	
		Space in (cm square)	Percentage	Space in (cm square)	%
1	Health	9702.5	57.58	8371.25	38.57
2	Environment	3669	21.78	6894.125	31.78
3	Space	665.875	3.95	948.5	4.37
4	Astronomy	1085.375	6.44	1100.625	5.07
5	Information Technology	564.875	3.35	1390.75	6.41
6	Technology	276.625	1.64	842.25	3.88
7	Others	886	5.26	1258.5	5.80
8	Bio tech	-	-	394	1.82
9	Agriculture	-	-	499.5	2.30
<i>Total</i>		<i>16850.25</i>	<i>100</i>	<i>21699.5</i>	<i>100</i>

Hindi newspapers published news on space with 3.95 percent, Information Technology with the percent of 3.35, Technology 1.64 percent and others items including pure science and chemical science etc. with the space allocation of 886 and percentage of 5.26. English newspapers also published materials on agricultural and Biotechnology with the percentage of 2.30 and 1.82. However, Hindi newspapers have ignored these subjects and did not publish any material on these topics.

The preferences of subjects by English and Hindi Newspapers have also been represented graphically in Fig No 2.



*Fig No 2*  
*Preferences of Subjects of Science & Technology*  
*In Hindi and English newspapers (in %)*



4. *Format of Scientific Information Published in Newspapers:*

Media play important role in informing, entertaining and educating people. However people prefer to newspapers for information and keeping them update. Newspapers publish materials in variety of formats like news stories, articles, opinion pieces like editorials, queries of readers in the form of question-answers and interviews etc. The present study also analyzes the formats in which the newspapers published their literature in science and technology.

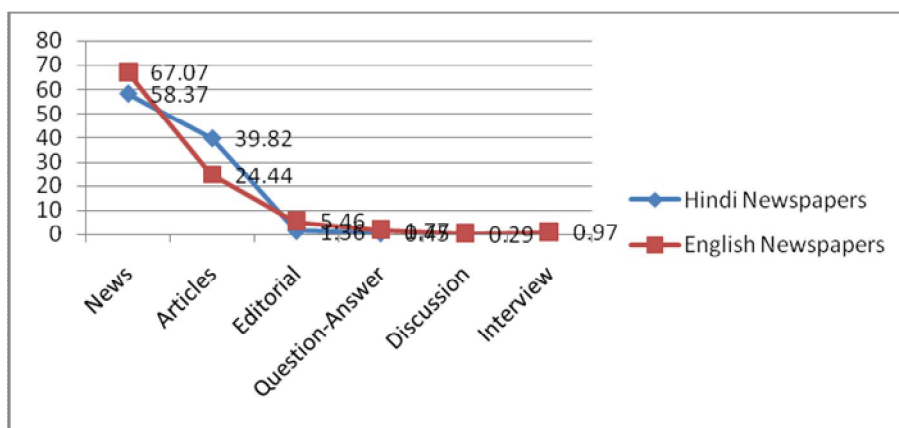
The Table No 4 reveals that Hindi newspapers have published materials in various formats like news, articles, and editorial and question- answer. But most of the information disseminated in the form of news with the percentage of 58.37 with space 9835.875 cm sq followed by articles with the percentage of 39.82 with space of 6709.375 cm sq. Editorials were given only 1.36 percent and question answer were only nominal and that was 0.45 Percent. As far as English newspapers are concerned, like Hindi newspapers maximum space have been given to news with 67.07 percent with space 14554.5 cm sq, followed by articles with 5303.75 cm sq space allocation and 24.44 percent of overall publication. The study also indicates that English newspapers published 5.46 percent editorial which is more than Hindi newspapers. These newspapers also published question-answers, discussion and interviews the percentage of which

are 1.77, 0.29 and 0.97 respectively. The space allocation is 383, 63.75 and 210 cm sq. The comparison is shown in Fig No 3 also.

*Table No 4*  
*Format of Scientific Information Published in Hindi and English Newspapers*

S. No	Format	Hindi Newspapers		English Newspapers	
		Space ( in cm sq)	%	Space ( in cm sq)	%
1	News	9835.875	58.37	14554.5	67.07
2	Articles	6709.375	39.82	5303.75	24.44
3	Editorial	229	1.36	1184.5	5.46
4	Question-Answer	76	0.45	383	1.77
5	Discussion			63.75	0.29
6	Interview			210	0.97
<i>Total</i>		16850.25	100	21699.5	100

*Fig. No 3*  
*Format of Scientific Information Published in Hindi and English Newspapers*



5. *Sources of Scientific Information Published in Hindi and English Newspapers of India:*

For investigating the sources, only news has been considered as articles and interviews are generally by-line and other formats like questions-answers, discussions and editorials are usually the regular features of any newspaper.

