



## A simple model for preventing campus unsustainability

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### Abstract

**Aim:** The author presents his reflections on the theories and survey discussed at the workshop on “Methodology for assessing the campus sustainability from the perspective of multi-level antifragility” held in Wrocław (Poland) in May 2016. The reflections concern indicators which are relevant to prevent unsustainability of the development of a university as well as its stakeholders. Furthermore, a simple model for assessing the potential for eliminating threats regarding campus sustainability is presented.

**Design / Research methods:** The author reflects on the theories and survey, based on his experience as a student of while being a volunteer teacher for almost two months in Ukraine, among other things providing seminars for students. The ideas were further developed during the workshop on campus sustainability at WSB University in Wrocław (Poland) on 13 May 2016.

### Conclusions / findings:

Many people want to make changes at universities in order to support campus sustainability. This paper shows that changes towards eliminating obstacles not always have a positive impact. As there are many factors determining University viability, when changing something, the non-reversible impacts of a change in the respective indicator on other indicators need to be considered. While this may not be enough to conclude whether a change, as a whole, is positive or not, it helps to define different scenarios of change.

**Originality / value of the article:** A simple model for initial assessment of potential for eliminating threats regarding campus sustainability is presented. This simple models enables the decision whether quick changes can be made, or whether deeper research is needed.

**Keywords:** campus sustainability, sustainability management, fragility, anti-fragility, methodology  
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## Introduction

Developing a methodology facilitating the identification of harmful and irreversible events may support environmental protection and sustainability, while saving money. However, as it is difficult to indicate in advance which harmful events can take place, it may be better to create stabilizers, or buffers against changes that can have too serious damages (Taleb 2012). A constitution may be a good example. It protects a country from opportunistic people who want to make drastic changes in law, for example restrict human rights for minorities. While this creates large damage for a small group, it may lead to crossing a line of no return, where a whole democratic system is destroyed. This is also important in the campus sustainability discourse – to identify lines that should not be crossed. In this article, based on the survey discussed at the workshop on “Methodology for assessing the campus sustainability from the perspective of multi-level antifragility” held in Wrocław (Poland) on 13 May 2016, personal reflections are given regarding indicators which are relevant to prevent unsustainability of the development of a university as well as its stakeholders. Examples are provided based on experience while for two months, among other things, volunteering as a teacher in Ukraine and providing seminars for students.

### Elimination of single threats

*Hiding the truth* in a University is not necessarily a bad thing, as long as it has no heavy impact on internal stakeholders and the environment. Not telling the whole story or keeping behind information does not harm in all cases, in particular when it concerns difficult to understand or uncertain issues. When it is hidden that a university is in deep debt, this can be

very dangerous. When it is not told that a certain professor, who is very highly performing, drinks a bit before a lecture in order to feel more relaxed, this may be less harmful. In fact, when the drinking does not influence his performance, and the fact he does becoming public would lead to firing this professor, the truth may not only be harmful for the professor himself but also for the university as a whole. While these are simplified examples, they show that it is important to consider the positive and negative effects of information to become public.

*Dependency on a few very good scientists* is risky for a University. The university is fragile because if one of the scientists will leave university, this can seriously hamper innovations, the scientific level of publications, access to research funds, etc. Furthermore, they may be important in attracting students (e.g., chemistry, biology), which is of particular importance in a situation of declining student numbers. While this is a good indicator of fragility of the university viability itself, it also creates fragilities for the city in which the university operates. Not only because, for example, a serious reduction in student numbers may have economic consequences for a city (in particular when the share of students in the population is high). Also because the innovative and knowledge base for urban development and business development weakens.

### Relation and interaction between indicators

Increasing *critical discussion* between university authorities may improve the effectiveness of problem solving. However, without empathy and communication skills, such discussions may create more damage than benefits. When the critique is formulated in, for example, an aggressive or

insulting way, the *openness to critique* may decline. In particular when there is struggle between interest groups, critical discussion may be used as an instrument to harm outsiders. Many criteria need to be fulfilled in order for such a type of discussion to be effective.

