

Chapter # 41

FACILIS DESCENSUS AVERNO

Or Effects of Interactions Between Own PhD Research Project and Other Projects Initiated within University

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ABSTRACT

This chapter is focused on PhD research projects in a large university, aiming to analyse the effects of their interactions with other organizational projects of the university. Assuming that objectives of doctoral research projects are aligned to the strategic objectives of the university, there were a few research questions, specific to this explorative study: How could the effects of interactions be measured? Are the effects of interactions always positive? If the effects of interactions are negative, then which might be the reasons behind them? Ultimately, are there any solutions to avoid or mitigate the negatives? The study includes both secondary research (literature survey) and primary research: directly observed and personally experienced doctoral projects in a Romanian university environment under scrutiny, completed with semi-structured interviews with doctoral students. This piece of work reveals novel types of inter-project conflicts within higher education institutions, and findings allow the formulation of several recommendations, which are critically important to doctoral schools and PhD supervisors as well as to major stakeholders: higher education leaders and strategists, policy and decision makers, administrators and research managers. Alignment of objectives is essential.

Keywords: project interactions, doctoral research projects, organization *versus* project, organization management *versus* project management, higher education and research.

1. INTRODUCTION

1.1. Explaining the Title

The old Latin dictum *facilis descensus Averno*¹ (attributed to the Roman poet Publius Vergilius Maro), which has circulated in the Christian era as *the road to hell is paved with good intentions*, has the same meaning in English (Collis & Risso, 1992; Kruger & Gilovich, 2004; Kalman, 2010) as well as in many other languages (Ray, 1768; Mawr, 1885; Scarlat, 2019).

Its profound meaning (in terms of how the wonder-plans may turn into not-so-wonderful reality) is explained by scholars (Powers, Koestner, & Topciu, 2005; Gollwitzer & Sheeran, 2006) using the modern instruments of social psychology. Scarlat (2019, pp. 179–202) also provided evidence of proverbs that illustrate such behaviours along project life cycle or abstract principles of project management (Scarlat, 2022).

1.2. How the *Road to Hell* can be *Paved with Good Intentions*: UBI Experiment

A large-scale experiment (i.e. research project) targeting poverty alleviation, conducted in the USA between 2019 and 2023 in two states (Illinois and Texas) is an excellent illustration of the old dictum.

The results of the largest American controlled experiment in Universal Basic Income (UBI) were reported in July 2024 (Vivalt, Rhodes, Bartik, Broockman, & Miller, 2024). Over 40,000 volunteers, filtered after eligibility screening and randomization, were finally split into two groups: 1,000 treatment group and 2,000 control group. Different amounts of money were distributed monthly to the members of treatments group (\$1,000 as compared to \$50 to members of control group) – so that a person in the treatment group received in average \$34,200 for the duration of experiment. As reported, the UBI experiment had some “surprising and potentially troubling” results.

The findings suggest that while participants received a “financial boost”, it didn't translate into improved economic outcomes (Vivalt et al., 2024, pp. 30–31): “Even a fully unconditional cash transfer results in moderate labor supply reductions for recipients” and “rather than being driven by such program features, participants [in the study] reduced their labor supply because they placed a high value, at the margin, on additional leisure”. Despite receiving an additional \$12,000 annually through UBI,

- Participants ended up earning less overall (*household income decreased by 21 cents for every dollar of UBI received*).
- There was a noticeable *increase in unemployment duration* among UBI recipients, and they worked less compared to those in the control group.
- There was an increase in self-reported disability among participants, potentially indicating *a decline in their willingness or ability to work*.

This example is an excellent illustration of how best intentions can end up with negative outcomes. *An apparently good idea does not always work in practice*. Nevertheless, this experiment has paid off because, in the absence of this experiment, the consequences of enforcing such failing act at country-scale would have been disastrous!

2. BACKGROUND: ACADEMIC WORLD MULTIFOLD CHALLENGED

Currently, the international tense context has direct consequences on international trade of goods, services, and technology transfer, which, at their turn, are influencing the investment flows going to research and development (academic scientific research included). Consequently, the academic research (and universities in general) experience “chronic disruption and crises” (Ling & Livingston, 2024) as effect of the tense international relationships between the global powers because of their efforts for supremacy as well as associated complex processes.

