iSport
INVESTMENTS IN SPORT
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Investments in Sport

Guidelines on investments in sport

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1. Introduction

When deciding about a sport-infrastructure, a multitude of aspects must be considered. Among them are economic, ecologic, and social sustainability, it needs to be placed in a suitable area, function well, decision processes must be transparent, demography has to be considered, and many more.[1] Another important consideration is cost. Although the public hand often has to decrease expenditure, not the cheapest bidder, but the best bidder is awarded the contract. Besides the obvious reason that the cheapest approach can lead to substantial additional costs in the future, the definition of "best bid" can also include positive effects on the regional economy, including the labour market. Here, the construction sector is among the most efficient sectors to generate Gross value added (GVA), employment and thus income. This, in turn, reduces pressure on social services as contribution payments rise while unemployment benefits drop. In addition, research has shown that sport is a strong employment driver.[2] Especially in times of crises, such investments should be considered. The calculation of the economic impact of an investment therefore is a valuable tool for assessing a sport infrastructure's significance.

Bearing this in mind, a possibility to do such an analysis quickly and with high cost-efficiency on the one hand, while being precise and extensive on the other clearly is of importance. This is where iSport comes into play. In the course of the project, a comprehensive analysis of 91 sport infrastructure projects was carried out and a tool developed which allows a quick, but precise calculation of the economic impact of a planned sport infrastructure.

On the following pages we will at first give an overview of the analysed investment projects and the results. The standard analysis and data-collection will be discussed, and it will be shown that such a method yields strikingly different results compared to the case of using the more refined data and methods applied in the course of the project Investments in Sport (iSport). Since such detailed analyses take time and typically cannot be performed for multiple alternative investments, a calculation tool is introduced and explained. By the help of which, decision makers can quickly and thoroughly estimate the economic impact of the investment as well as of the operation phase of a sport-related infrastructure.

[1] See the German publication Eßig, Lindner, and Magdolen (2017) for a rich collection and Hoekman (2018) for a thorough, detailed analysis of many aspects.
[2] See SpEA et al. (2012) and SpEA and SIRC (2018).

2. Data and Methods

2.1 EU-wide data

Data on 91 infrastructure projects were gathered during the project. The total investment sum was more than 476.4 m euros, which makes an average of 5.2 m euros per project. As Table 1 shows, those 91 projects are divided into three categories: football stadiums, grassroot facilities and elite facilities. From them, football stadiums were found to be on average the most expensive investment, and grassroot facilities the cheapest one.

Table 1: Infrastructure projects, overview.

		No	Total costs	Average costs per project
Total	Football Stadiums	11	106,508,131	9,682,557
	Grassroots Facilities	41	57,691,726	1,407,115
	Elite Facilities	39	310,468,253	7,960,724
Total		91	476,404,800	5,235,218

Source: data provided by national institutions. Own calculations by SpEA.

2.2 Standard Input-Output Analyses

The standard approach of using these data would be through an Input-output (IO) analysis. The quickest possibility is to take the Input-output table (IOT) of a Member State as provided by Eurostat[3] and that Member State's investment sum and see what impact that sum has if invested into the construction sector. By doing so, one can calculate the GVA, and employment generated directly (by the companies involved in the construction investment) and indirectly (by their supply network).

For more than ten years, however, the European Commission has been promoting the creation of Sport satellite accounts (SSAs).[4] Within an SSA[5], the sectors as defined in the System of National Accounts (SNA) are refined in such a way that one can separate sport-related from non-sport content. In the case of sport infrastructure, the sport-related construction is a distinct sector different to the non-sport construction sector. Thus, the impact of an investment in sport infrastructure can be analysed precisely.

Such SSAs are already a substantial improvement against the generic construction sectors. Further, the present research allows the separation of the sport and non-sport construction using different

[3] Eurostat codes *naio_10_cp1700* or *naio_10_cp1750*.
[4] See inter alia SpEA et al. (2012), SpEA and SIRC (2018).
[5] Satellite accounts can also come in the form of Supply and use tables (SUTs), but they are not covered here.

models of costs structure, which brings the results closer to the representation of economic reality, and to the benefit of decision makers.

Table 2 below shows the results of the standard IO analysis for the average project considered in the present research (€5.24m, from Table 1). It divides the effect into direct (€1.78m from the construction companies), total domestic (€3.58m, including indirect from the supply chain) and total in the EU, estimated at €4.3m. Table 2 also shows the percentage structure of the generated GVA; for example, 50% of it is generated within the construction industry, while 2% is generated from legal and accounting services.

Table 2: GVA impact of the average project calculated by standard IO analysis.

in €	Simple analyses	
Direct Effects	1,781,865	
Total Effects, domestic	3,577,952	
Total Effects, EU-wide	4,305,081	
	Sectoral impact, EU-wide	
Rank	**Sector**	**Impact**
1	Construction	50%
2	Financial services	3%
3	Wholesale trade services, except of motor vehicles and motorcycles	3%
4	Legal and accounting services	2%
5	Other non-metallic mineral products	2%
	Remaining sectors	40%

Source: own calculations by SpEA. All calculations assume that no goods or services have to be imported

Table 3 below shows the equivalent results of the standard IO analysis in the case of employment.

Table 3: Employment impact of the average project calculated by standard IO analysis.

in persons	Simple analyses	
Direct Effects	37	
Total Effects, domestic	85	
Total Effects, EU-wide	97	
	Sectoral impact, EU-wide	
Rank	**Sector**	**Impact**
1	Construction	56%
2	Financial services	3%
3	Wholesale trade services, except of motor vehicles and motorcycles	3%
4	Legal and accounting services	2%
5	Other non-metallic mineral products	2%
	Remaining sectors	*34%*

Source: own calculations by SpEA, assume that no goods or services have to be imported

The average sport investment, when following the conventional analysis, generates directly 37 jobs, a total domestic employment of 85 jobs and a total EU employment of 97 jobs. A percentage distribution of the latter is also provided, with construction (where the investment occurs) having the lion share with 56% of employment.

