Measuring access to theatrically screened films in Eastern Europe

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European Audiovisual Observatory

COUNCIL OF EUROPE
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1. Executive summary

DISCLAIMER: The data upon which this report is based was calculated by the geolocation company ESRI. Although the European Audiovisual Observatory successfully conducted plausibility tests on all sets of figures, it is not possible to fully certify the accuracy of the data. This does not mean that there are doubts about the reliability of the figures but simply that, not having conducted the data calculation itself, the European Audiovisual Observatory can only certify the plausibility of the final results.

The objectives of the project

Building upon the methodology and results from phase one of the project, the objective of phase two is to measure the Eastern European population with access to cinema theatres.

For these research questions, the Observatory :

- identified the data needed and checked their availability;
- designed the indicators to be used for the analysis;
- calculated these indicators for data samples from the following countries:

1) Bosnia and Herzegovina
2) Bulgaria
3) Croatia
4) Czech Republic
5) Estonia
6) Hungary
7) Latvia
8) Lithuania
9) Poland
10) Romania
11) Slovakia
12) Slovenia

Measuring access to cinemas implies combining the location of cinemas with data on the population in their catchment areas. The main **methodological** issues are:

- Defining the catchment area of a cinema[1]. According to several sources, a driving time of 30′ appearss to be the most appropriate criterion. However, data on a 45' driving timeis also provided.
- Creating unique clusters[2] of populations with access to the same cinemas, and thus eliminating double counts of people accessing more than one cinema
- Addressing cross-border access to cinemas, i.e. populations within a given driving distance living outside the country where the cinema is established. The recommended solution is to include the non-national population only if it resides in a country where the same language is spoken.

Two main categories of **data** are necessary:

- On the one hand, a list of cinemas, with their location. Additional data such as the number of screens are useful to further refine the research results. Such information was provided by national film agencies.
- On the other hand, population data within the catchment areas of cinemas. Several solutions were reviewed, with the conclusion that the data provided by ESRI offered the closest match.

Several **indicators** were designed and applied to each of the countries covered:

- A first batch of indicators describes the cinema infrastructure.
- A second batch of indicators describes the demand side, i.e. the population with access to cinema.
- A third batch of indicators describes the supply side, i.e. the number of cinemas that serve a certain population.

[1] A "catchment area" of a cinema is defined as the area within which one can reach the cinema within a certain driving time (30 minutes, and 45 minutes, in our analysis).
[2] Clusters are defined by the intersection of the different catchment areas and the national boundaries of each country so that the population within any given cluster has access to the same cinema theatres and lives in the same country.

2. Background and objective

Screen density is usually measured using a basic indicator for each country, i.e. the number of inhabitants per screen. However, this global statistical approach does not precisely reflect the actual accessibility of cinemas for European citizens: cinemas may be concentrated in certain areas (e.g. cities) where consumers have access to many cinemas and screens; in turn, people living outside the big cities may not have access to any theatre at all. Moreover, having access to a cinema obviously does not necessarily imply the possibility of actually accessing all or a significant share of films released. Larger multiplexes focus on films with a certain level of commercial potential. Smaller cinemas may not have enough screens to offer a broad array of films on release.

In this context, more precise indicators are required to accurately assess the share of the population that actually has access to at least one cinema. As detailed in this report, developing these indicators is complex because it requires collecting varying types of information, for e.g. location of cinemas and population distribution - and designing an appropriate methodology to combine the data. In this analysis, the Observatory, with the support of the European Commission, follows up on the pilot project carried out in early 2017, based on a sample of European regions, with the objective of applying the methodology tested in the pilot project to the Eastern European region, including a group of 12 countries (Bulgaria, Bosnia and Herzegovina, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia).

The principal research question addressed by this report is: What is the share of population with access to a cinema? It should be noted that, even if the main research question deals with the demand side (how many people access a cinema), other indicators dealing with the supply side (how many people are served by a cinema) have also been considered, as they provide valuable insight into film offerings.

3. Measuring access to cinemas in Eastern Europe

3.1. Research questions

The European Commission wished to assess "theatrical screen density" in Eastern Europe in order to ascertain what share of the population is actually able to watch films in cinemas. The analysis includes basic infrastructure indicators, such as for e.g. the number of cinemas and screens, but the European Commission also sought to measure "access" to cinemas, i.e. the number of people who live within the catchment area of a cinema.

The methodology proposed in the feasibility study has been used to answer the following specific research questions for each of the European Union member states, and for the EU as a whole.

- Basic cinema infrastructure

1) How many cinemas and screens are there in a territory?
2) How many monoscreens / miniplexes / multiplexes are there in a territory?
3) How many cinemas / screens are there by size of catchment area?

- Measuring access to cinemas (supply side and offer side)

4) How many people live within the catchment area of a cinema?
5) What is the percentage share of the population living in the catchment area of a cinema?
6) How many people can access one or more cinema theatres within a given driving time?

3.2. Methodology

The following methodological considerations form the backbone of the analysis approach:

3.2.1. Using the concept of "catchment areas" to measure "access" to cinemas

In the context of this study, the Observatory considers all people living within a certain driving distance from a cinema, i.e. its **catchment area,** as having access to that cinema. The ideal indicator to measure the reachability of cinema theatres would have been the commuting time between the cinema theatre and each individual inhabitant, defined as the time needed by a person living in a given location to drive or travel by public transport to a cinema within a certain time. However, the difficulties encountered in obtaining figures for this indicator prompted us to define the catchment area of each theatre based only on the **driving time**.

Following advice by experts, including representatives of UNIC (International Union of Cinemas) and Europa Cinemas, the Observatory ran the analysis for **two alternative definitions** of a cinema's catchment area: One comprises the population living within a **30-minute** drive and the second considers populations living within a **45-minute** drive. Although the 30-minute driving time is regarded as the more appropriate definition for the majority of cinemas, it was pointed out that the actual catchment area of a cinema can differ widely between cinemas and countries. For instance a modern multiplex cinema located in a region without any other comparable cinema may attract audiences that live further away. In order to account for this possibility a catchment area definition based on a 45-minute driving time was proposed. The rationale for focusing on two different catchment areas is to provide meaningful bandwidths that reflect the difficulty of coming up with a single true-to-life definition of the catchment area of a cinema. The suitability of these two alternative catchment area definitions was tested in a sample analysis.

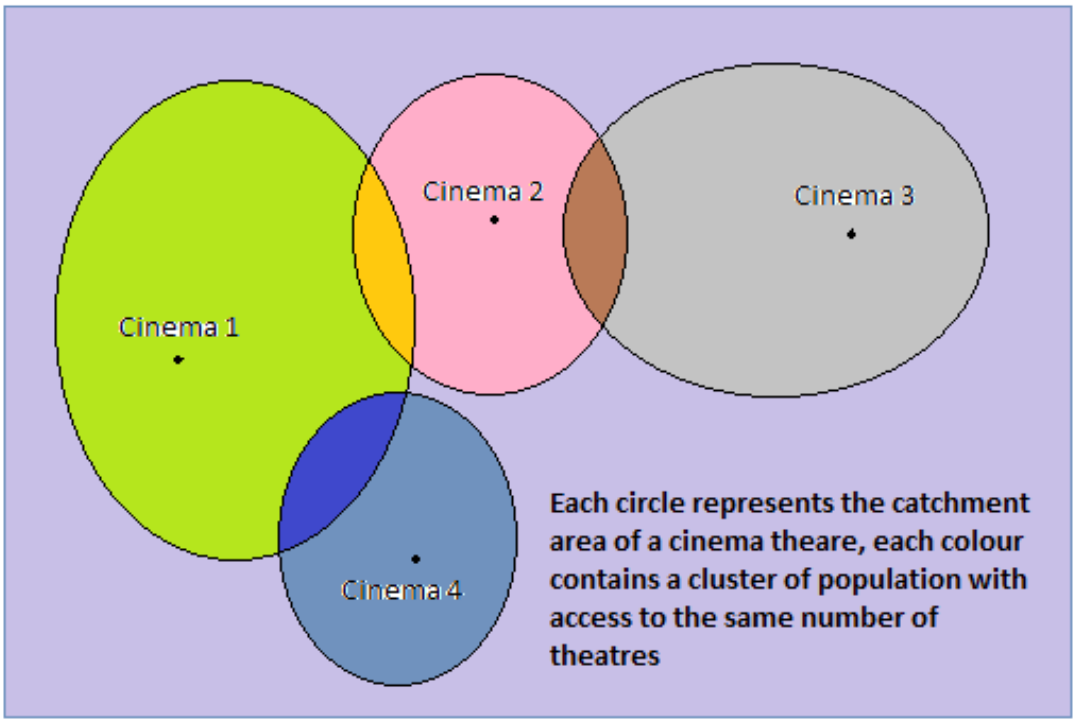
Of course, using the concept of catchment areas to measure the number of people who have access to a cinema represents a simplification of reality. On the one hand it underestimates the number of people with access to cinemas, as it only takes into consideration those people who have a registered residence within the cinemas' catchment areas and ignores potential cinemagoers who are in the area only for a limited period of time, such as tourists or family guests. On the other hand, the concept of a catchment area allows for measurement of the population that has **potential access** to a cinema - which may differ significantly from the population that has **actual access** to a cinema. Actual access may be affected by a series of socio-economic factors such as age, cost of commuting or driving, commuting habits, consuming habits, etc. Despite these simplifications the concept of defining catchment areas based on driving time appears to constitute a satisfactory methodological choice given the big picture character of the research questions defined by the European Commission.