This is related to the question, can the university survive when many of the professors employed are not real professionals? Who are not open-minded, and able to provide a relevant reflective and critical discussion? As such, bad professors (or, bad lecturers) reduce the quality of education. However, universities continue to operate and function, even when employing poor professors. Here the question appears, what is the threshold when the number of poor professors does not harm the university too much? Is this 20% of the total amount of professors employed? Is this less than 30% of the students being dissatisfied with these professors? Another issue is whether there are enough good professors available on the labour market in order to replace the poor professors. If not, the good professors may take more classes. This, however, reduces the time these professors can spend on individual students and on their research. This also may negatively influence the level of education, and in turn the reputation of the university. Thus, the question is whether there is a minimum level of quality in teaching professors should provide in order not to threaten the quality of education too much, and to attract enough students to enrol.

These examples are exemplary for the fact that often trade-offs exist. When one indicator is improved, others may deteriorate. Or, different types of side effects may appear (Taleb 2012). The question is – which change can cause an improvement of indicators of fragility (threatening the viability of the university), while not creating new

fragilities threatening the existence of a university?

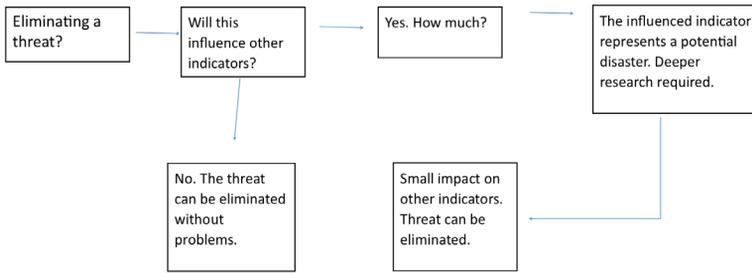
### **Eliminating threats and their impact of other variables**

A problem with assessing threats is that measurement is difficult, while the fragilities are difficult to identify. Furthermore, many indicators are probably more or less correlated, making it difficult to estimate the probable effect of the elimination of a threat. For example, *lack of knowledge* probably depends much on the type of knowledge that is required by the labour market. Bad education may create a lack of knowledge that makes it impossible to find a job. In this case, the university (or at least the study programme) may collapse. However, also when students obtain a lot of knowledge, when this is in an area for which there is no demand for workers the study programme may also disappear. This example shows that it is difficult to establish what type of specific knowledge is required for students to be prepared for the labour market. Important seems to be knowledge that enables students to quickly adapt to changes in the labour market in the future.

Now suppose a university wants to improve students' knowledge by eliminating a strong interest group of professors providing low quality teaching and disturbing democratic processes. What if these people have connections with government authorities, enabling the acquisition of research funds? This may be of particular importance in case of countries with a high level of corruption. This shows that elimination of one negative element is not so easy, as it may disturb university viability by influencing other indicators.

Some challenges in eliminating threats are presented in a simplified way in Figure 1. In order to eliminate threats,