2.3 National Data on Sectors

The problem with the above standard approach (resulting in Table 2 and Table 3) is that it uses the cost structures of the non-sport construction to analyse sport investment. The current research addresses this problem starting from the cost structures of the sport investments, as shown in Table 4 below. Construction costs are indeed the most important ones, but the other categories can be sizeable as well. Especially equipment and furniture can be costly, but architecture services play a role as well. Real estate represents 5% of total costs, but with big variances among projects. For example, the low real estate share in the case of football stadiums could be attributed to the fact that the football stadiums were already in existence before they were rebuilt or renovated.

Table 4: Comparison of cost structure.

	Construction	Furniture, Equipment	Architecture	Finance	Lighting	Real estate	Playing field	Other
Football	60%	13%	6%	0%	6%	2%	4%	9%
Grassroots	70%	8%	4%	0%	0%	10%	1%	6%
Elite	81%	7%	5%	0%	0%	4%	0%	2%

Source: data provided by national institutions. Own calculations by SpEA.

Football stadiums require a smaller share of their total investment costs (60%) to be invested in the construction sector than the other types (70% in grassroots and 81% in elite sports). Costs for lighting and the playing field together make around 10% of a football stadium's total costs while in elite and grassroots facilities, they are so small that they are not even mentioned in the data reports.

2.4 Detailed Analyses

This new iSport dataset can now be used for a much more detailed analysis. The impact generated by the directly involved companies is distributed to the respective sectors (as in Table 4) and the indirect effects through the supply networks are derived.

The impact of an average project is shown in Table 5 for GVA and in Table 6 for employment. In the top part of each table, the direct and total effects for the domestic economies as well as for the whole EU-28 are shown. Below that is a list of the top-5 sectors with their respective effects.

Differences in terms of GVA, between the standard IO and iSport analyses, do not seem dramatic on the first glance, but the distribution of the effects on the sectors varies strongly. While in the simple

analyses, architecture and engineering services do not show up in the top-5 (they are 12th), they are ranked second in the detailed one.

In the case of employment, differences between the approaches get more striking. Direct effects are 8% higher in the detailed analyses compared to the standard IO. The employment effects on construction even differs by more than 11% (seven percentage points).

Table 5: GVA impact of the average project calculated by detailed iSport analyses.

in €	Detailed analyses	
Direct Effects	1,768,719	
Total Effects, domestic	3,516,501	
Total Effects, EU-wide	4,247,420	
	Sectoral impact, EU-wide	
Rank	Sector	Impact
1	Construction	44%
2	Architecture	4%
3	Financial services	3%
4	Wholesale trade services, except of motor vehicles and motorcycles	3%
5	Real estate services	2%
	Remaining sectors	45%

Source: own calculations by SpEA, under the assumption that no goods or services have to be imported

Table 6: Employment impact of the average project calculated by detailed iSport analyses.

in persons	Detailed analyses	
Direct Effects	40	
Total Effects, domestic	87	
Total Effects, EU-wide	99	
	Sectoral impact, EU-wide	
Rank	Sector	Impact
1	Construction	49%
2	Architecture	4%
3	Financial services	3%
4	Wholesale trade services, except of motor vehicles and motorcycles	3%
5	Real estate services	3%
	Remaining sectors	38%

Source: own calculations by SpEA, under the assumption that no goods or services have to be imported

As an example, Table 7 illustrates the case of the UK grassroots projects that were investigated for this research: detailed calculations show a direct GVA effect of 3.85 m euros which is not even closely reached by the 3.07 m euros of the simplified standard approach. The equivalent employment effect under the iSport analysis is 126 persons employed, more than double when compared to the standard

IO approach which results in employment of 62 people. Hence, the general characteristic of the UK construction sector of using comparatively few employees per million of euros invested, cannot be transferred automatically into sport projects which generate higher employment.

Table 7: Impact of grassroots project in the UK calculated by standard IO and by iSport analyses.

	IO analyses	iSport analyses
	Gross Value Added in €	
Direct GVA effects	3,068,862	3,851,965
Total GVA effects, domestic	5,984,269	6,292,538
Total GVA Effects, EU-wide	6,828,737	6,922,923
	Employment in persons	
Direct employment effects	62	126
Total employment effects, domestic	115	170
Total employment effects, EU-wide	127	180

Source: own calculations by SpEA, under the assumption that no goods or services have to be imported

These results clearly show that one must use all available data and go as closely as possible to the real cost structure of a sport project. There is a strong possibility of underestimating employment otherwise, depending on the nature of investment. Differences mainly arise from:

- Economies are different in the Member States. Productivity, employment per money invested, weights of sectors in the economy and use of technology are just a few possible differences. These are reflected in the national IOTs and the respective SSAs.
- Investment projects require different economic activities (as represented in the National Accounts) to be implemented. This is shown in Table 4 where one can see that there are no two rows – and thus projects – which are identical.
- Within each sector, the impact is different. Also, every sector has a very specific supply network to which the impact of the investment is forwarded. These variations are again covered by the IOTs and SSAs.

As presented above, ignoring one or more of these differences may result in drastic deviations from what is happening in reality, and often in an undervaluation of the employment effects. Showing the problems of using simplified data or methods can be one of the major results of iSport. The following section shows how decision makers can deal with the major methodological issues in an easy way.