Finally it must be pointed out that an entire population living within the catchment area of a cinema may not be able to go to the cinema on the same day or at the same time due to the limited seating capacities of cinema theatres. In the context of this study, access to cinemas is thus measured as potential access rather actual access at any specific time.

3.2.2. Unique population clusters

Since the main goal of this analysis is not to measure the reach of each individual cinema, but to assess the reachability of cinemas for each individual inhabitant, a series of unique **clusters** of populations have been calculated for each of the two catchment area options.

Figure 1. Generation of clusters



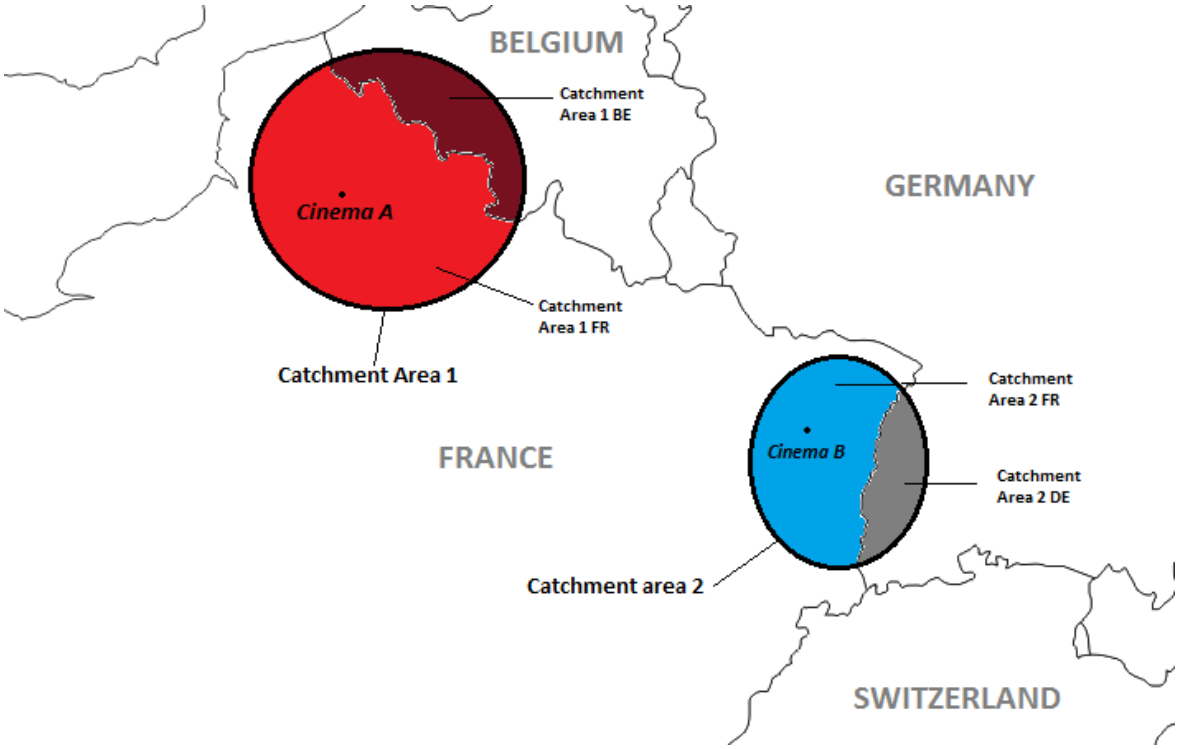
Source: OBS.

Clusters are defined by the intersection of the different catchment areas and the national boundaries of each country so that the population within any given cluster has access to the same cinema theatres and lives in the same country. It is important to note that no individual inhabitant was taken into account in more than one cluster; in other words, no individual was double-counted.

3.2.3. The impact of cross-border access

Both national and non-national populations within the catchment area of a given theatre were considered. However, we also intended to present the breakdown of population with access to cinemas by country of establishment and country of residence, since it was this calculation that allowed us to address the cross-border issue. As per the examples below, the catchment area of Cinema A should include its catchment area in both Belgium and France, as French is spoken on both sides of the border. In turn, the catchment area forCinema B should only take into account the section in France, as German-speaking cinema-goers are less likely to cross the border to watch a film in French or subtitled in French.

Figure 2. Examples of clusters, borders and linguistic groups



Source: OBS

3.2.4. Calculation method

The key indicator for the analysis is the population in each unique population cluster linked to the cinema theatre(s) to which they have access. In sequential order, the calculation is as follows:

1) All cinema theatres in the sample are given a unique ID number (ID Theatre).
2) The geographical coordinates associated with the address of each theatre are calculated.

3) The isochrones for each of the two driving time sets (catchment areas) are drawn and the population within each calculated.
4) Unique clusters of population are defined based on the intersection of the isochrones and the national boundaries of each country.
5) Each cluster is given a unique ID number (ID Cluster).
6) The population within each cluster is calculated.
7) At this point it is possible to calculate the population reaching the cinema theatres of a given country, breaking it down into those living abroad and in the country.
8) Equally, it is possible to calculate the share of the population in a country potentially served by foreign cinema theatres.
9) Moreover, it is possible to calculate the share of the population within each country with access to cinema theatres by number of theatres (which can be broken down into brackets as follows: 1 theatre, 2 to 5 theatres, 6 to 10 theatres and so on).
10) The same calculation can be completed based on the number of screens.

3.2.5. Categorisation of theatres

In order to analyse the distribution of cinema theatres and screens within a country, four types of theatre have been defined based on the number of screens:

Monoscreens	Small miniplex	Large miniplex	Multiplex
1 screen	2-3 screens	4-7 screens	≥8 screens

3.2.6. Potential versus actual reachability

A series of socio-economic factors may have an impact on the actual reachability of cinemas:

Cost of going to the movies*:* This loose term includes not only the ticket cost but also the transportation cost, and indeed any costs related to going to the movies (pre-theatre dinner, after-drinks, drinks and confectionary in the theatre, etc.). This has an impact on the way people plan their visit to the theatres.

Age: The age of the inhabitants of a given cluster may play a double role: On the one hand, a certain portion of the population may not be considered as actual cinema-goers (either too young or too old). On the other hand, if our variable for defining the catchment areas is driving time, it must be noted that the minimum age for a driving license in most European countries is 18. To what extent this segment of the population walks or uses public transportation, or is driven to the theatre, is impossible to calculate with the data available.

All these factors may generate some discrepancies between potential and actual cinema reach when it comes to suburban areas mostly populated by families as opposed to urban areas where the under-aged population tends to be lower comparatively.

Public transportation: This element may have a double impact on actual cinema reachability: On the one hand, it may happen that certain population clusters that do not have access to certain cinemas within any of the driving times set for the analysis are capable of reaching those theatres within an equivalent time by public transportation. Moreover, this may also have an impact on the cost issue, as easy and cheap commuting options make it more likely that cinemagoers will choose a theatre.

Commuter habits: It is important to bear in mind that, especially in big urban areas, it is not unusual for certain population segments to commute from their residence to their place of work, usually from the outskirts to the city centre. A significant portion of these commuters perform their shopping and leisure activities while still in the city; however, based on the methodology of the analysis, these people are not taken into account, as they constitute potential cinema-goers for theatres in their working area.

Theatre capacity: In some instances, the capacity of a theatre is not big enough to accommodate an entire cluster population. Although data on the number of seats is not available, a rough estimate assuming each screen has 300 seats and runs three screenings a day indicates that for some population clustersthere are not enough seats. It is thus not possible for all of them to go to the cinema on the same day. Although it is quite unlikely that the entire population in a given cluster would opt to go to the cinema on the same day, this hypothetical situation illustrates the limitations of potential reachability, as opposed to actual reachability, when it comes to capacity.

4. Analysis of results

The 12 countries covered in this report comprise a total population of 106.9 million inhabitants and 3,799 screens in 1,725 venues. If we exclude Bosnia and Herzegovina, which is not a member of the European Union, the remaining 11 countries account for approximately 20.2% of the EU population, but only 11.9% of the screens in the Union, showing that the region examined is significantly underscreened in comparison to the rest of the EU.

Table 1. Scope of sample analysis of access to cinemas

Nr	Country	Population	Nr. of active cinemas	Nr. of screens
1	Bulgaria	7 153 780	54	214
2	Bosnia and Herzegovina	3 825 334	13	34
3	Croatia	4 190 664	70	158
4	Czech Republic	10 553 840	628	841
5	Estonia	1 314 349	34	77
6	Hungary	9 831 250	172	411
7	Latvia	1 968 957	24	61
8	Lithuania	2 888 560	24	71
9	Poland	37 967 206	452	1292
10	Romania	19 737 063	81	338
11	Slovakia	5 426 255	123	197
12	Slovenia	2 064 190	50	105

Sources: Eurostat (Population Census 2016), national film centers.