**Figure 1. When can a threat be eliminated?**



Source: author's own elaboration

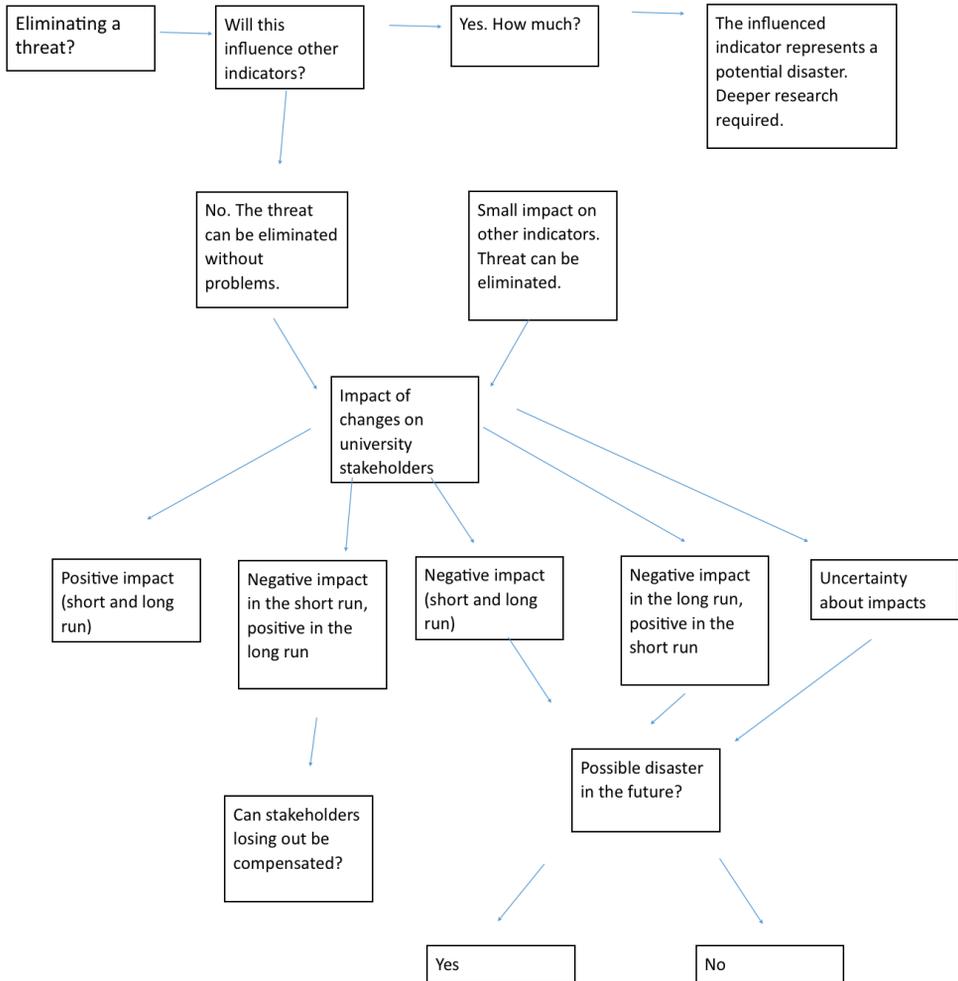
it is important to know whether there is interaction with other indicators (correlation), and what is the cause-effect relation. The simplified scheme (also Figure 2) shows the threats of improper analysis of interactions. It shows also in a simplified way when threats can be eliminated. Of course, in reality, the scheme needs to be expanded for the multitude of indicators that interact in a complex system. Let's take the example of eliminating *corruption* at the university. In my experience as a volunteer, corruption is widely spread in Ukraine among professors and students. This probably has serious negative impact on the reputation of Ukrainian universities' in the world. Now suppose university authorities want to improve their university's reputation by way of eliminating (or, seriously reducing) corruption with, among other things, the aim of joining international research groups and in this way obtain research funds. However, what can be the impact on other indicators? First of all, when professors would not receive illegally money (e.g., bribes), this would seriously influence their income. If this income decline is not levelled out by a wage increase, this may lead to professors leaving the university, which as a consequence may threaten its existence. Furthermore,

a question is what is the impact on the level of knowledge (will the best professors leave, having an opportunity to find another job?), the research grants from the national government (will the professors who have the best connections with the government decision makers leave?), etc. The scheme helps us to quickly make an initial assessment of opportunities accordingly to their threat to destroy the university in the long run. If we have 3 different opportunities to deal with a *lack of knowledge*, the scheme together with indicators shows which opportunity is likely to cause most harm. When a potential disaster can appear, the opportunity has to be dealt with great caution. When the impact is small, policy measures may be developed relatively quickly. In the next section, university stakeholders are included in the scheme in order to identify political conflicts in case of proposed changes (see Freeman 1984).