3. Practical Research – The Calculation Tool

During the presentations, national decision-makers were or became aware that knowing the economic impact of a sport infrastructure project would be a valuable information. Even though the economic side of such a project is only a side-aspect (sport participation or attendance is usually the focus of an investment), economic considerations play an important role during the planning and operating phase. A full-scale analysis, as roughly outlined in the previous sections of this report, can easily require a few weeks of calculation time. Often, only the good first estimate of a project's impact is of interest and therefore a full-scale analysis is not necessary.

Therefore, although not specified in the contract, the iSport-team set up a calculation tool which allows more than just basic analyses for investing into and operating a sport infrastructure. At the moment, this tool exists as a web-based version. For each of the partner Member States, a separate model was developed, which allows the analysis of the investment as well as the operation of sport infrastructures. The methods used for the different Member States are practically identical, only the one for the United Kingdom uses a Graphical user interface (GUI) in pounds while the others use euros.[6] In principle, this kind of model should be updated every year. However, an update-cycle of three years is possible as well if the decision makers bear in mind that with every year, results become a little less precise. The following descriptions are based on the web-based version of the calculation tool.

3.1 Considerations before starting the Analysis

Optimising the economic impact of a sport infrastructure seems impossible at first, because all the parameters refer to the domestic economy in general, rather than the sport economy. However, there are some policy adjustments that can be made.

At first, it is always advisable to keep imports at a minimum. Obviously, some GVA and employment effects are generated abroad and will not help the domestic economy. This also refers to a large extent to foreign companies doing contract work on domestic soil. This could be a company digging a pool or raising some construction. Since the work is done domestically, there are small effects like employees purchasing daily life goods close to the construction site, but this is typically minimal compared to the effects associated with profits and the supply chain.

Policy makers may wish to differentiate between maximising GVA and maximising employment. GVA is the sum of payments to the four production factors (employees, the entrepreneur, the state, and

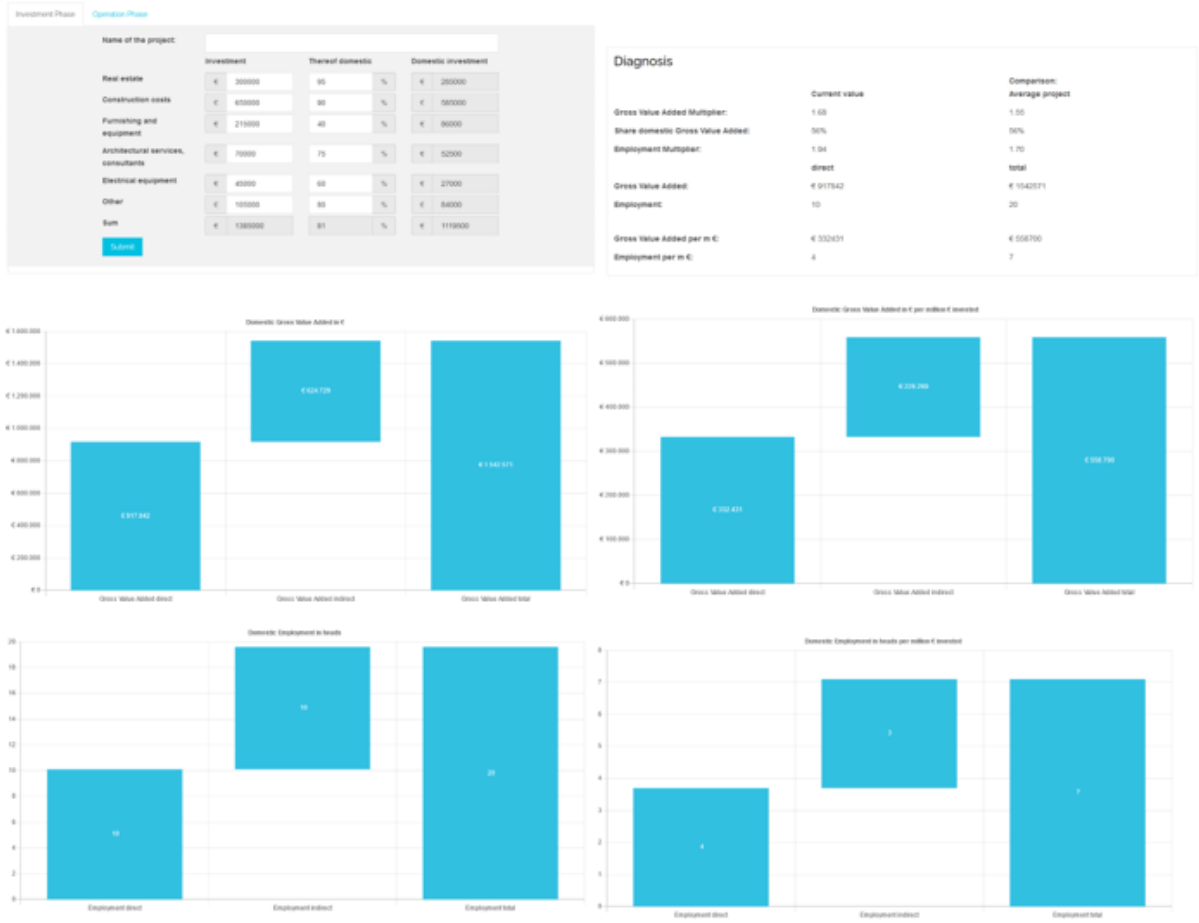
[6] The model for Croatia uses euros as well even though the national currency is still kunas.

investment- i.e., consumption of fixed capital). Therefore, it is an "overall" value indicating the benefits to various groups. Employment, on the other hand, is very specific. Reducing unemployment is in line with the Europe 2020 Strategy and an important target in many regions of the European Union. Wages and salaries paid to employed people are part of GVA which is one reason why there is a correlation between employment and GVA. However, this correlation is not perfect. As was noted before, in most Member States sport is more efficient in generating employment compared to GVA (at least during the operation phase). Therefore, one has to differentiate between the two and probably be aware of a shifting focus of the results. The Calculation Tool can provide insights into both phases, investment, and the operation phase.