Scientific research is under double international pressure: technology advance competition as well as commercial applications that require shorter time-to-market. If top-technology advance involves years and even decade-long time to catch up (Economist, 2020), which is a serious limitation for most countries, the market pressure is everywhere; it leads to risky decisions in terms of unfinished or superficial market-tests. In other words, as proverb goes, *haste makes waste* (haste spoils the job/work) is perfectly applicable to scientific research processes and projects.

The university scientific research is also the field of its own competition: the faculties fiercely fight for academic promotions. On top of these all, universities, under budgetary constraints, conduct their activity (scientific research included) more and more by projects—which are considered more effective and efficient while managing resources: project management must achieve best compromise between time and cost of resources, yet reaching the quality objective set. Additional time pressure and challenges are brought by current AI-based technologies in academic environment (see Additional Reading section).

The dynamic of scientific publications follows the general trend of technology development and associated R&D investment. *The Economist* (2024a, p. 62) shows that higher-education institutions across the world employ 15 million researchers that “produce five times the number of papers each year. [...] In theory, therefore, universities should be an excellent source of productivity growth. In practice, however, the great expansion of higher education has coincided with a productivity slowdown”. Arora, Belenzon, Cioaca, Sheer and Zhang (2023, p. 38) argue that “sluggish growth in productivity over the last three decades or more in the face of sustained growth in scientific output” happened because abstract ideas (i.e. generated by PhD research in universities) are difficult to use. Then the firms “appear to lack the absorptive capacity to use externally supplied ideas unless they are embodied in human capital and inventions” (*Ibidem*, p. 39).

However, amid the general trend that features booming volume of publications, (Economist, 2023a) highlights that publications related to significant scientific advances are not progressing at similar pace; moreover, their proportion is going down. Even more alarmingly, Park, Leahey, and Funk (2023, p. 138) show that “slowing rates of disruption may reflect a fundamental shift in the nature of science and technology.”

This state of facts and affairs invites to careful examination.

Getting different results than thought and planned is an old story, in the process of scientific research either, even it is organized almost exclusively by research projects, which means managing research process in a critically time manner. Higher pace and increased pressure on researchers suggest that, regardless the reasons, time management deserves a closer look.

The literature on *time management*, in general (Claessens, Van Erde, Rutte, & Roe, 2007; Chase et al., 2013) and time management for academic performance (Nasrullah & Khan, 2015; Khan, Ashraf, & Nadeem, 2020; Ghafar, 2023)—in medical higher education in particular (Elmahdy & Answer, 2023)—does not reach the sensitive point of top academic research (PhD research projects). Putri and Mahmudah (2021) studied research projects as a requirement for graduation. Research productivity was the research focus for Chase and colleagues (2013) who developed a comprehensive list of time management strategies in this respect.

On the other hand, *project time management* is subject of concern, mostly in construction projects (Solís-Carcaño, Corona-Suaréz, & García-Ibarra, 2015) or software and knowledge-based projects (Wu & Passerini, 2013) are the topics of interest.

Despite its importance, less so the *time management in academic research projects* is a study focus. One reason may be that research accuracy prevails over time and cost, and another reason indicates that setting the right priorities is more important than time management (Covey, Merrill, & Merrill, 2015): in other words, importance dominates urgency—which seems to be perfectly true in academic research projects. Probably both are right, considering the “third generation” of time management approach: “The third generation approach is ‘planning, prioritizing, and controlling’. If you’re in this generation, you’ve probably spent some time clarifying your values and priorities.” (*Ibidem*, p. 22). Covey admits the limits of the third generation (“it gives the promise of achievement ... but it doesn’t deliver”) and concludes this: “There’s clearly a need for a fourth generation [...] which requires] a fundamental break with less effective ways of thinking and doing ... We need to move beyond time management to life leadership—to a fourth generation based on paradigms that will create quality-of-life results.” (*Ibidem*, p. 31).

On the way to the fourth generation of time management, Katz (2016) conducted a comprehensive and meaningful study (as far as our scope of work) including 1013 Israeli and 457 Western European PhD candidates.

