

Political Participation in the Information Society and Impact of Open Data on It

Larisa Hrustek
Faculty of Organization and Informatics
University of Zagreb
Varaždin, Croatia
lhrustek@foi.unizg.hr

Martina Tomičić Furjan
Faculty of Organization and Informatics
University of Zagreb
Varaždin, Croatia
mtomicic@foi.unizg.hr

Igor Pihir
Faculty of Organization and Informatics
University of Zagreb
Varaždin, Croatia
ipihir@foi.unizg.hr

Abstract— Political participation stands for involvement of citizens in political processes, making thereby impact on policy creation, decision making and the action of political actors. Political participation can be improved by information and data availability, as well as establishment of a mutual communication of all stakeholders involved. This paper presents an overview of research on political participation in the information society as well as open data influence on political participation. The selected concepts are still an insufficiently researched area, as evidenced by the analyzed literature, so quantitative indicators measuring the same concepts and their interconnection have been investigated too. Although the correlation should have been identified, this research shows a rather poor interconnections reported in available studies, raising therefore potentials for further work and research.

Keywords—information society, open data, political participation

I. INTRODUCTION

Political participation implies the involvement of citizens in political topics and activities in order to influence political processes, such as decision-making and laws on certain topics, policymaking, election of politicians and other. In Western democracies, political participation includes a wide range of activities, such as voting, attending public hearings, communicating with those in power, signing petitions, participating in protests, serving in political organizations, and renewing or running for offices [1], [2].

Active civic engagement, but also passive involvement of citizens through gathering information on important political topics, is certainly important for the quality of life. Regardless of the form of engagement, citizen participation should have an impact on better government and public policy decisions. Active citizenship is thought to make the public interest more likely to be represented in collective decisions. Even for personal well-being, social and political participation can contribute to individual's happiness and mental health [3].

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In the past, the classical media played a very important role in disseminating information and knowledge about politics, which also influenced political participation. The development of digital technologies has contributed to civic learning and the political engagement has been made possible. Information society is the availability of information to the individual and the acquisition of knowledge, using technologies and communication media [4]. A sustainable information society is a society that uses information and communication technologies and knowledge to nurture good lives of all people of present and future generations by strengthening biodiversity, technological usability, economic wealth for all, political participation of all and cultural wisdom [5]. Open data, and consequently open government concept, can help in making the information flow more transparent and contribute to the availability of data for all stakeholders involved.

The purpose of this paper is to analyze the influence of information society and open data on political participation and to give an overview of interconnections between these concepts.

The aim of this paper is to provide answers to the following research questions:

- What does political participation in the information society mean?
- To what extent are open data and political participation connected?
- Which indicators measure information society maturity, open data availability and political participation?
- Do indicators show any interconnectivity between the three investigated concepts?

In this paper, a literature review of the research area will be presented first. Next, selected indicators, which measure information society maturity, open data availability and political participation level will be explored, and their interconnectivity will be analyzed. At the end of the paper, the topic will be concluded.

II. METHODOLOGY

The first part of the search was made based on a complex query on the topics: "political participation" AND "information

society", and relevant databases, namely Scopus and Web of Science (WoS) were explored. This search was made to explain political participation in the information society. The second part of the search was also done in the Scopus and WoS databases on the topic of a complex query: "political participation" AND "open data", and this analysis aimed to investigate whether there is a connection between these concepts. These complex queries, in the selected databases, were searched by topic, i.e. the search included a title, abstract, and keywords, while there were no special restrictions in both searches.

TABLE I. NUMBER OF ARTICLES PUBLISHED IN SCOPUS AND WOS

Query	"political participation" AND "information society"		"political participation" AND "open data"	
	Scopus	WOS	Scopus	WOS
Database/Platform	Scopus	WOS	Scopus	WOS
Number of articles	16	15	10	11
Number of articles without matching	23		12	

As a result of a search on a complex query "political participation" AND "information society" in the Scopus database 16 articles were found. The same search of the WoS platform resulted with 15 articles. After reviewing the articles, it was found that out of 15 articles from WoS, 8 of them were also found in Scopus, and the remaining 7 were different. This resulted in 23 articles for further analysis. A content analysis was made, and articles appropriate for analysis of the research area were included for accomplishing the research aims.