3.2 Calculation Tool for the Investment Phase

The calculation tool's sheet on the investment phase is shown in Figure 1. Please note that the tool may look differently depending on your operating system and browser. On some systems, the tool needs rather long time to initially start up. The upper left box contains input fields and first, basic outputs. The user only must fill in values there. All other fields will be calculated automatically according to the inputs. The upper right box contains several diagnosis statistics and results. The four blue graphs visualise the results as waterfall diagrams.

Figure 1: Screenshot of the fully filled-out calculation tool's sheet on the investment phase.

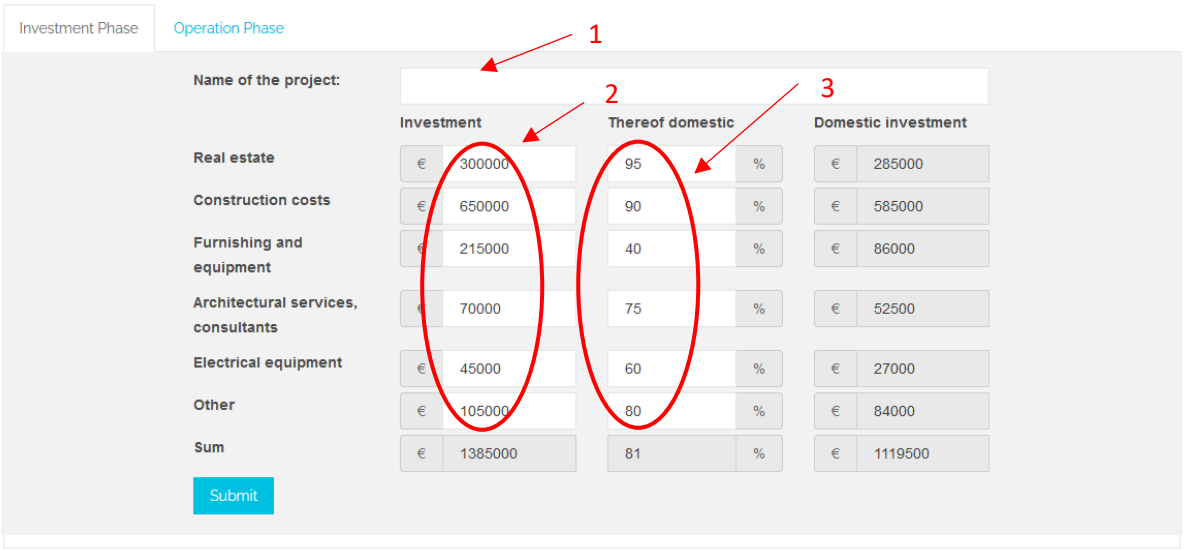


Source: SpEA.

3.2.1 Step 0 – The Tool

It seems like a very good idea to start with its original form. That is, the three white input areas, marked by red 1, 2 and 3. The values shown in Figure 2 are dummy values provided by the tool.

Figure 2: Screenshot of the calculation tool's input fields for the investment phase.

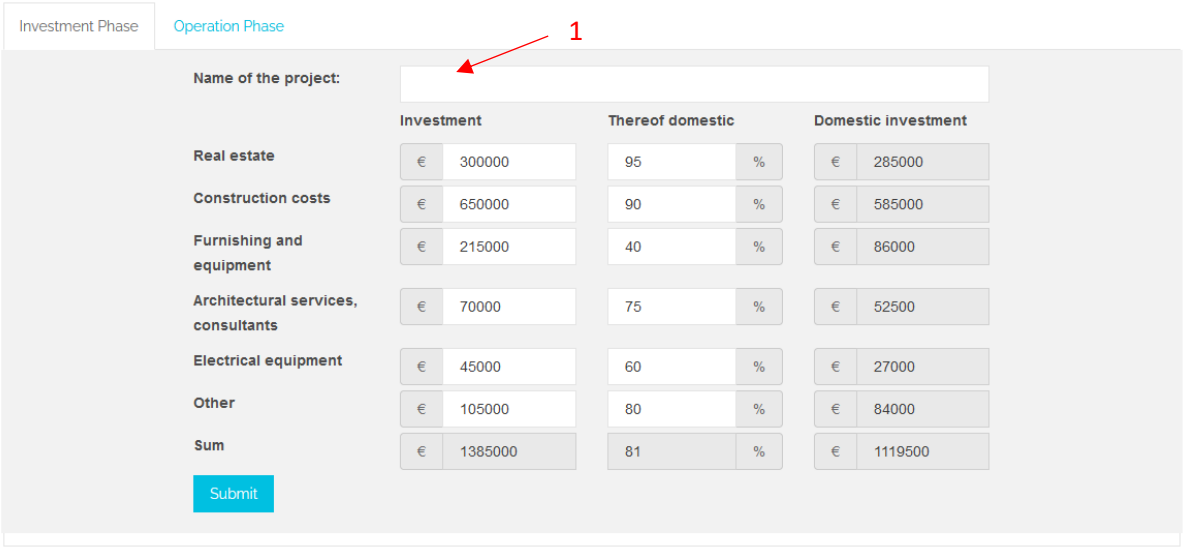


Source: SpEA.

3.2.2 Step 1 – Name of the project

It is possible to enter a name for the project, indicated by red 1, but it is not mandatory.

Figure 3: Screenshot of the calculation tool's input fields for the project's title.