4.1. Basic cinema infrastructure indicators

The territories analysed are relatively diverse in socio-economic and demographic terms; hence, it comes as no surprise that the demographic distribution of theatres varies too. Slovenia or the Czech Republic for e.g. have a significantly lower ratio of inhabitants per cinemas and screens; in turn, countries such as Romania and, most notably, Bosnia and Herzegovina, present much higher figures, meaning that the number of venues and screens per inhabitant is significantly lower in comparison.

Table 2. Inhabitants per cinema / screen by country of establishment of theatres

Nr	Country	National inhabitants per cinema	National inhabitants per screen
1	Bulgaria	132 477.41	33 428.88
2	Bosnia and Herzegovina	294 256.46	112 509.82
3	Croatia	59 866.63	26 523.19
4	Czech Republic	16 805.48	12 549.16
5	Estonia	38 657.32	17 069.47
6	Hungary	57 158.43	23 920.32
7	Latvia	82 039.88	32 277.98
8	Lithuania	120 356.67	40 683.94
9	Poland	83 998.24	29 386.38
10	Romania	243 667.44	58 393.68
11	Slovakia	44 115.89	27 544.44
12	Slovenia	41 283.80	19 658.95

Sources: Eurostat (Population Census 2016), national film centers.

In addition, there are noteworthy differences among countries when it comes to the number of screens in their venues, with the Czech Republic relying almost exclusively on monoscreens (92.7% of the total), while in countries such as Bulgaria and Romania multiplexes account for more than 20% of the overall venues.

Table 3. Number and percentage share of cinemas by cinema type

	Monoscreens	Small miniplex	Large miniplex	Multiplex	Total
Number of cinemas					
Bulgaria	26	10	6	12	54
Bosnia and Herzegovina	6	3	4		13
Croatia	52	5	8	5	70
Czech Republic	582	17	11	18	628
Estonia	21	7	5	1	34
Hungary	113	29	18	12	172
Latvia	14	6	1	3	24
Lithuania	13	4	5	2	24
Poland	292	41	61	58	452
Romania	38	11	14	18	81
Slovakia	103	9	8	3	123
Slovenia	37	6	3	4	50
% shares					
Bulgaria	48.1%	18.5%	11.1%	22.2%	
Bosnia and Herzegovina	46.2%	23.1%	30.8%	0.0%	
Croatia	74.3%	7.1%	11.4%	7.1%	
Czech Republic	92.7%	2.7%	1.8%	2.9%	
Estonia	61.8%	20.6%	14.7%	2.9%	
Hungary	65.7%	16.9%	10.5%	7.0%	
Latvia	58.3%	25.0%	4.2%	12.5%	
Lithuania	54.2%	16.7%	20.8%	8.3%	
Poland	64.6%	9.1%	13.5%	12.8%	
Romania	46.9%	13.6%	17.3%	22.2%	
Slovakia	83.7%	7.3%	6.5%	2.4%	
Slovenia	74.0%	12.0%	6.0%	8.0%	

Sources: National film centers, OBS

It comes as no surprise that the Czech Republic has by far the largest share of screens in monoscreen theatres; at the other end of the spectrum, meanwhile, Bulgaria and Romania have the majority of their screens in multiplexes - 62.1% and 56.8%, respectively. In Bosnia and Herzegovina, Estonia and Lithuania most screens are to be found in small and large miniplexes (fewer than eight screens per venue). Overall, the vast majority of theatres in the region are monoscreens (1 297 theatres); however, the number of screens in multiplexes is slightly higher (1 397 screens in 136 venues).

Table 4. Number and percentage share of screens by cinema type

	Monoscreens	Small miniplex	Large miniplex	Multiplex	Total
Number of cinemas					
Bulgaria	26	22	33	133	214
Bosnia and Herzegovina	6	8	20		34
Croatia	52	12	45	49	158
Czech Republic	582	34	60	165	841
Estonia	21	17	28	11	77
Hungary	113	66	94	138	411
Latvia	14	13	4	30	61
Lithuania	13	9	30	19	71
Poland	292	91	316	593	1292
Romania	38	25	83	192	338
Slovakia	103	26	39	29	197
Slovenia	37	14	16	38	105
% shares					
Bulgaria	12.1%	10.3%	15.4%	62.1%	
Bosnia and Herzegovina	17.6%	23.5%	58.8%	0.0%	
Croatia	32.9%	7.6%	28.5%	31.0%	
Czech Republic	69.2%	4.0%	7.1%	19.6%	
Estonia	27.3%	22.1%	36.4%	14.3%	
Hungary	27.5%	16.1%	22.9%	33.6%	
Latvia	23.0%	21.3%	6.6%	49.2%	
Lithuania	18.3%	12.7%	42.3%	26.8%	
Poland	22.6%	7.0%	24.5%	45.9%	
Romania	11.2%	7.4%	24.6%	56.8%	
Slovakia	52.3%	13.2%	19.8%	14.7%	
Slovenia	35.2%	13.3%	15.2%	36.2%	

Sources: National film centers, OBS

4.2. Population with access to cinema

It is difficult to determine in a precise manner the actual population with access to cinema theatres within a given geographical area. On the one hand, there are theatres established in a country that can be reached by the national population of an adjacent one; these theatres were taken into account since the potential - not the actual - population with access to theatres was calculated. However, it is very unlikely that a significant portion of such a population will make use of foreign theatres in an adjacent country unless films are dubbed or subtitled in their language. Nevertheless, there may be exceptions, depending on the original language of the film or whether or not there are

linguistic minorities living on the border or even depending on the proximity between the language of the cinemagoer and that of the country where the theatre is established. In any case, for the purpose of this analysis, it is the potential population within each country served by theatres (no matter their country of establishment) that was measured.

If we look at average admissions per capita (two admissions per capita a year in the EU), we see that, with the exception of Estonia (2.5 adm. p/c), the levels in Eastern Europe were well below the EU average; in five countries (Slovakia, Croatia, Bulgaria, Romania and Bosnia and Herzegovina) average admissions per capita were less than half the EU average, which in connection with the high level of inhabitants per screen shows that there is a general scope for enlargement of the theatrical infrastructure in these countries.

Table 5. Admissions per capita and per screen, inhabitants per screen and share of population with access to at least one theatre within a 30-minutes drive in Eastern Europe in 2016

Country	Admissions per capita	Admissions per screen	Inhabitants per screen	Share of population with access to cinemas
BA	0.2		112,510	49.68%
BG	0.8	26,471	33,429	75.22%
CZ	1.5	22,608	26,523	86.08%
EE	2.5	64,525	12,549	99.93%
HR	1.0	12,782	17,069	93.01%
HU	1.5	29,467	23,920	98.29%
LT	1.3	46,435	32,278	82.41%
LV	1.3	41,250	40,684	76.53%
PL	1.3	40,662	29,386	96.09%
RO	0.7	33,165	58,394	59.83%
SI	1.1	20,557	19,659	99.47%
SK	1.0	23,321	27,544	99.10%
EUR 28	2.0	32,326	16,661	n/a

Source: OBS Yearbook, OBS after ESRI

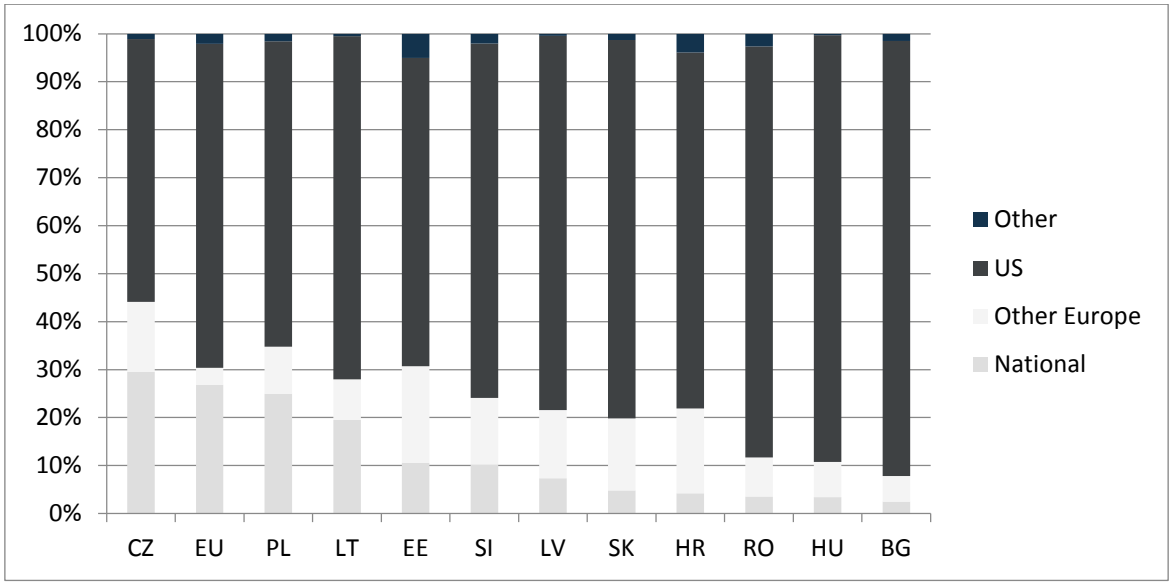
With the exception of Estonia, with above-EU levels of admissions per capita and per screen, as well as low numbers of inhabitants per screen and almost full coverage of its population through at least one theatre, all Eastern European countries had fewer screens per capita than the average in the EU. In countries such as Romania there is scope for growth in the sense that a substantive share of the population has no access to theatres, whereas in countries such as Poland or Lithuania, the scope for growth is due to the fact that, even if most of the population have access to theatres, screens are very much in use (high number of admissions per screen) and therefore there is space for more screens to provide a more diversified offering.