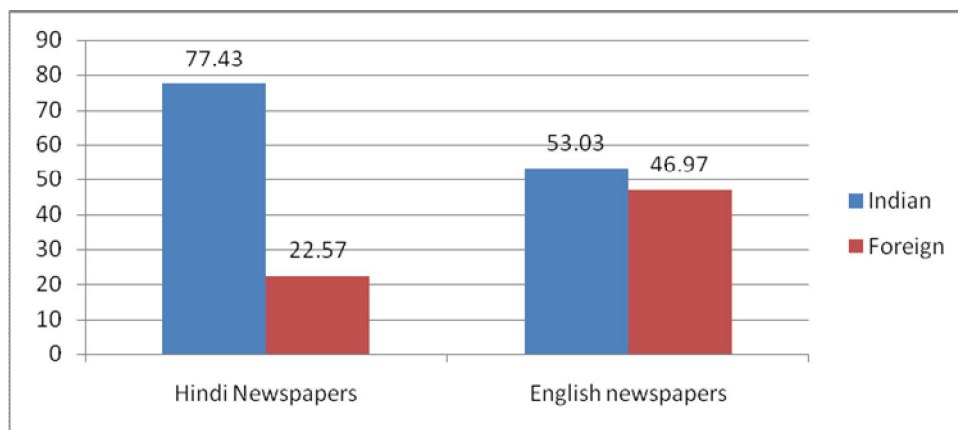
The Table No 5 shows the sources of scientific news and on enquiring the table it has been found that in both the newspapers most of the news has been picked up by Indian sources. The space allocation in Hindi and English newspapers are 7615.63 sq cm out of 9835.875 sq cm and 7718 sq cm out of 14554.5 sq cm respectively. The percentage of Indian sources in Hindi newspapers are 77.43 and in

English newspapers 53.03. The news published from foreign sources is 22.57 % in Hindi and 46.97 % in English newspapers. Fig no 4 represents the sources of scientific information published in Indian newspapers.

*Table No 5*  
*Sources of Scientific Information Published in Newspapers*

S.No	Sources	Hindi Newspapers		English Newspapers	
		Space ( in cm sq)	%	Space ( in cm sq)	%
1	Indian	7615.63	77.43	7718	53.03
2	Foreign	2220.25	22.57	6836.5	46.97
	Total	9835.875	100	14554.5	100

*Fig No 4*  
*Sources of Scientific Information Published in newspapers*



#### *FINDINGS AND DISCUSSION:*

- The study reveals that on an average only 2.04 percent literature are published on science and technology which is very little amount in comparison to other types of information. India is the country of superstitions and false believes and for this reason all the efforts of developments usually do not give the results as expected. In fact these false believes do not allow the country men to take part in the march of development and they are lagging in all walks of life. This can be resolved by giving more and more information on scientific issues in interesting manners so that the scientific temper of common man may develop and they can also progress with the advancement of nation.

- The result indicates that Hindi newspapers gave only 1.74 percent news on an average and English newspapers gave 2.34 percent news on scientific issues. English newspapers are giving a little more information to make people aware about day to day events and also giving details of scientific issues in the form of articles. But the problem is that many people, who can hardly read Hindi, cannot comprehend the content of English newspapers. Therefore the space allocation in Hindi newspapers should be enhanced to accommodate more scientific information thus making larger population of the country aware about science and technology.
- The study shows that most of the newspapers published more materials on health and medicine followed by environment. In fact newspapers published what readers like to read and it is obvious that the people of today are more aware about their wellness and health and they want genuine information on different health topics as guidance. Environment is also the topic on which people are getting aware and they relate it with their welfare. The daily dose of news on these topics makes people to understand different aspects of science and technology.
- The study reveals that all the newspapers published more information in the form of news stories followed by articles. Newspapers are usually to inform public the day to day events and it is true in case of science and technology. The articles are usually published to give more details on some important or interesting topics so that public may understand the dealt issues in terms of economic, political or social consequences.
- Most of the news stories are taken from the Indian sources/agencies. This is good for our people because they want to know more about their country than of abroad.

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