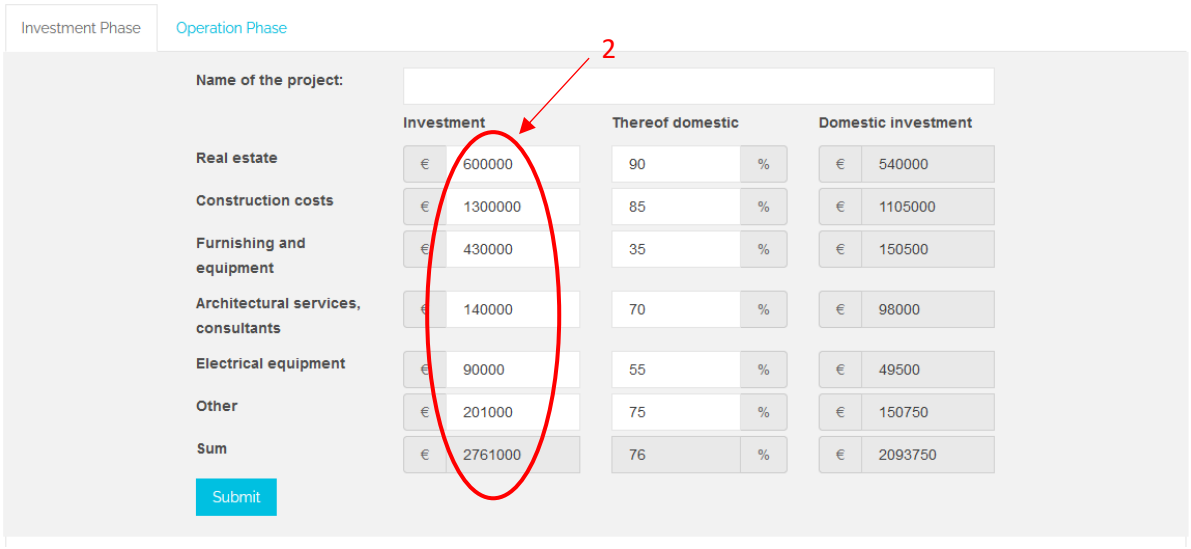


Source: SpEA.

3.2.3 Step 2 – Investment in Sectors

Now it is time to fill the tool with values. Figure 4 shows the investments in the different sectors, indicated by the red circle. Values are assumed to be in euros (United Kingdom in pounds) and net of VAT. The sum of investments will be calculated after values are submitted to the tool.

Figure 4: Screenshot of the calculation tool's investments in different sectors.

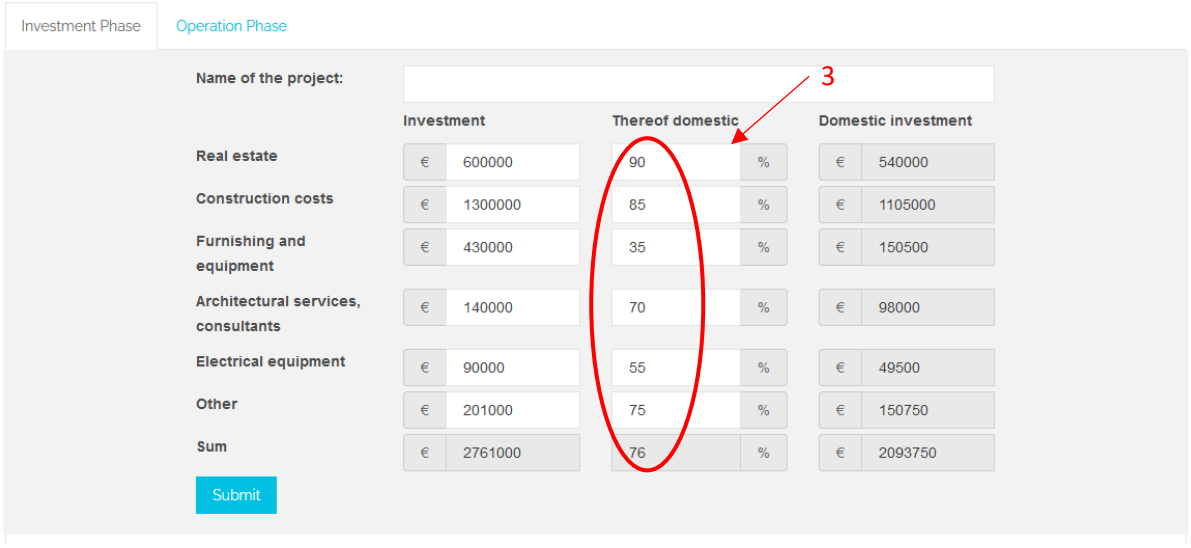


Source: SpEA.

3.2.4 Step 3 – Domestic share in Every Sector

After the net-investments in the above sectors, one needs to enter their associated share of domestic contractors. It is to be expected that a certain amount of work is done by foreign companies and their contribution cannot be attributed to the domestic economy. Only the share of investment contracted to domestic companies remains within the domestic economy. Therefore, the domestic shares of every sector must be provided in the white fields below "Thereof Domestic". The fields are indicated by a red circle in Figure 5. Only the directly involved companies are relevant here; import shares of the supply network are calculated automatically.

Figure 5: Screenshot of the calculation tool's domestic share.