In those countries where there are low infrastructure indicators and a low share of the population with access to cinemas, the problem may be the lack of venues in certain

areas - most probably rural areas. This appears to be the case in Bulgaria, Latvia and, notably, Romania and Bosnia Herzegovina.

Another noteworthy characteristic of Eastern European films is that, with the exception of the Czech Republic, the share of admissions to national films was in 2016 below the EU average. Nevertheless, the share of non-national European films was significantly higher than in the EU as a whole. American films, however, received, by and large, a higher share of admissions than in the rest of Europe; this trend was especially acute in three key territories (Romania, Hungary and Bulgaria), where the share of admissions for US films comprised around 90% of the total.

Figure 3. Share of admissions by country of origin of the film, by country



Sources: National film centers, OBS

On average, 87.4% of the population in the Eastern European countries analysed had at least one cinema within a driving time of 30 minutes; the share rose to 92.9% for a drive of 45 minutes. The vast majority of the national populations in most countries analysed (more than 85%) had at least one cinema within a 30-minute drive, with the exception of Lithuania (78.6%), Romania (63.23%) and, quite notably, Bosnia and Herzegovina (56.52%). In some countries, figures increased to 100% when the catchment area was expanded to an area within a 45-minute drive (Slovenia and Hungary), with straggler Bosnia and Herzegovina increasing its share of population with a theatre within reach to 72.7%.

There appears to be a correlation between the size of the country and the higher number of people within the catchment area for both a 30-minute and 45-minute driving distances, with Poland, the Czech Republic and Bulgaria and Romania at the top of the list; this may be linked to the fact that these countries have large cities with high population density.

Table 6. Population with access to a cinema

Sample markets	Population (2016)	National population with access to cinema	% share of population in the country with access to cinema	Avg catchment national population per cinema	Median catchment national population per cinema
30-minute drive					
Bosnia and Herzegovina	3,825,334	2,161,931	56.52%	296,273	254,051
Bulgaria	7,153,780	5,966,303	83.40%	545,870	277,599
Croatia	4,190,664	3,572,408	85.25%	318,054	145,318
Czech Republic	10,553,840	10,546,729	99.93%	527,711	352,243
Estonia	1,314,349	1,229,961	93.58%	215,013	98,453
Hungary	9,831,250	9,639,388	98.05%	618,172	222,596
Latvia	1,968,957	1,787,166	90.77%	362,732	128,582
Lithuania	2,888,560	2,271,066	78.62%	332,940	247,587
Poland	37,967,206	36,403,919	95.88%	717,678	360,190
Romania	19,737,063	12,480,604	63.23%	718,715	376,633
Slovakia	5,426,255	5,370,009	98.96%	343,543	268,242
Slovenia	2,064,190	2,045,551	99.10%	341,919	321,617
45-minute drive					
Bosnia and Herzegovina	3,825,334	2,780,635	72.69%	422,543	427,241
Bulgaria	7,153,780	6,416,328	89.69%	675,199	437,879
Croatia	4,190,664	3,995,239	95.34%	464,249	313,204
Czech Republic	10,553,840	10,546,663	99.93%	1,011,336	736,059
Estonia	1,314,349	1,283,089	97.62%	265,167	192,627
Hungary	9,831,250	9,840,550	100.00%	979,715	492,933
Latvia	1,968,957	1,866,495	94.80%	512,439	419,611
Lithuania	2,888,560	2,612,255	90.43%	441,526	335,938
Poland	37,967,206	37,850,518	99.69%	1,199,231	792,386
Romania	19,737,063	14,655,317	74.25%	880,627	528,878
Slovakia	5,426,255	5,410,588	99.71%	670,078	589,504
Slovenia	2,064,190	2,067,787	100.00%	620,180	682,187

Sources: National film centers, OBS.

The fact that in most countries there was a substantive difference between the average and median population within the catchment areas both for 30- and 45-minute driving times shows that there are theatres (logically, multiplexes in the suburbs, and miniplexes and multiplexes in the center of big cities) that act as huge outliers.

4.2.1. Breakdown by number of accessible cinemas and number of accessible screens

The previous section focuses on the share of population with access to at least one cinema theatre. This section analyses the number of theatres and screens the population has access to.

A large part of the population in Bosnia Herzegovina (46.84%) had access to only one theatre, compared to the Czech Republic, where just 0.01% of the population had access to just one cinema site. In between we find the vast majority of countries, where most of the population (between 50% and 75%) had access to between two and 10 cinema venues. Only in three large countries was a significant share of the population served by more than 20 theatres – the Czech Republic (68.5%), Hungary (25.7%) and Poland (14.6%).

Table 7. Population with access to cinemas, by number of cinemas

Sample markets		1 cinema	2 to 5 cinemas	6 to 10 cinemas	11 to 20 cinemas	21 to 30 cinemas	31 to 50 cinemas
30-minute drive							
Bosnia and Herzegovina	Pop.	890,165	1,000,960	9,214			
	%	46.84%	52.67%	0.48%			
Bulgaria	Pop.	2,092,571	1,333,808	569,638	1,385,174		
	%	38.89%	24.79%	10.59%	25.74%		
Croatia	Pop.	740,636	1,447,645	428,913	990,313		
	%	20.53%	40.13%	11.89%	27.45%		
Czech Republic	Pop.	949	156,389	498,276	2,668,416	3,329,222	3,893,493
	%	0.01%	1.48%	4.72%	25.30%	31.57%	36.92%
Estonia	Pop.	356,529	299,601	87,787	478,538		
	%	29.16%	24.51%	7.18%	39.15%		
Hungary	Pop.	626,505	4,937,945	1,466,506	149,079	1,050,735	1,432,108
	%	6.48%	51.10%	15.18%	1.54%	10.87%	14.82%
Latvia	Pop.	607,063	217,338	762,774	35,362		
	%	37.41%	13.39%	47.01%	2.18%		
Lithuania	Pop.	538,362	1,032,165	640,038			
	%	24.35%	46.69%	28.95%			

Sample markets		1 cinema	2 to 5 cinemas	6 to 10 cinemas	11 to 20 cinemas	21 to 30 cinemas	31 to 50 cinemas
Poland	Pop.	3,481,734	17,389,973	6,139,265	4,131,310	2,694,808	2,643,863
	%	9.54%	47.67%	16.83%	11.32%	7.39%	7.25%
Romania	Pop.	3,361,074	6,153,082	49,649	2,244,813		
	%	28.46%	52.11%	0.42%	19.01%		
Slovakia	Pop.	258,364	1,864,188	2,147,853	804,067	322,853	
	%	4.79%	34.54%	39.79%	14.90%	5.98%	
Slovenia	Pop.	175,184	932,365	330,312	607,772		
	%	8.56%	45.58%	16.15%	29.71%		
45-minute drive							
Bosnia and Herzegovina	Pop.	992,814	1,279,839	202,476			
	%	40.11%	51.71%	8.18%			
Bulgaria	Pop.	1,860,355	1,701,572	1,215,194	1,497,041		
	%	29.65%	27.12%	19.37%	23.86%		
Croatia	Pop.	410,390	1,580,798	776,139	1,225,297	41,999	
	%	10.17%	39.18%	19.24%	30.37%	1.04%	
Czech Republic	Pop.	0	403	60,871	368,520	1,093,426	9,023,443
	%		0.00%	0.58%	3.49%	10.37%	85.56%
Estonia	Pop.	54,660	459,566	209,144	551,387		
	%	4.29%	36.05%	16.41%	43.25%		
Hungary	Pop.	42,137	1,885,244	3,231,900	1,614,219	280,445	2,799,102
	%	0.43%	19.13%	32.80%	16.38%	2.85%	28.41%
Latvia	Pop.	538,128	376,573	198,163	769,411		
	%	28.59%	20.01%	10.53%	40.88%		
Lithuania	Pop.	379,866	1,519,704	741,010			
	%	14.39%	57.55%	28.06%			
Poland	Pop.	513,682	9,027,535	12,039,942	7,991,959	1,717,202	6,564,516
	%	1.36%	23.85%	31.81%	21.11%	4.54%	17.34%
Romania	Pop.	3,690,856	8,636,608	57,840	2,453,406	55335	
	%	24.78%	57.99%	0.39%	16.47%	0.37%	
Slovakia	Pop.	20,648	493,826	1,600,987	1,868,628	1,138,824	294,057
	%	0.38%	9.12%	29.56%	34.50%	21.02%	5.43%
Slovenia	Pop.	25,377	289,532	583,109	886,596	283,173	
	%	1.23%	14.00%	28.20%	42.88%	13.69%	

Sources: National film centers, OBS.