A second search on "political participation" and "open data" resulted in 10 articles in Scopus and 11 articles in WoS. After reviewing the articles, 9 articles in Scopus were found to be the same as the ones from WoS, and ultimately 12 articles were included in the further content analysis, some of which were appropriate for the research of the topic.

The search results on both queries in the relevant databases showed that political participation in the context of the information society and new concepts of the same, such as open data, is still insufficiently explored. It should be noted that political participation in relation to the concept of open data is only beginning to be explored in recent times, as shown by searches in databases where articles on this topic are published only from 2015 onwards.

III. LITERATURE REVIEW ON THE RESEARCH AREA

A. Political participation in information society

Political participation is civic engagement in selection of government representatives, participation in voting activities, and campaigns, contacting political officials and more [6], whereby the activities are aimed to influence government decisions [7]. Digital political participation takes place via the Internet and social media [8], [9] and is an advantage for citizens who have the resources for it, but not all resources are available in all countries and to all citizens. In this sense, the use of the Internet for political purposes would be an example of digital inequality. Political participation via the Internet was also

mentioned by Petrosyan [2] who believes that the Internet and information and communication technologies should be viewed as platforms for political participation. That allows access to various political content and direct interaction between citizens and politicians, increasing thereby the political participation [7]. Technologies should be used to present views and proposals of the government on issues and projects of public importance, the way they are resolved or how they influenced decision-making. Bađić Babac and Podobnik [10] pointed out that political parties use social media for election campaigns, and the contents of these campaigns provoke different emotions among citizens. They believe that two-way and tolerant communication of political actors increases the engagement of citizens. One available study focused on unconventional forms of political participation such as petitions, demonstrations, boycotts, contacting politicians or officials, etc., and the results showed that digitization and internet use have an impact on these forms of political participation, ie increased political participation was recorded [11].

The development of technologies and social media has enabled new forms of participation, which is especially attractive to younger generations [6], and this has certainly contributed to the development of the information society [12]. Kotilainen and Rantala [12] agree that young people are willing to use both, traditional and social media, and engage in political debates. Pinterič [13] but, on the other hand, believes that digital technologies are not necessarily a driver of political participation and points out that new ways and opportunities for participation have not led younger generations to express political views. He also states that participation is the consequence of an expected result multiplied by motivation which is put in proportion to time and energy. Gagliardone and others [14] presented conflicting views on the use of digital media and cited an example of the use of social media to create content by political actors, and in fact the content was presented as a result of political participation of citizens.

According to the literature review, political participation in the information society implies civic engagement and participation in activities, through traditional but also new forms enabled by digital technologies, with the effort to influence political processes in the information society. An information society is a society that has access to all information needed to acquire knowledge and live a harmonious life. The political participation in the information society can contribute to the creation of better policies, decision-making and laws that enable better life for all citizens.

B. Open data and political participation

The application of modern technologies and innovative concepts of work have resulted in facilitated communication, information, and collaborative processes between the state and citizens, which has led to profound social change and stimulated the development of a knowledge society and building knowledge-based economies [15]. In the period after 2000, the development perspective at the state level was focused on the growth and development of the concept of e-government, which contributes to greater democratic accountability and transparency [16]. Open government is considered the equivalent of transparency, but the ubiquity of digital

technologies has enabled an important role for participatory parties in influencing decision-making and fighting for accountability of such decisions in modern democracies [16]. Thus, technological advances have made it possible to spread the concept of public transparency, facilitating social participation [17] and challenging social complexity in the context of representative and participatory democracy, thus raising the dilemma of representation and the need for greater political participation which can be another measure of open government transparency [16]. Public transparency implies the effectiveness of public authorities to make their processes and results in the form of data and information available to the general public. Transparency refers to ensuring that all citizens have access to all data of public bodies, and not only the data that the state wants to show [17]. These are open data generated by public or private entities, which are valid to be in an open format, i.e. without restrictions on copyright and licenses, and their use, reuse, and distribution are enabled. Data collected and published by the public sector are called open government data, and the public sector is considered one of the main contributors to the movement of open data due to a large amount of data it generates [18]. From a social perspective, open data is seen as a driver of transparency, accountability, anti-corruption, and citizen empowerment, while the economic perspective is linked to fostering innovation, entrepreneurship, and job creation, as open data is seen as a productive asset in the digital economy [18].