**Elimination of threats taking into consideration University Stakeholders**

Figure 2 is an extension of Figure 1. Also this is a simplified decision scheme, requiring further development. Now assume the university

**Figure 2. Elimination of a threat taking into consideration University Stakeholders**



Source: author's own elaboration.

wants to deal with the *lack of environmental elements in the study program*. What would be the impact on other indicators? Knowledge and awareness regarding environmental issues may increase. However, is this knowledge required by the labour market? If not, even when the long-term effects may be positive, and short-term benefits for the university may appear (e.g.,

by engaging students in developing energy saving measures, with positive environmental and economic effects), the knowledge required by the labour market may not be obtained. Less time is spent on other topics which may be required by employers. This may seriously reduce the students' opportunities to find a job, and decrease the attractiveness of

studies. However, the moment when the number of hour spent on an environmental topic is relatively low, or even better, when it is introduced in existing courses, the negative effect is unlikely to be large. The other way round, when eliminating environmentally related topics, the fragility of the university is unlikely to increase, as environmental topics are currently not so important in Ukraine. Students as stakeholders may gain knowledge of other subjects, important on the labour market. Also, teachers of other subjects may gain. However, lack of environmental knowledge may lead engineers to misunderstand the environmental impact of, for example, investment projects. While maybe the likeliness of an environmental disaster happening is small, the effects of mismanagement due to a lack of knowledge can be enormous.

The scheme presented in Figure 2 can be used as a simple tool to make an initial assessment whether the elimination of a threat can improve campus sustainability. After this initial assessment, a deeper analysis is of course required. In particular, when negative effects are expected in the long-run, then the question is whether these negative effects can lead to a possible disaster in the future. When this disaster has non-reversible effects, it is better to apply the precautionary principle, and either not make the change, or wait at least until the potential threat can be eliminated (see Taleb et al. 2014). The moment there are no long-run threats, the elimination can be considered. Here it is important to look at which stakeholders lose from the change, and try to find ways to eventually compensate them for eventual losses in order to reduce eventual resistance to change (Freeman 1984).

With help of the model presented above, the decision of Šiauliai university in Lithuania to combine courses

for first and second year studies can be analysed.<sup>1</sup> In the academic year 2016-2017 only 5 students enrolled in the first year. As this is below the minimum number of students needed to start the programme, it was decided (in agreement with the students and their parents) to let first year students join second year courses. This is an example of a wider problem of the university, facing a declining number of students through the last decade.

The first consequence is that university lecturers will have less teaching hours. Following Figure 1, the question has to be asked “Will this influence other indicators?” Among other effects, lecturers (at least part of them) may receive lower *salary* (e.g., less extra hours, change of full time contract into part time contract), while there exists the possibility someone will lose his/her job. Furthermore, first year students will need more preparation time (*time spent on studying*) in order to catch up with second year students. As these indicators are influences, now the question appears “Yes, how much?”.

In order to assess the impact on the lecturers’ salary, and in turn the threats appearing regarding other indicators data is needed. These data include, among other things, the level of the current salary, the changes in the salary, other employment opportunities and attractiveness of the university as a place to work. For example, when the salary is already low, the impact may be significant. Maybe older lecturers with a family will stay. However, younger lecturers may leave the university, and even the city. This can lead to the reduction of the resource base for the university, creating a further downward spiral in the university viability. In this case, as

<sup>1</sup> This case study is based on an interview with a Staff member of the History Faculty of Šiauliai University.

shown in Figure 2, “The influenced indicator represents a potential disaster. Deeper research required.” However, the action of merging groups of first and second year students should be taken, as without action there would be no new continuity at all, with even more negative impact on salary. The deeper research required may concern policy on how to get out of this downward spiral.

Regarding the time spent on studying, an important factor may be the students’ capacity to study. This may be reflected to a certain extent by the results of the final exams of secondary school. When these results are low, there exists a greater threat that they will face difficulties with catching up with second year students. As also in this case it is more problematic for the university not to merge the groups (assuming that a small merged group is better than no group), individual coaching for students may be required. As such coaching requires time from lecturers, the question appears whether this is accompanied by financial compensation. When the university receives a set amount of funding per student from the state, this will be problematic. Either the lecturer has to spend more time for the same salary (or, the same amount of time for lower salary due to reduced formal teaching hours), or the university has to allocate resources from other faculties (or debt just increases). In this scenario, there tend to be high uncertainties about the impacts (strengthened when no analysis of interaction of indicators and potential threats has been carried out). And a possible disaster in the future cannot be excluded. However, as mentioned, there are arguments for undertaking the action, as no action at all would even more threaten the university’s viability.