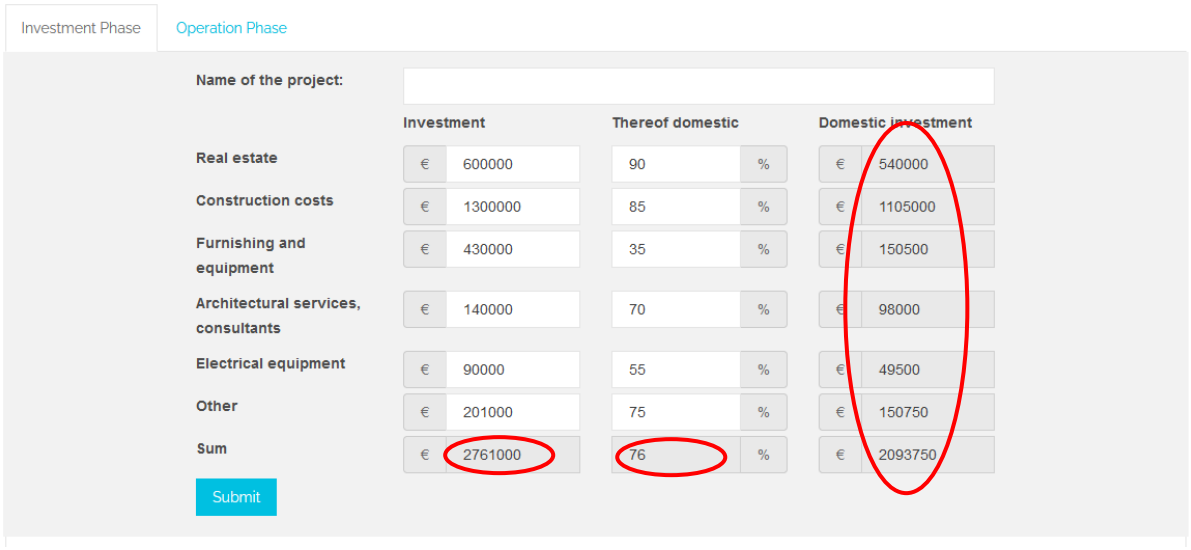


Source: SpEA.

3.2.5 Step 4 – Submit data

When the Data about the investment is filled in, it is time to click on the "Submit" button to begin the calculation process. The sum, the total domestic share and the absolute value of the investments in the different sectors are then calculated. Those values are marked by red circles in Figure 6.

Figure 6: Screenshot of the calculation tool's domestic share.



Source: SpEA.

By now, all required information has been submitted, and the user can proceed to the diagnostics and results.

3.2.6 Step 5 – Results, Part 1

Some important diagnostic statistics and results are reported in Figure 7. In the coloured, upper left box labelled by a red 4, one finds the analysed project's GVA-multiplier, the share of domestically generated GVA in total investments and the employment multiplier. The two multipliers show how well the infrastructure's investment is connected to the rest of the domestic economy:

- GVA Multiplier: the value of 1.68 for the GVA multiplier tells us that for every euro of GVA generated in a company directly related to the creation of the infrastructure, another 68 cents of GVA are generated in the supply network of this company. Therefore, a multiplier can never be smaller than 1.00.[7] The fewer goods and services an economy must import and the better the interconnection between the sectors, the higher will be a multiplier's value and the more the economy will benefit.
- Share of domestic GVA: this value equals the total domestic GVA (917,842 euros, see below) divided by the total investment (2.76 m euros). The higher the "domestic share" of the contractors (see Figure 5) and the lower the imports of the supply-network, the higher will be the final estimated share.
- Employment Multiplier: the value of 1.94 for the employment multiplier tells us that for every person employed in a company directly related to the creation of the infrastructure, another 1.09 persons are employed in the supply network of this company. Therefore again, that multiplier can never be smaller than 1.00. As before, the fewer goods and services an economy has to import and the better the interconnection between the sectors, the higher will be a multiplier's value and the more the economy will benefit.

Figure 7: Screenshot of the calculation tool's upper diagnosis fields.

Diagnosis

	4 → Current value	Comparison: Average project
Gross Value Added Multiplier:	1.68	1.55 ← 5
Share domestic Gross Value Added:	56%	56%
Employment Multiplier:	1.94	1.70

Source: SpEA.

In the upper right box, labelled with a red 5, values of comparison projects are shown. Since these values are calculated from economy-wide averages, differences to the sport-infrastructure projects may be substantial in both directions. Therefore, it is suggested to compare sport-infrastructure

[7] Under very special circumstances, GVA multipliers can in fact be smaller than 1.00, but these cases are extremely rare.

projects among each other and not necessarily with the values reported here. They should merely be treated as additional information.

3.2.7 Step 6 – Results, Part 2

The values labelled by a red 6, 7, 8, and 9 in Figure 8 show domestic GVA and employment values of companies directly related to the infrastructure ("direct") as well as the total numbers (i.e., numbers of directly related companies plus their supply network). The total GVA of 1,542,571 euros given in the example is divided by the 2.76 m euros total investment which yields the 56% share of domestic GVA discussed above. These results for GVA and employment indicate the absolute impact on the economy.

However, sometimes one needs to compare different infrastructure projects associated with different investment sums. To do that, red numbers 8 and 9 in Figure 8 report GVA and employment generated by a one million euros investment. In the example shown here, every million euro invested generates 332,919 euros of domestic GVA and 4 employees in the directly investment-related companies and 558,700 euros of GVA and 7 employees if the supply networks are added.