More representative of the reachability of cinemas, though, is the share of the population by number of screens within reach. Here we see that, on the whole, the most common number of screens to which a population has access in most countries was between two and 10 for a 30-minute drive catchment area, and between 11 and 20 for a 45-minute drive catchment area. Only in the five big countries in the sample (Bulgaria, the Czech

Republic, Hungary, Poland and Romania) was there a substantiveshare of the population with access to more than 100 screens, presumably those living in big cities with access to urban and suburban venues. In addition, countries such as Bulgaria and Romania displayed a notable polarisation of access to theatres by number of screens, with a significant share of the population having access to just one screen, and an equally significant share of cinemagoers enjoying access to more than 100 screens.

Table 8. Population with access to cinemas by number of screens

Sample markets		1 screen	2 to 10 screens	11 to 30 screens	31 to 50 screens	51 to 100 screens	101 to 200 screens
30-minute drive							
Bosnia and Herzegovina	Pop.	579,970	1,292,851	27,518			
	%	30.52%	68.03%	1.45%			
Bulgaria	Pop.	1,298,898	1,400,705	1,243,523	39,801	87,473	1,310,791
	%	24.14%	26.03%	23.11%	0.74%	1.63%	24.36%
Croatia	Pop.	500,998	1,261,338	870,121	127,811	847,239	
	%	13.89%	34.96%	24.12%	3.54%	23.49%	
Czech Republic	Pop.	949	568,169	4,388,243	2,321,497	1,502,354	1,765,533
	%	0.01%	5.39%	41.61%	22.01%	14.24%	16.74%
Estonia	Pop.	191,495	351,918	156,951	522,091		
	%	15.66%	28.79%	12.84%	42.71%		
Hungary	Pop.	412,676	4,001,963	2,580,095	69,920	135,795	2,462,429
	%	4.27%	41.42%	26.70%	0.72%	1.41%	25.48%
Latvia	Pop.	297,820	488,751	78,690	757,276		
	%	18.36%	30.12%	4.85%	46.67%		
Lithuania	Pop.	450,659	705,252	420,712	633,942		
	%	20.39%	31.90%	19.03%	28.68%		
Poland	Pop.	3,106,199	14,534,828	6,535,481	3,518,184	4,418,366	4,367,895
	%	8.51%	39.84%	17.91%	9.64%	12.11%	11.97%
Romania	Pop.	1,520,067	4,670,706	3,275,292	93,804	159,471	2,089,278
	%	12.87%	39.55%	27.74%	0.79%	1.35%	17.69%
Slovakia	Pop.	244,010	2,498,507	1,983,207	519,639	151,962	
	%	4.52%	46.29%	36.74%	9.63%	2.82%	
Slovenia	Pop.	160,874	564,556	771,015	549,188		
	%	7.86%	27.60%	37.69%	26.85%		

Sample markets		1 screen	2 to 10 screens	11 to 30 screens	31 to 50	51 to 100 screens	101 to 200 screens
45-minute drive							
Bosnia and Herzegovina	Pop.	633,120	1,534,736	307,273			
	%	25.58%	62.01%	12.41%			
Bulgaria	Pop.	1,110,029	1,913,811	1,704,550	36,375	48,767	1,460,630
	%	17.69%	30.50%	27.17%	0.58%	0.78%	23.28%
Croatia	Pop.		43,716	919,303	2,539,778	3,731,555	3,312,311
	%		0.41%	8.72%	24.08%	35.38%	31.41%
Czech Republic	Pop.		43,716	919,303	2,539,778	3,731,555	3,312,311
	%		0.41%	8.72%	24.08%	35.38%	31.41%
Estonia	Pop.	309,301	1,039,917	1,460,013	143,255	1,082,137	
	%	7.67%	25.77%	36.19%	3.55%	26.82%	
Hungary	Pop.	37,686	1,809,851	4,374,068	396,955	243,210	2,991,277
	%	0.38%	18.37%	44.39%	4.03%	2.47%	30.36%
Latvia	Pop.	332,088	1,003,685	593,433	711,374		
	%	12.58%	38.01%	22.47%	26.94%		
Lithuania	Pop.	274,177	611,584	51,327	945,187		
	%	14.57%	32.49%	2.73%	50.22%		
Poland	Pop.	450,510	9,885,494	10,572,939	3,456,717	6,702,434	6,786,742
	%	1.19%	26.11%	27.93%	9.13%	17.71%	17.93%
Romania	Pop.	1,551,808	5,662,572	4,826,611	337,911	165,204	2,349,939
	%	10.42%	38.02%	32.41%	2.27%	1.11%	15.78%
Slovakia	Pop.	20,648	888,168	3,189,243	411,518	905,623	1,770
	%	0.38%	16.40%	58.88%	7.60%	16.72%	0.03%
Slovenia	Pop.	24,314	213,508	571,617	1,231,196	27,152	
	%	1.18%	10.33%	27.64%	59.54%	1.31%	

Sources: National film centers, OBS.

4.2.2. Breakdown by category of accessible cinemas

This section breaks down the figures on population with access to cinemas by country into the different categories of cinema theatres based on the number of screens, as previously defined (monoscreens, small miniplexes, large miniplexes and multiplexes).

With the exception of Bosnia & Herzegovina (49.7%) and Romania (59.8%), more than 75% of the population in each Eastern European country had access to at least one venue within a catchment area of 30 minutes, with a much higher share of populations served by monoscreens than by any other type of theatre. In fact, if we look at the share of population with access to cinemas by type of theatre (figures 11 and 14 for a

catchment area of 30 minutes and 45 minutes,respectively), we see 100% of the population within reach of a theatre in the Czech Republic and Slovakia had access to a monoscreen - The figures were higher than 70% in all countries. By contrast, the share of potential cinemagoers within a 30-minute drive was higher than 50% in just three countries: Slovenia (60.0%), Latvia (53.3%) and the Czech Republic (52.2%).

If we take the 12 countries as a unique territory, most of the population with access to cinemas within a 30-minute drive (85.9%) had access to a monoscreen (79.5%), whereas only 43.3% of the population had access to large miniplexes, 38.8% to multiplexes and 38.7% to small miniplexes.

Table 9. National population served by theatres (established in any country) within a catchment area of 30 minutes

	Total	Population served by monoscreens	Population served by small miniplexes	Population served by large miniplexes	Population served by multiplexes
Bosnia and Herzegovina	1,900,339	1,361,754	516,552	1,062,534	
Bulgaria	5,381,191	4,456,931	2,811,537	2,454,995	2,897,072
Croatia	3,607,507	3,276,548	1,521,793	2,010,240	1,588,577
Czech Republic	10,546,745	10,546,745	5,875,220	4,191,414	5,505,527
Estonia	1,222,455	1,056,278	902,616	695,145	524,085
Hungary	9,662,878	9,260,497	6,194,121	4,840,009	4,707,949
Latvia	1,622,537	1,251,844	1,120,495	110,799	864,144
Lithuania	2,210,565	1,819,703	989,247	1,547,834	661,521
Poland	36,480,953	35,941,006	15,577,541	20,510,496	16,995,198
Romania	11,808,618	8,573,634	2,308,611	5,756,921	5,740,822
Slovakia	5,397,325	5,397,325	2,302,314	2,181,621	785,389
Slovenia	2,045,633	2,010,016	1,216,289	892,943	1,226,969

Sources: National film centers, OBS

Table 10. Share of national population served by theatres (established in any country) within a catchment area of 30 minutes, broken down by type of theatre

	Share of population				
	Total	**Population served by monoscreens**	**Population served by small miniplexes**	**Population served by large miniplexes**	**Population served by multiplexes**
Bosnia and Herzegovina	49.7%	35.6%	13.5%	27.8%	0.0%
Bulgaria	75.2%	62.3%	39.3%	34.3%	40.5%
Croatia	86.1%	78.2%	36.3%	48.0%	37.9%
Czech Republic	99.9%	99.9%	55.7%	39.7%	52.2%
Estonia	93.0%	80.4%	68.7%	52.9%	39.9%
Hungary	98.3%	94.2%	63.0%	49.2%	47.9%
Latvia	82.4%	63.6%	56.9%	5.6%	43.9%
Lithuania	76.5%	63.0%	34.2%	53.6%	22.9%
Poland	96.1%	94.7%	41.0%	54.0%	44.8%
Romania	59.8%	43.4%	11.7%	29.2%	29.1%
Slovakia	99.5%	99.5%	42.4%	40.2%	14.5%
Slovenia	99.1%	97.4%	58.9%	43.3%	59.4%

Sources: National film centers, OBS.