In case of the scenario that students had great exam results and lecturers’

salaries are sufficient, the threat of *financial loss* can be reduced and eventually eliminated. The question appearing is what is the “impact of changes on University stakeholders” (Figure 2). In the short run, the University benefits by combining first year and second year classes instead of closing the study program or running a financial loss. The rough assessment provided above makes the scenario “Negative impact in long run, positive in the short-run” likely. What, then, about a “Possible disaster in the future?”. While there already exist problems in recruiting students, the merging of first and second year classes, combined with the low number of students, can have a negative marketing impact. Without history students, libraries and museums would not only lose visitors, but also students and scholars doing research on, for example, regional history. Thus, the answer is “Yes” both for the history department (as a disaster has been (temporarily) prevented) as well as for stakeholders like museums and libraries.

### Concluding remarks

I am aware that there are more sophisticated methods for risk assessment and disaster assessment than the simple model presented above. However, the simple schedule makes it easy to see in which case we should be very cautious with making changes by eliminating, for example, bad practice (as the organization or the external environment can be seriously damaged), and in which case we can give it a try. It is a way to identify damages and potential benefits of eliminating unsustainable practices, and draws attention to the fact that the elimination of bad practice can, paradoxically, have a negative impact on different elements of sustainable development.

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## Prosty model zapobiegania niezrównoważonemu rozwojowi kampusu

### Abstrakt

**Cel:** Autor przedstawia swoje refleksje dotyczące teorii oraz badań ankietowych omawianych podczas warsztatów pt. „Metodologia dotycząca oceny podtrzymalności kampusu z perspektywy wielopoziomowej antykruchości” (ang.: “Methodology for assessing the campus sustainability from the perspective of multi-level antifragility”), które odbyły się we Wrocławiu (Polska) w maju 2016 roku. Przemyślenia dotyczą wskaźników, które są istotne i powiązane z zapobieganiem niezrównoważonemu rozwojowi uniwersytetów, jak też ich interesariuszy. Co więcej, zaprezentowano prosty model służący ocenie potencjału do eliminacji zagrożeń związanych z niezrównoważonym rozwojem kampusu.

**Układ / metody badawcze:** Autor odnosi się do teorii i badań ankietowych w oparciu o swoje doświadczenie zdobyte podczas studiów w trakcie niemal dwumiesięcznego wolontariatu jako nauczyciel na Ukrainie, między innymi prowadząc seminaria dla studentów. Idee zostały pełniej rozwinięte podczas warsztatu dotyczące zrównoważonego rozwoju kampusu na WSB we Wrocławiu (Polska), 13 maja 2016 roku.

**Wnioski / wyniki:** Wiele osób pragnie wprowadzić zmiany na uniwersytetach, aby wspierać zrównoważony rozwój kampusów. Niniejszy artykuł dowodzi, że zmiany mające na celu usunięcie przeszkód nie zawsze przynoszą pozytywne skutki. Ponieważ na wydolność i żywotność uniwersytetów wpływają liczne czynniki, zmiana cokolwiek wymaga rozważenia, czy nie spowoduje ona nieodwracalnych zmian innych wskaźników. O ile może to być niewystarczające do stwierdzenia, czy dana zmiana, rozpatrywana całościowo, jest pozytywna lub nie, o tyle pomaga określić różne scenariusze zmiany.

**Oryginalność / wartość artykułu:** Przedstawiono prosty model wstępnej oceny potencjału służącego usunięciu zagrożeń dotyczących niezrównoważonego rozwoju kampusu. Model ten pozwala na podjęcie decyzji, czy można dokonać szybkiej zmiany, czy też wymagane są głębsze badania.

**Słowa kluczowe:** zrównoważony rozwój kampusu, zarządzanie zrównoważonym rozwojem, kruchość, antykruchosc, metodologia