Political science recognizes the importance of citizen participation and public engagement in democratic processes, and related technologies and open data, combined, can reshape the existing political paradigm, opening space for more diffuse forms of political participation [15]. Citizen engagement is key to the successful and sustainable use of open data, while at the same time implying greater citizen activity in finding and using open data to contribute to solving social problems. Proponents of open data assume that greater engagement will lead to better decision-making, which is needed to improve government policy. [19].

Since 2010, an increasing number of countries have introduced e-government practices and opened their data. This could lead to increased public transparency, but at the same time, it can enable citizen participation in politics or at least in the evaluation of government work. This development has been regularly discussed in terms of government transparency and efficiency but is still neglected in terms of political participation and activism [11].

Democratic accountability and transparency are based on making data available, but this does not mean that data is made available to the general public [15]. Despite being available online, open data in raw form is difficult to be understood by citizens [15], and citizens usually do not have the necessary skills to access and analyze open data given in raw form [19]. Also, little is known about the motivation of citizens to get involved in the initiative for open government data [19]. In order for citizens to successfully overcome these obstacles, a new model of the feasibility of cooperation development is needed, in which citizens, parliamentarians, and civil servants participate [16], [20], which will improve mechanisms based on

contemporary technologies [15], [17], [19], [21] and acceptance, understanding, and use of open data for political participation.

IV. INDICATORS ON POLITICAL PARTICIPATION, INFORMATION SOCIETY AND OPEN DATA

The literature points out that the digital maturity of states, i.e. transparency, and openness of governments, as well as new concepts such as open data, should have a positive impact on civic engagement and political participation in creating well-being for the community. For the purpose of this paper, it was investigated whether there is a correlation between digital maturity and open data maturity of countries and whether it can be confirmed that digital maturity, transparency, and openness of governments have a positive impact on political participation.

The indicators selected for analysis in this article are the achieved success of the EU member states according to the Digital Economy and Society Index (DESI) and the Open Data Maturity (ODM) as measures of digital maturity of the country and maturity according to the open data concept. Parliamentary voter turnout and the percentage of individuals using the internet for taking part in online consultations or voting were taken as indicators of political participation. These indicators and the obtained research results are described below. The first results of the research show whether there is a correlation between ranked countries according to DESI and political participation, i.e. parliamentary turnout voter and online consultations or voting. The second part of the results shows whether there is a correlation between the countries in the European Union ranked according to the ODM and political participation.

A. About selected indicators

The characteristics of the indicators included in the analysis, which relate to digital maturity, open data and political participation are described below.

The Digital Economy and Society Index (DESI) is a complex index that monitors the development of the digital performance of EU member states. The total DESI is calculated as a weighted average of the five main DESI dimensions with the value of the dimensions where are *Connectivity* (25%), *Human Capital* (25%), *Use of Internet Services* (15%), *Integration of Digital Technology* (20%), and *Digital Public Services* (15%). Each of the dimension measures sub-dimensions, while they include detailed indicators. DESI includes a total of 12 subdimensions and 37 indicators. Data used for the analysis is published on the website of the European Commission, and the research is conducted in the areas of Digital Free Market, Digital Economy and Communities [22]. For the analysis in this research, data on the total score of DESI for the Member States of the European Union from 2019 were used.

Based on a series of indicators, Open Data Maturity (ODM) measures the maturity of open data in countries across Europe. The measured indicators cover the level of development of national policies that promote open data, the assessment of available features on national data portals, as well as the expected impact of open data. Data for this survey is collected through a questionnaire sent to national open data representatives working in collaboration with the European Commission and experts of the Information Public Sector. The

questionnaire is structured according to four dimensions of open data, each of which includes detailed measurement data to assess the level of maturity. The four main dimensions are *Open Data Policy*, *Open Data Portal*, *Open Data Impact* and *Open Data Quality* [23]. For analysis in this research, data about the maturity level rating of open data in percentages from 2019, for each country of the European Union, available on the European Data Portal website was used.

Data about the last parliamentary turnout voter is published by the International Institute for Democracy and Electoral Assistance (IDEA), an intergovernmental organization that supports sustainable democracy worldwide. Membership in the International IDEA is open to governments that, by example in their own country, encourage commitment to the rule of law, human rights, and the basic principles of democratic pluralism and the strengthening of democracy [24].