Table 11. Breakdown of population served by theatres (established in any country) out of total population served within a catchment area of 30 minutes

	Share of population served by cinemas			
	Population served by monoscreens	**Population served by small miniplexes**	**Population served by large miniplexes**	**Population served by multiplexes**
Bosnia and Herzegovina	71.7%	27.2%	55.9%	0.0%
Bulgaria	82.8%	52.2%	45.6%	53.8%
Croatia	90.8%	42.2%	55.7%	44.0%
Czech Republic	100.0%	55.7%	39.7%	52.2%
Estonia	86.4%	73.8%	56.9%	42.9%
Hungary	95.8%	64.1%	50.1%	48.7%
Latvia	77.2%	69.1%	6.8%	53.3%
Lithuania	82.3%	44.8%	70.0%	29.9%
Poland	98.5%	42.7%	56.2%	46.6%
Romania	72.6%	19.6%	48.8%	48.6%
Slovakia	100.0%	42.7%	40.4%	14.6%
Slovenia	98.3%	59.5%	43.7%	60.0%

Sources: National film centers, OBS.

Table 12. National population served by theatres (established in any country) within a catchment area of 45 minutes

	Total	Population served by monoscreens	Population served by small miniplexes	Population served by large miniplexes	Population served by multiplexes
Bosnia and Herzegovina	2,475,129	1,887,939	1,016,001	1,480,547	2,129
Bulgaria	6,274,162	5,477,044	3,562,880	2,962,960	3,441,652
Croatia	4,034,623	3,887,615	2,072,082	2,531,092	2,036,988
Czech Republic	10,546,663	10,546,663	7,662,625	7,320,017	7,365,137
Estonia	1,274,757	1,242,786	1,071,410	775,757	559,327
Hungary	9,853,047	9,832,116	8,070,233	6,760,603	6,106,156
Latvia	1,882,275	1,602,438	1,286,071	134,804	999,894
Lithuania	2,640,580	2,314,751	1,216,383	1,877,908	755,963
Poland	37,854,836	37,784,499	21,078,865	26,461,911	22,633,012
Romania	14,894,045	11,238,149	3,471,238	7,413,213	7,703,834
Slovakia	5,416,970	5,416,970	3,119,186	3,205,363	1,155,041
Slovenia	2,067,787	2,066,055	1,781,488	1,177,517	1,639,908

Sources: National film centers, OBS

Table 13. Share of national population served by theatres (established in any country) within a catchment area of 45 minutes, broken down by type of theatre

	Total	Population served by monoscreens	Population served by small miniplexes	Population served by large miniplexes	Population served by multiplexes
Bosnia and Herzegovina	64.7%	49.4%	26.6%	38.7%	0.1%
Bulgaria	87.7%	76.6%	49.8%	41.4%	48.1%
Croatia	96.3%	92.8%	49.4%	60.4%	48.6%
Czech Republic	99.9%	99.9%	72.6%	69.4%	69.8%
Estonia	97.0%	94.6%	81.5%	59.0%	42.6%
Hungary	100.2%	100.0%	82.1%	68.8%	62.1%

	Total	Population served by monoscreens	Population served by small miniplexes	Population served by large miniplexes	Population served by multiplexes
Latvia	95.6%	81.4%	65.3%	6.8%	50.8%
Lithuania	91.4%	80.1%	42.1%	65.0%	26.2%
Poland	99.7%	99.5%	55.5%	69.7%	59.6%
Romania	75.5%	56.9%	17.6%	37.6%	39.0%
Slovakia	99.8%	99.8%	57.5%	59.1%	21.3%
Slovenia	100.2%	100.1%	86.3%	57.0%	79.4%

Sources: National film centers, OBS.

Table 14. Breakdown of population served by theatres (established in any country) out of total population served within a catchment area of 45 minutes

	Population served by monoscreens	Population served by small miniplexes	Population served by large miniplexes	Population served by multiplexes
Bosnia and Herzegovina	76.3%	41.0%	59.8%	0.1%
Bulgaria	87.3%	56.8%	47.2%	54.9%
Croatia	96.4%	51.4%	62.7%	50.5%
Czech Republic	100.0%	72.7%	69.4%	69.8%
Estonia	97.5%	84.0%	60.9%	43.9%
Hungary	99.8%	81.9%	68.6%	62.0%
Latvia	85.1%	68.3%	7.2%	53.1%
Lithuania	87.7%	46.1%	71.1%	28.6%
Poland	99.8%	55.7%	69.9%	59.8%
Romania	75.5%	23.3%	49.8%	51.7%
Slovakia	100.0%	57.6%	59.2%	21.3%
Slovenia	99.9%	86.2%	56.9%	79.3%

Sources: National film centers, OBS.

4.2.2.1. Focus on multiplexes

So far in this section, we have looked at access by type of cinema theatre, by number of screens within an individual territory. A focus now on the breakdown by number of theatres of the same type, particularly multiplexes, will offer two indicators: on the one hand, of course, the quality and density of the road network but, more importantly, also the level of competition between presumably different exhibition chains in their efforts to attract the same population group.

If we concentrate on the big countries, there appears to be competence across several cinema chains at the multiplex level, with a highly significant share of the population with access to multiplexes able to reach more than five of them within a 30-minute drive; quite notable are the cases of Bulgaria (47.1%) and Hungary (44.1%). Just as

a reminder, in only two countries was the overall population with access to multiplexes higher than 50% (Czech Republic and Slovenia); on average, the figure was 38.8% for the aggregated Eastern European countries covered by the analysis. Even in Bulgaria and Hungary, with high levels of access to more than five multiplexes, 18.8% and 21.1% of the total population had potential access to more than five multiplexes, respectively. In smaller countries like Slovenia or Estonia, all or most of the population with access to multiplexes had just one of such venues within 30-minute reach.

Table 15. Population with access to multiplexes by number of multiplexes

Sample markets		1 cinema	2 to 5 cinemas	6 to 10 cinemas	11 to 20 cinemas
30-minute drive					
Bosnia and Herzegovina	Pop.				
	%				
Bulgaria	Pop.	1,035,393	496,007	1,365,672	
	%	35.74%	17.12%	47.14%	
Croatia	Pop.	738,144	850,433		
	%	46.47%	53.53%		
Czech Republic	Pop.	2,249,176	1,473,301	1,783,050	
	%	40.85%	26.76%	32.39%	
Estonia	Pop.	524,085			
	%	100.00%			
Hungary	Pop.	2,024,759	605,511	2,077,679	
	%	43.01%	12.86%	44.13%	
Latvia	Pop.	57,628	806,516		
	%	6.67%	93.33%		
Lithuania	Pop.	23,739	637,782		
	%	3.59%	96.41%		
Poland	Pop.	3,793,947	7,736,604	3,514,127	1,950,520
	%	22.32%	45.52%	20.68%	11.48%
Romania	Pop.	2,285,157	1,344,177	2,111,488	
	%	39.81%	23.41%	36.78%	
Slovakia	Pop.	109,915	675,474		
	%	13.99%	86.01%		
Slovenia	Pop.	913,861	313,108		
	%	74.48%	25.52%		
45-minute drive					
Bosnia and Herzegovina	Pop.	2,129			
	%	100.00%			

Sample markets		1 cinema	2 to 5 cinemas	6 to 10 cinemas	11 to 20 cinemas
45-minute drive					
Bulgaria	Pop.	1,343,456	607,960	1,490,236	
	%	39.04%	17.66%	43.30%	
Croatia	Pop.	938,408	1,098,580		
	%	46.07%	53.93%		
Czech Republic	Pop.	2,684,147	2,271,494	2,399,228	10,268
	%	36.44%	30.84%	32.58%	0.14%
Estonia	Pop.	559,327			
	%	100.00%			
Hungary	Pop.	2,690,971	728,214	2,686,971	
	%	44.07%	11.93%	44.00%	
Latvia	Pop.	34,027	965,867		
	%	3.40%	96.60%		
Lithuania	Pop.	40,887	715,076		
	%	5.41%	94.59%		
Poland	Pop.	5,246,440	9,898,123	4,645,559	2,842,890
	%	23.18%	43.73%	20.53%	12.56%
Romania	Pop.	3,280,077	2,042,282	2,381,475	
	%	42.58%	26.51%	30.91%	
Slovakia	Pop.	191,421	963,620		
	%	16.57%	83.43%		
Slovenia	Pop.	971,004	668,904		
	%	59.21%	40.79%		

Sources: National film centers, OBS.

4.3. Analysis of cinema catchment areas

From the point of view of the supply side, the average and median catchment population per cinema in each given country offers us insight into the reach (not the reachability) of the theatres in that territory. It is important to bear in mind that the definition of catchment area is not limited to the national boundaries of the country where the cinema theatre is based; it can include inhabitants in adjacent countries.

For instance, in the case of the large countries, plus Croatia and Estonia, the average was significantly higher (more than twice in some cases) than the median. This would suggest that a few theatres have a huge reach, whereas a large number of theatres reach a well below average population, which is in line with expectations for any country with several big urban concentrations, as is the case in these countries. More insightful and accurate conclusions can be drawn if we go on to break down these two indicators by type of cinema based on the number of screens.