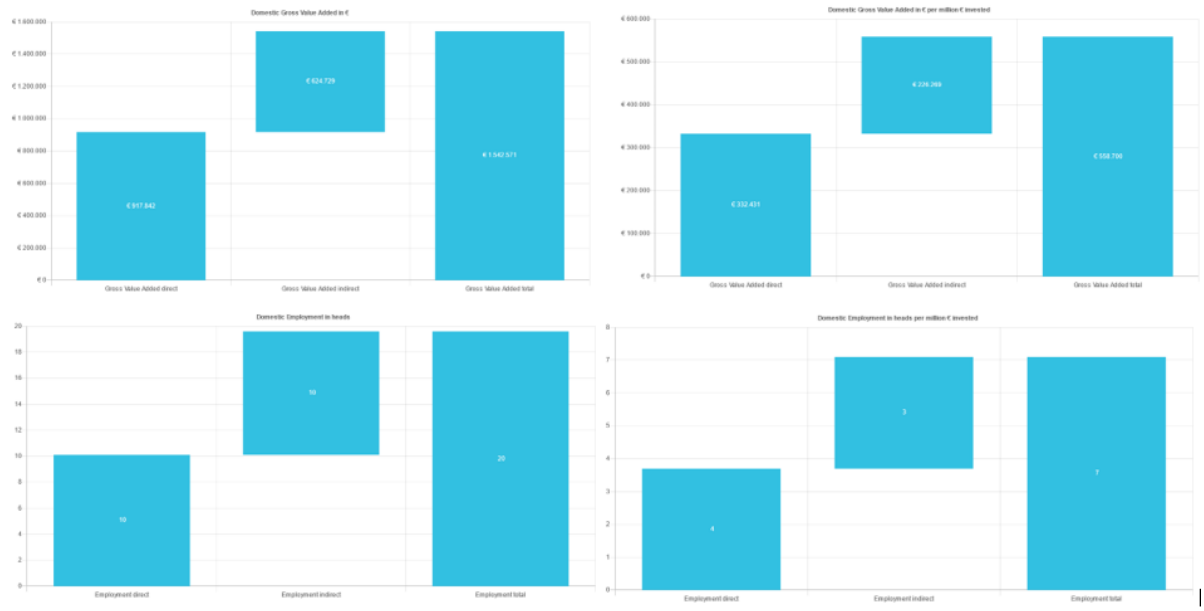
Figure 8: Screenshot of the calculation tool's lower diagnosis fields.

Source: SpEA.

3.2.8 Step 7 – Visualisation of Results

A screenshot of the final results' visualisation is given in Figure 9. There are four waterfall diagrams showing the GVA and employment results described above. The two charts on the left show the absolute values of the impact while the two charts on the right show the impact per million euros investment. Therefore, the shapes of the bars in the top row are identical (i.e., the bars in the upper left are identical to the upper right; same for the lower row), only the values and associated scales of the axes differ.

Figure 9: Screenshot of the calculation tool's visualisation graphs.



Source: SpEA.

3.2.9 Step 8 – Download the Results as a PDF-File

The calculation tool offers the opportunity to save the results as a PDF-file, using the button at the end of the results sheet. Click on the PDF-symbol to download the results in pdf form.

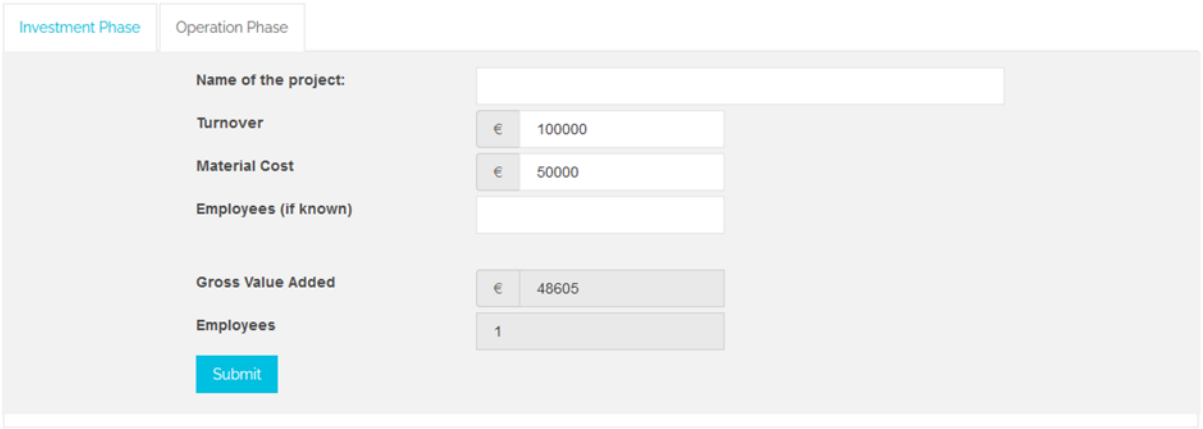
3.3 Calculation Tool of the Operation Phase

The calculation tool contains a sheet for the operation phase of the infrastructure. The only difference to the investment phase is that the input fields are restricted to four cells. As in the investment phase, the name of the project is not mandatory

3.3.1 Step 0 – The Tool at the Beginning

Figure 10 shows the tool in its basic settings. It provides values for turnover and material cost. The field for the number of employees is left empty.

Figure 10: Screenshot of the calculation tool's input fields for the operation phase.

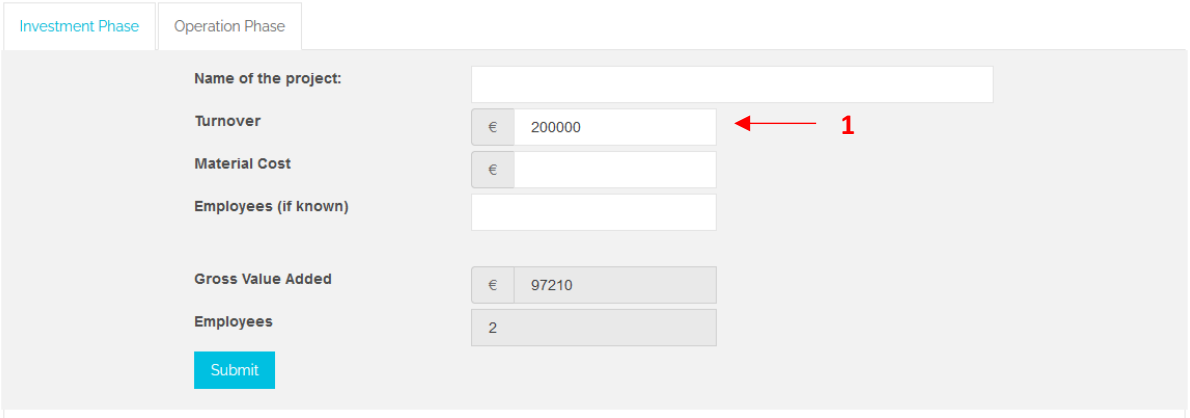


Source: SpEA.