Data on the percentage of individuals using the internet for taking part in online consultations or voting is published on the Eurostat website [25]. Data from 2019 is included in the research.

B. Indicators correlation on information society and political participation

Political science recognizes the importance of citizen participation and public engagement in democratic processes, and related technologies. The availability of e-government in general, the impact and application of digital technologies, and the disclosure of freely available, comparable and shared public data, thus improving transparency and control of government activities and expenditures [15], [26] can improve and open space for political participation such as simple use of data per se

and the launch of organizations that use contemporary technologies and open data to pursue political issues [11].

To investigate the correlation between information society and political participation, European Union countries were ranked according to the success of the total score of DESI and it was explored whether there is a correlation with data on parliamentary voter turnout and percentage of individuals using the internet for taking part in online consultations or voting. It is expected that countries that have a better total score according to the DESI index should have higher voter turnout. Also, countries that are digitally more mature should record a higher percentage of individual participation in online consultations or voting.

Figure 1 shows that it cannot be confirmed with certainty that digital maturity of countries, or their governments, has a positive impact on political participation, i.e. participation in voting in parliamentary elections, but there is a positive trend in their correlation. It is difficult to determine that the work of e-government based on digital principles, openness, and transparency has an impact on political participation, but some of the countries that have a successful total score according to DESI have successful turnout in the parliamentary elections as well, such as Sweden, Denmark, and the Netherlands, then Malta, Luxembourg, Spain, and Belgium. The ten most successful countries according to the DESI index, including United Kingdom, have a higher turnout of 60%. However, it can be observed that some countries that are lower or rather poorly rated according to DESI have a turnout close to or higher than 70%. These are, for example, Germany, Austria, then Slovakia, Hungary, Italy, Cyprus, and Poland.