In most cases, there was a progression in the average population in the catchment areas of theatres by type of cinema, from lower averages for monoscreen theatres to higher averages for multiplexes. In some countries, however, smaller miniplexes had a higher average population within reach than larger miniplexes, which suggests that in some cases, small, probably urban, miniplexes had a higher reach than larger, probably suburban miniplexes.

In addition, the difference between average and median was almost non-existent (with the exception of Romania) when it comes to multiplexes, which implies that there are no significant outlying theatres in terms of population within the catchment area. At the other end of the spectrum, the difference was much more acute when it comes to monoscreens and, on the whole to a lesser extent, small miniplexes, where more outlying theatres in terms of reach were to be found.

Table 16. Average population in the catchment areas of theatres, by country and type of theatre

Country	Monoscreen	Small miniplex	Large miniplex	Multiplex	Total
30-minute drive					
Bosnia and Herzegovina	384,986	171,273	256,953		296,273
Bulgaria	320,354	616,277	541,490	978,007	545,870
Croatia	251,606	503,673	419,636	660,964	318,054
Czech Republic	498,245	841,055	501,012	1,200,846	527,711
Estonia	164,870	210,783	369,723	524,086	215,013
Hungary	342,402	980,125	1,240,110	1,407,376	618,172
Latvia	349,696	213,959	119,707	802,123	362,732
Lithuania	279,095	282,516	386,576	649,683	332,940
Poland	555,707	963,801	779,151	1,294,480	717,678
Romania	825,944	228,342	459,959	993,271	718,715
Slovakia	324,313	345,264	434,389	756,350	343,543
Slovenia	312,820	448,896	374,231	426,389	341,919
45-minute drive					
Bosnia and Herzegovina	514,035	335,439	350,632		422,543
Bulgaria	447,923	756,887	688,208	1,093,054	675,199
Croatia	390,862	665,254	570,567	856,354	464,249
Czech Republic	979,911	1,316,798	1,073,207	1,701,099	1,011,336
Estonia	222,048	244,622	416,200	559,332	265,167
Hungary	676,639	1,364,843	1,691,770	1,834,873	979,715
Latvia	470,673	447,845	172,892	949,716	512,439
Lithuania	399,225	379,132	483,185	737,119	441,526
Poland	1,023,033	1,471,395	1,281,911	1,806,946	1,199,231
Romania	978,382	341,415	609,515	1,214,641	880,627
Slovakia	647,921	673,998	705,145	1,325,540	670,078
Slovenia	592,005	681,062	576,380	822,318	620,180

Sources: National film centers, OBS.

Table 17. Median population in the catchment areas of theatres, by country and type of cinema

Country	Monoscreen	Small miniplex	Large miniplex	Multiplex	Total
30-minute drive					
Bosnia and Herzegovina	399,137	241,207	196,860		254,051
Bulgaria	145,565	482,016	406,976	1,359,224	277,599
Croatia	98,747	231,213	300,462	850,428	145,318
Czech Republic	339,612	504,328	496,322	1,523,316	352,243
Estonia	49,893	119,173	480,021	524,086	98,453
Hungary	191,922	282,545	319,275	1,376,955	222,596
Latvia	82,157	112,086	119,707	806,543	128,582
Lithuania	237,509	169,170	408,749	649,683	247,587
Poland	291,583	515,630	459,866	976,576	360,190
Romania	439,131	199,393	327,411	474,754	376,633
Slovakia	246,181	297,304	455,988	768,184	268,242
Slovenia	289,038	516,622	351,061	366,475	321,617
45-minute drive					
Bosnia and Herzegovina	550,634	373,030	304,470		427,241
Bulgaria	292,958	649,242	582,730	1,493,674	437,879
Croatia	186,077	359,580	361,789	1,084,769	313,204
Czech Republic	716,937	1,030,858	1,043,993	2,228,564	736,059
Estonia	148,899	171,915	542,183	559,332	192,627
Hungary	408,919	627,482	1,486,335	2,024,483	492,933
Latvia	140,205	384,934	172,892	959,188	419,611
Lithuania	327,080	264,965	555,372	737,119	335,938
Poland	619,432	1,108,164	864,011	1,413,377	792,386
Romania	554,109	310,861	489,867	587,441	528,878
Slovakia	552,277	477,066	694,630	1,352,804	589,504
Slovenia	642,172	740,671	505,721	814,047	682,187

Sources: National film centers, OBS

4.3.1. Evaluation of the cross-border access question

This analysis allows for a distinction between national and non-national populations served by theatres established in a given country. At this point it is important to recall the difference between potential – and actual - reachability of theatres. The fact that a cinema in Hungary is reachable for a population living in the Czech Republic does not mean they are necessarily potential cinemagoers, as probably do not speak Hungarian or prefer to go to a domestic cinema. That said, it is true that cross-border access increases the potential reachability of theatres in the European Union, where borders are not an issue for those crossing over to watch a film.

As is evident in the table below, national population accounts for the lion's share of populations served by national theatres in most countries (more than 90%), with the exception of the Czech Republic, Slovakia and Slovenia - all countries where the same or a similar language is spoken as in adjacent territories. Therefore, more realistic figures on the potential reachability of cinemas established in each country can be obtained by adding up potential national cinemagoers and potential cinemagoers in countries with the same or a similar language (as in the Czech Republic, Slovakia, Latvia and Lithuania) – see column E of the table below.

Table 18. Inhabitants and % of the total population (in 1000s) reachable for theatres established in each country, with a catchment area of 30 minutes, broken down by type of territory

	A	B	C	D	E
	Potential cinemagoers	**Potential national cinemagoers**	**Potential cinemagoers in other countries with same/similar language**	**Potential cinemagoers in other countries with diferent language**	**B+C**
Bosnia and Herzegovina	2,166.2	2,161.9		4.3	2,161.9
%		99.8%		0.2%	99.8%
Bulgaria	5,681.0	5,381.2		299.8	5,381.2
%		94.7%		5.3%	94.7%
Croatia	3,843.2	3,554.7		288.6	3,554.7
%		92.5%		7.5%	92.5%
Czech Republic	13,818.6	10,546.7	378.7	2,893.2	10,925.4
%		76.3%	2.7%	20.9%	79.1%
Estonia	1,277.9	1,222.5		55.5	1,222.5
%		95.7%		4.3%	95.7%
Hungary	10,976.7	9,639.4		1,337.3	9,639.4
%		87.8%		12.2%	87.8%
Latvia	1,797.7	1,787.2	8.2	2.3	1,795.4
%		99.4%	0.5%	0.1%	99.9%
Lithuania	2,217.5	2,202.1	14.1	1.3	2,216.2
%		99.3%	0.6%	0.1%	99.9%

	A	B	C	D	E
	Potential cinemagoers	**Potential national cinemagoers**	**Potential cinemagoers in other countries with same/similar language**	**Potential cinemagoers in other countries with diferent language**	**B+C**
Poland	38,026.8	36,403.9		1,622.9	36,403.9
%		95.7%		4.3%	95.7%
Romania	12,609.1	12,480.6		128.5	12,480.6
%		99.0%		1.0%	99.0%
Slovakia	6,446.6	5,370.0	330.8	745.8	5,700.8
%		83.3%	5.1%	11.6%	88.4%
Slovenia	3,550.7	2,045.6		1,505.1	2,045.6
%		57.6%		42.4%	57.6%

Sources: National film centers, OBS.

The total potential cinemagoer population for national theatres in other countries with a different language (8.9 million inhabitants for a 30-minute drive) was much more significant than the potential cinemagoer population for national theatres in other countries with the same/ a similar language (0.74 million inhabitants for a 30-minute drive), showing that there is a huge difference between potential – and actual - cross-border access to theatres.

With the exception of Slovenia, to whose national theatres a a notable population in Croatia and Italy has potential access, the lion's share of the populations served by national theatres in the countries analysed were in the country of establishment of the theatres or in adjacent countries where the same or a similar language is spoken (column E of table 18). The exact situation in each country can be seen in the tables below.

Table 19. Inhabitants and % of the total population (in 1000s) reachable, for a catchment area of 30 minutes, broken down by country of establishment of theatres and population

Y axis: Country of establishment of theatres; X axis: Country of establishment of population

	BG	MK	RO	RS	BA	HR	HU	MN	SV	AT	CZ	DE	PL	SK	EE	LV	RU	UA	BY	LT	MD	IT
Bosnia and Herzegovina				1.0	2,161.9	3.3																
%				0.05%	99.80%	0.15%																
Bulgaria	5,381.2	2.5	296.3	1.1																		
%	94.72%	0.04%	5.21%	0.02%																		
Croatia				4.6	153.1	3,554.7	44.9		85.9													
%				0.12%	3.98%	92.49%	1.17%		2.24%													
Czech Republic										233.8	10,546.7	1,013.0	1,646.4	378.7								
%										1.69%	76.32%	7.33%	11.91%	2.74%								
Estonia															1,222.5	13.2	42.3					
%															95.66%	1.03%	3.31%					
Hungary			61.8	132.0		51.1	9,639.4		71.9	354.9				597.1				68.4				
%			0.56%	1.20%		0.47%	87.82%		0.66%	3.23%				5.44%				0.62%				
Latvia															1.5	1,787.2			0.8	8.2		
%															0.08%	99.42%			0.04%	0.46%		
Lithuania													0.2			14.1			1.1	2,202.1		
%													0.01%			0.63%			0.05%	99.31%		
Poland											1,039.8	466.7	36,403.9	42.6			21.1	35.0	16.8	0.9		
%											2.73%	1.23%	95.73%	0.11%			0.06%	0.09%	0.04%	0.00%		
Romania	42.0		12,480.6	15.1			35.2											4.6			31.6	
%	0.33%		98.98%	0.12%			0.28%											0.04%			0.25%	
Slovakia							471.3			106	331		166	5,370				3.4				
%							7.31%			1.64%	5.13%		2.57%	83.30%				0.05%				
Slovenia						896	5.9		2,046	166												437
%						25.22%	0.17%		57.61%	4.69%												12.31%

Sources: National film centers, OBS.