3.3.2 Step 1 – Turnover

First, one needs to enter the expected turnover in the filed indicated by a red 1 in Figure 11. The value has to be net of VAT and in euros (except for the United Kingdom, where pounds are to be used).

Figure 11: Screenshot of the calculation tool's turnover entered.

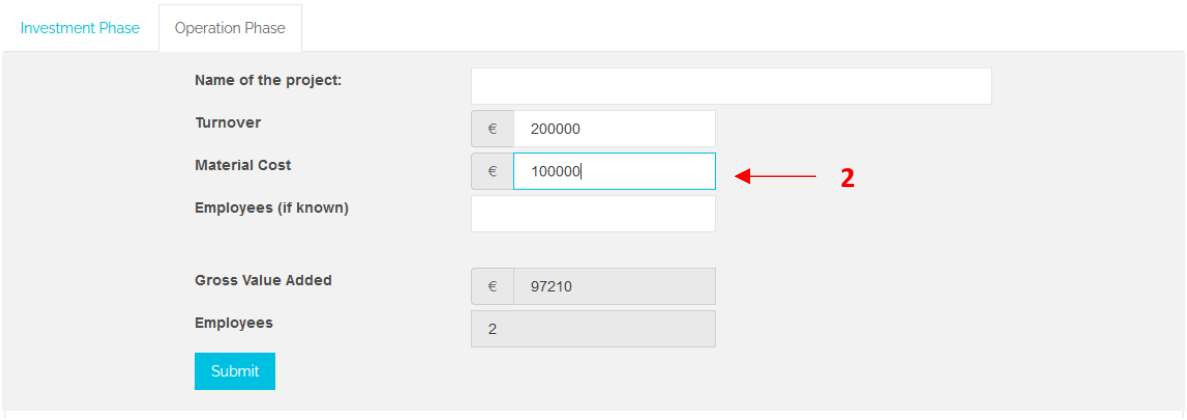


Source: SpEA.

3.3.3 Step 2 – Material Cost

The second step is to enter expected material cost in the field labelled by a red 2 in Figure 12. This needs to be in euros (except for the United Kingdom, where pounds are to be used), net of VAT, but must include imports.

Figure 12: Screenshot of the calculation tool's material cost entered.



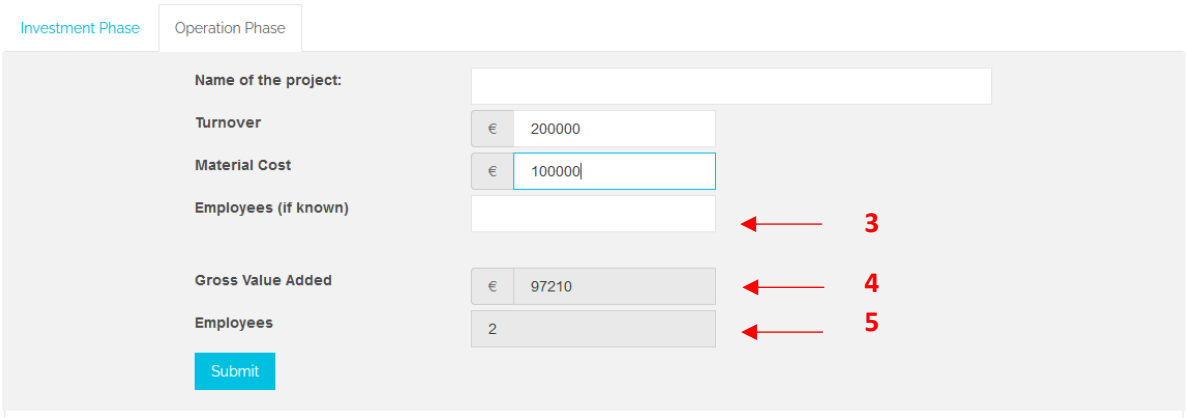
Source: SpEA.

Material cost is expenditure for intermediary goods and services and may include items such as rent, electricity, heating, water supply, office material and the like. It differs from investments because it is used quickly, while investments are deducted over some time.

3.3.4 Step 3 – Employees

Finally, one may enter the expected number of employees in the field labelled by a red 3 in Figure 13. The number must be in persons, not in full-time equivalents. Labour-leasing must be excluded. Often, the number of employees is hard to estimate in advance, so if field 3 is left empty, the tool will calculate the expected number, display it in the field indicated by the red 5 in Figure 13 and use it throughout the following calculations.

Figure 13: Screenshot of the calculation tool's employees entered.



Source: SpEA.

3.3.5 Step 4 – Results, Visualisation and Download

Results, visualisation, and the download process s are identical in both parts of the tool: investment and operating phase. Because of that, please refer to the description of the investment phase in Step 4 to Step 7 for an understanding of the results in the operation phase.

Literature

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Data Sources

Input-output tables: https://ec.europa.eu/eurostat/web/esa-supply-use-input-tables/data/database Code *naio_10_cp1700* for product by product and *naio_10_cp1750* for industry by industry.

Employment data: https://ec.europa.eu/eurostat/web/lfs/data/database Code *lfsa_egan22d* for Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level).

Data on sport infrastructure by national experts from Austria, Cyprus, Croatia, Lithuania, Luxembourg and the United Kingdom.

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