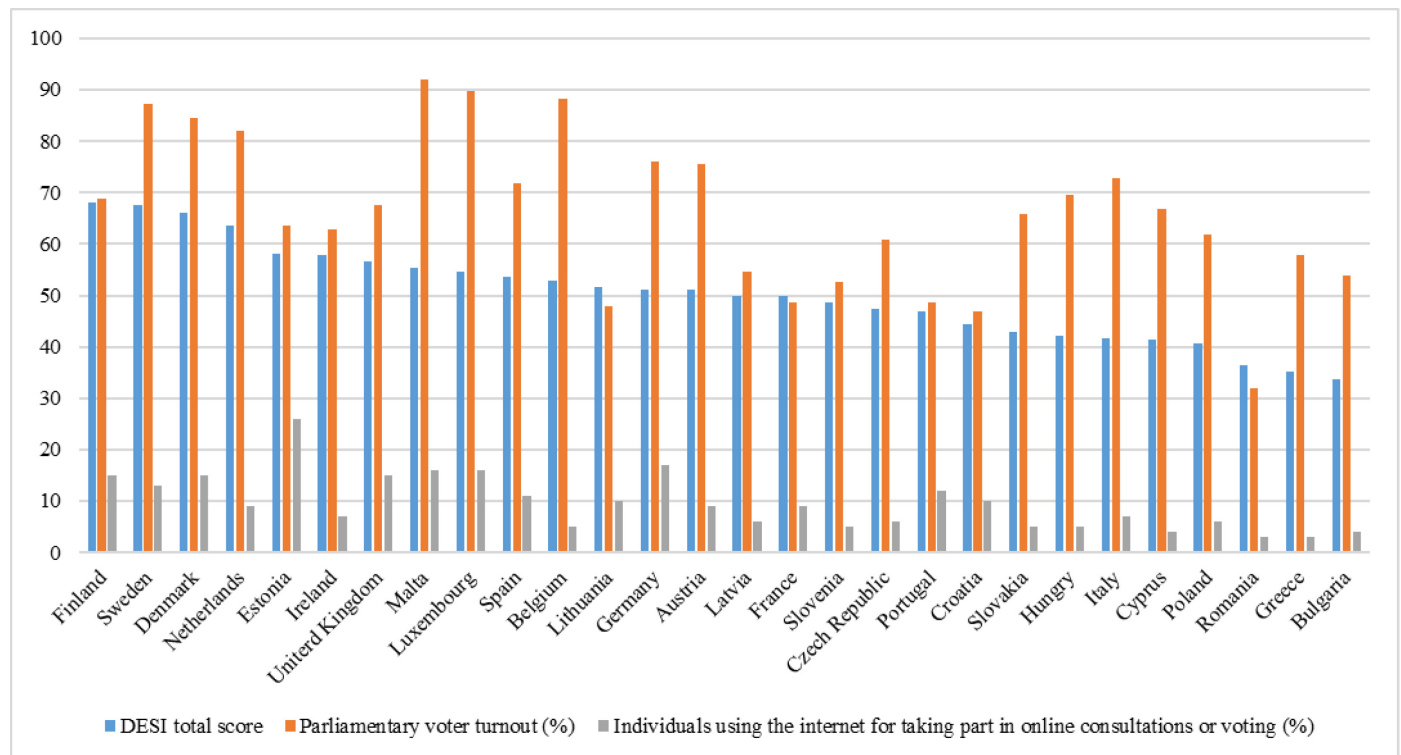


Fig. 1. Correlation between information society and political participation of European Union countries

Also, it cannot be determined that the percentage of individuals who use the Internet to participate in online consultations or voting is associated with a better rank of the digital maturity of the state, that is, whether the digital maturity affects online political participation. Although it is visible that the last 8 countries ranked according to DESI have a lower percentage of people participating in online consultations and voting, i.e. the percentage is less than 7%, several countries have a better score according to the DESI but also a percentage less than 10%.

The limitations in this part of the research are related to the results of DESI, which are taken for 2019, while the results on the turnout percentage in the parliamentary elections for each country are taken from the last parliamentary elections. However, if examining DESI for the last 5 years, there were no major differences in the ranking of countries according to the DESI, although for most countries, digital maturity has increased over that period.

C. Indicators correlation on open data and political participation

Political participation should encourage the disclosure of open data that is considered a public good because it benefits both government and citizens [15], but one study found that political participation does not help explain differences in the provision of open data by governments between countries [18]. However, it is emphasized that citizen engagement is key to the

successful and sustainable use of open data [19]. At the same time, open data make it possible to satisfy citizens' interest in the required answers to questions and encourage political participation in decision-making, expression of opinion, and other political processes [16], [17].

To investigate the correlation between open data and political participation, EU countries are ranked according to Open Data Maturity and it is explored whether there is a correlation between state performance according to the concept of open data and political participation, i.e. parliamentary voter turnout and percentage of individuals using the internet for taking part in online consultations or voting. Open data and openness should have a positive impact and increase political participation. As citizens have more data and information, it is expected that they will be more involved in decision-making activities, but also participate in elections.

Figure 2 shows that no correlation between ODM and political participation can be confirmed. Moreover, the figure shows that there are large differences in ODM and turnout in parliamentary elections in certain countries. For example, in France, the success rate of ODM is estimated at almost 90%, while turnout is slightly less than 50%. Some countries, such as Malta, Hungary, Iceland, and Sweden, have a lower score on the ODM, but the turnout in the parliamentary elections is around 70% and more. Same observations are determined between ODM and percentage of individuals using the internet for taking part in online consultations or voting.