Table 20. Inhabitants and % of the total population (in 1000s) reachable, for a catchment area of 45 minutes, broken down by country of establishment of theatres and population

Y axis: Country of establishment of theatres; X axis: Country of establishment of population

	BG	MK	RO	RS	BA	HR	HU	MN	SL	AT	CZ	DE	PO	SK	EE	LV	RU	UA	BY	LT	MD	IT
Bosnia and Herzegovina				10.3	2,937.7	18.3																
%				0.35%	99.04%	0.62%																
Bulgaria	6,274.2	20.4	327.4	21.1																		
%	94.45%	0.31%	4.93%	0.32%																		
Croatia				58.4	363.2	3,994.5	132.7	8.6	277.2													
%				1.21%	7.51%	82.62%	2.74%	0.18%	5.73%													
Czech Rep.										495.0	10,546.7	2,364.5	3,438.8	890.2								
%										2.79%	59.47%	13.33%	19.39%	5.02%								
Estonia															1,274.8	61.8	59.5					
%															91.31%	4.43%	4.26%					
Hungary			461.5	196.6		190.1	9,840.6		124.3	1,717.2				1,258.9				250.1				
%			3.29%	1.40%		1.35%	70.09%		0.89%	12.23%				8.97%				1.78%				
Latvia															13.1	1,866.5	0.1		6.6	52.2		
%															0.68%	96.29%	0.00%		0.34%	2.69%		
Lithuania													7.1			36.7	1.9		10.3	2,612.3		
%													0.27%			1.38%	0.07%		0.39%	97.90%		
Poland											1,605.7	940.7	37,850.5	232.0			65.1	113.3	434.3	17.5		
%											3.89%	2.28%	91.74%	0.56%			0.16%	0.27%	1.05%	0.04%		
Romania	50.6		14,655.3	32.8			112.7											29.0			69.7	
%	0.34%		98.03%	0.22%			0.75%											0.19%			0.47%	
Slovakia							1,276.4			609.4	616.6		692.2	5,410.6				137.6				
%							14.60%			6.97%	7.05%		7.92%	61.89%				1.57%				
Slovenia						1,678.8	34.1		2,067.8	742.7												712.5
%						32.06%	0.65%		39.49%	14.19%												13.61%

Sources: National film centers, OBS.

Table 21. Difference between catchment areas for 30- and 45-minute driving times(in %)

	BG	MK	RO	RS	BA	HR	HU	MN	SL	AT	CZ	DE	PO	SK	EE	LV	RU	UA	BY	LT	MD	IT
Bosnia and Herzegovina				921.0%	35.9%	453.2%																
Bulgaria	16.6%	717.7%	10.5%	1812.7%																		
Croatia				1175.9%	137.2%	12.4%	195.3%		222.7%													
Czech Republic										111.7%	0.0%	133.4%	108.9%	135.1%								
Estonia															4.3%	368.9%	40.8%					
Hungary			646.5%	48.9%		271.9%	2.1%		72.9%	383.8%				110.8%				265.5%				
Latvia															768.7%	4.4%			720.1%	537.5%		
Lithuania													2914.8%			160.7%			867.4%	18.6%		
Poland											54.4%	101.6%	4.0%	444.9%			207.8%	223.3%	2480.5%	1886.7%		
Romania	20.3%		17.4%	116.3%			220.5%											533.8%			120.9%	
Slovakia							170.9%			476.8%	86.4%		318.2%	0.8%				3970.0%				
Slovenia						87.4%	479.0%		1.1%	346.3%												63.0%

Sources: National film centers, OBS.

As it can be seen in the table above, the main distinctions between populations served within a catchment area of 30 minutes and one of 45 minutes have their origins in countries adjacent to the one analysed. With regard to differences within the same country, variations remain quite moderate. With the exception of Bosnia & Herzegovina (35.9%), the difference in populations served, for the two catchment areas, was below 19%, and double-digit figures were to be found in only five countries. By contrast, the difference with respect to populations served in adjacent territories can, in some cases, be to the factor of 10 (e.g. Serbian population with access to Croatian theatres or Ukrainian population with access to Slovak theatres). The explanation for this is probably to be found in inter-country accessibility challenges related to poor infrastructure networks.

5. Conclusions

The ability to reach at least one theatre within a 30-minute drive helps, as an indicator,assess access of a given population to a theatrical offering. Overall levels found in the report show that only 12.6% of the population in Eastern Europe had no access at all. On average, 87.4% of the population in the region had at least one cinema within a 30-minute drive, and the share rose to 92.9% for a driving time of 45 minutes.

When it comes to infrastructure, the most obvious conclusion is that Eastern Europe is rather under-screened compared to the rest of the EU, with the region accounting for 20.2% of the EU population but only 11.9% of overall screens. Even if the GDP per capita is also lower than the EU average, this suggests there is scope for more theatres and screens, especially in countries such as Romania or Slovakia, with very high, above-average-EU levels of inhabitants per screen.

On the methodological side, it is important to note the difference between the potential - and actual - reachability of cinema theatres. While the former is the only one that could be measured, the latter is more than likely to be significantly lower due to a series of socio-political factors. In addition, the issue of cross-border access to foreign venues has proven to be relatively limited – and even more so if we take into account the language spoken on each side of the border and the unlikeliness that members of a population in country A will go to the movies in country B unless they speak the same or a similar language.

Populations are not distributed evenly among theatres and screens. In most countries there were significant differences between the average and median population within the catchment areas, both for 30- and 45-minute drives. This shows that there are theatres that act as huge outliers. Logically, these venues can be expected to be multiplexes in the suburbs, and miniplexes and multiplexes in the center of big cities.

In big countries (Bulgaria, Czech Republic, Hungary, Poland and Romania) a notable share of the population had access to more than 100 screens, presumably people living in big cities with access to urban and suburban venues. This is in contrast with the overall figures: the most common number of screens to which a population had access was, in most countries, between two and 10 for a 30-minute catchment area, and between 11 and 20 for a 45-minute catchment area.

If we take the 12 Eastern European countries covered in this analysis together, most of the population with access to cinemas within a 30-minute drive (85.9%) had access to a monoscreen (79.5%), whereas only 43.3% of the population had access to large miniplexes, 38.8% to multiplexes and 38.7% to small miniplexes, showing that the region relies heavily on monoscreens, usually located in the center of cities. This does not, however, imply that most cinema tickets are sold for monoscreens, as there is no

direct link between the accessibility of a type of theatre and its level of admissions. It may well be that multiplexes in suburban areas are accessible to fewer people in a given territory, but that the level of admissions per screen is much higher than for monoscreen theatres.

Regarding the reach of cinema theatres, that is, the average and median population within reach, it should be observed that the difference between these two indicators is almost non-existent when it comes to multiplexes, which implies that there are no significant outlying theatres in terms of population within the catchment area. At the other end of the spectrum, where more outlying theatres in terms of reach are to be found, the difference is much more acute when it comes to monoscreens and, although normally to a lesser extent, small miniplexes.

As expected, national populations accounted for the lion's share of populations served by national theatres in most countries (at the pan-Eastern European level, 92.8 million inhabitants for a 30-minute drive, i.e. more than 90% of the total population served). In order to ascertain the actual potential population with access to a theatre we can add up the populations of cinemagoers who may potentially go to national theatres in other countries with the same/ a similar language; however, this amounts to merely 0.74 million inhabitants, just a small portion of the total population of cinemagoers who may potentially go to national theatres in other countries (9.6 million inhabitants for a 30-minute drive). This shows that there is a huge difference between potential, and actual, cross-border access to theatres.

Lastly, the analysis possible in view of the data available is strictly limited to the access of population clusters to cinema theatres, but no link between population clusters and individual filmscould be scrutinised, and therefore no analysis of the diversity of the reachable offerings could be conducted. It can hence be surmised – although not proven, let alone measured - that despite high accessibility levels in most countries, it is more than likely that the choice of offering is quite limited for most of the population; that is, most people have access to the same, or a reduced, number of films. An eventual analysis of what films are available where would confirm or dismiss the theory and could offer insight into common patterns of access linked to the nationality and genre of films.

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