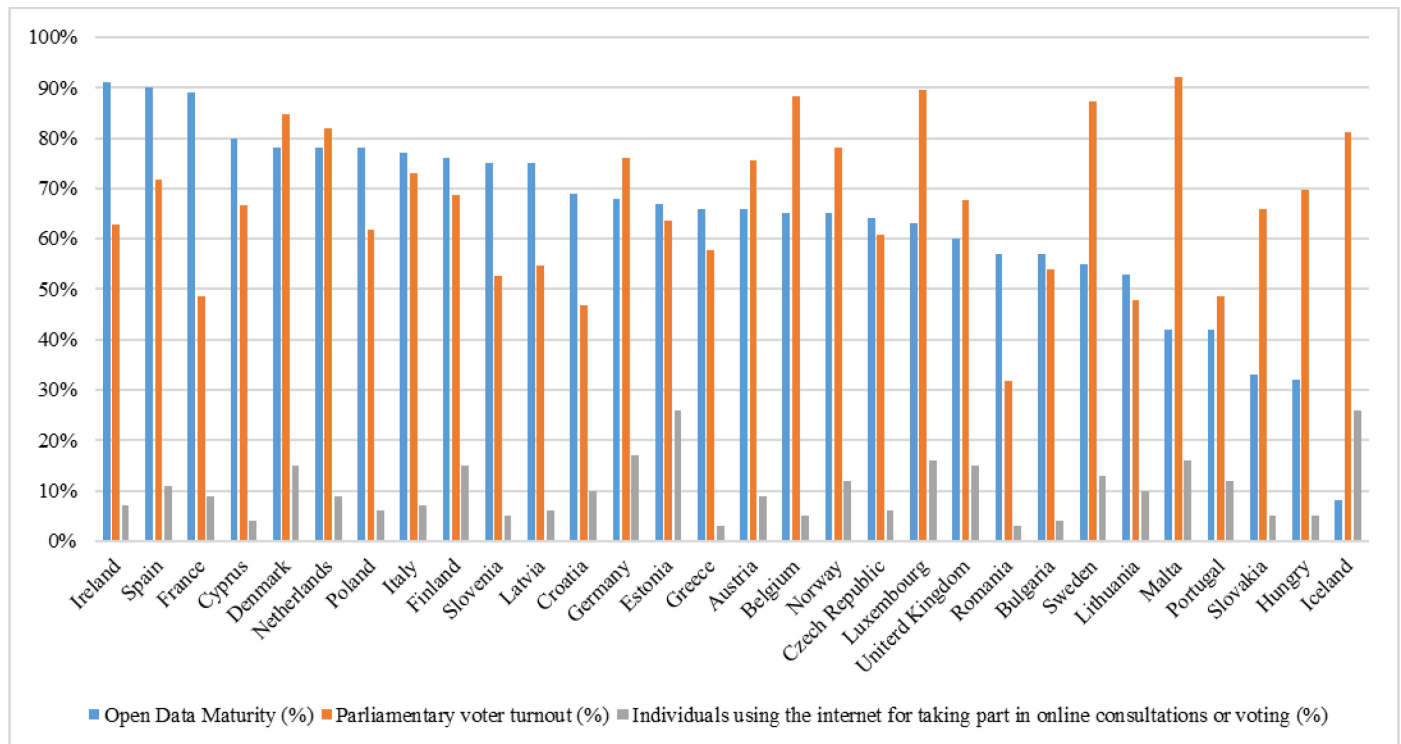


Fig. 2. Correlation between Open Data Maturity and political participation of European Union countries

The limitations in this study are related to the Open Data Maturity results taken for 2019, and if we look at the results, for example for 2018, there is a difference of several percentage

points in some countries. Given that the turnout results in the parliamentary elections for each country are taken from the last parliamentary elections, there is a possibility that the Open Data

Maturity has changed a lot in 2 to 3 years. However, the ranking of countries has not changed too much, although there has been progressed in open data maturity, so there would be no significant difference in the results.

V. CONCLUSION

Political participation in the information society and its connectivity to open data concepts is still an insufficiently researched area, seen from rather small number of identified scientific articles within this research. Available literature showed that digital technologies can play an important role in the development of new forms of political participation, but it also must be taken into account that digital technologies are not equally available in all countries and to all citizens, and political participation in different cultures also differs. Open data, being available in many countries, and showing an increasing trend in being more developed and used, should show potential to have a positive impact on political participation. Nevertheless, due to lack of knowledge and skills to understand and use open data as well as the fact that open data platforms are not enough user friendly, the realization of those potentials to get more involved and become more active and participative by citizens, has not yet been recognized in available studies. Indicators, measuring the correlations between the investigated concepts, show even less interconnectivity. The increasing availability of digital technologies and open data, as recognized drivers of transparency, and the development of new forms of political participation, have not led to greater interest in politics and elections participation yet. The aim of this paper was not to offer an overall comprehensive literature review and investigation on the global level, but to gain insights into what has been reported so far in scientific publications and to see if quantitative indicators are following the resulted insights. The literature emphasizes technological advances and openness as significant to increase political activity, and research has shown that other aspects of investigated concepts need to be reconsidered. Future research could encompass a more detailed analysis, including not only EU countries, but investigate global indicator values, as well as development of recommendations on how to increase the interrelations between the investigated concepts.

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