The extended sample included both science and engineering doctoral candidates and social sciences and humanities doctoral candidates. Based on the study findings (regardless the country of origin and background, doctoral students “have no training or expertise in managing a doctoral research project”) Katz (2016, p. 105) suggested that “all doctoral candidates be taught basic research-project management”. Notably, since 2019 the university in which our study was piloted has introduced Project Management as a mandatory subject during the first semester for all doctoral students enrolled.

According to triple helix model (Etzkowitz & Leydesdorff, 2000; Etzkowitz, 2004; Nakwa & Zawdie, 2016) modern universities have a triple mission (education, research and their “third mission” contribution to society). While the education is probably the most visible and studied (e.g., Ryttilähti & Lokkila, 2024; Kokoglu, 2024) and its contribution to the research process itself is undeniable (e.g., Economist, 2023b), the focus of this chapter is on the scientific research process within higher education institutions, relationships among researchers and their mentor-disciple relationship (PhD supervisor–doctoral student)—particularly on doctoral research projects and their interactions with other university projects (*Table 1*)—which is our scope of work (shaded box).

Table 1.
The scope of work, in the framework of scientific research typology (schematized).

Type of organization	Type of activity	
	Teaching	Research
Higher education institutions (universities)		Doctoral research projects (either theoretical or practical)
		Master-level research assignments & dissertation projects
		Other education-related research activities
		Other community-oriented research projects
Other research institutions		Various types of research institutions – which are not under scrutiny (not our scope of work)

It is beyond the scope of this study to survey other research institutions or to discuss issues related to the fraud-distorted and fake-polluted scientific production, despite these worrying phenomena (Economist, 2024b). While the conflicts between organization and projects are already a topic of studies, mainly for cultural reasons (Rosenbloom & Markus, 2010), the conflicts between organizational projects are less so.

Our specific interest is on interactions (not necessarily conflicts) between doctoral research projects and other projects initiated by the university, projects in which PhD students become eventually engaged. The direct consequence is the dual role that doctoral students must play. Besides usual management conflicts between organization and project, intercultural and inter-professional conflicts (Scarlat & Sârbu Bărar, 2023), this study is concerned by interactions (not necessarily conflicts) between projects within same organization (higher education institution), particularly by effects of interactions between doctoral research projects and other projects initiated in the same university.

These interactions were experienced by author and their effects eventually became subject of an explorative, pilot study. They are part of the larger theoretic area (role conflicts). As such, the theory of role conflict covers a larger area: from work-family conflicts (e.g., Soltani, Hajatpour, Khorram, & Nejati, 2013) to working students (Fernandha & Grasiawaty, 2021) to intraorganizational role conflicts (Asfahani, 2022).

For longtime, the role conflict and role ambiguity were studied by House and Rizzo (1972) as “critical variables in a model of organizational behavior”, while the antecedents and consequences of organizational role conflicts were under scholars’ lens as well (e.g., Miles & Perreault Jr., 1976).

Ebbers and Wijnberg (2017) studied a particular type of dual-leadership structures specific to film industry, yet an interesting situation that requires special attention: the reason behind the potential conflict is always of managerial type, and solution is almost always art of negotiated communication between strong characters and personalities, on the background of weak, too flexible or total lack of sharp job descriptions.

Tummers, Vermeeren, Steijn, and Bekkers (2012) conceptualized the role conflicts at policy level and constructed test scales to measure “three types of role conflicts: policy-client, policy-professional and organizational-professional role conflicts”. Fichter (2010) studied a variety of effects of role conflicts and ambiguity, negatively affecting job satisfaction (ending in burnout) in a sub-industry (financial services). Arun, Begeç, and Okun (2021) propose a novel perspective on role conflict, which is applicable, to a certain extent, to university environment at its top research level (PhD students are, in principle, innovative by definition), despite its non-academic surveyed area (intrapreneurial characters in organizations).

Even the role conflict and role ambiguity of academic staff in research-intensive UK universities were investigated by Schulz (2013), the doctoral students and their research projects were not under scrutiny. The literature on Romanian universities is also scarce.

Consequently, because university is the place where *haste makes* not only *waste* but also *facilis descensus Averno*, our study is concerned with interactions of organizational projects (doctoral research projects included) in the higher education environment.

The remaining of this chapter is dedicated to a pilot study conducted by the author.

3. METHODOLOGICAL APPROACH

This chapter looks at a less explored, narrow research environment, at a micro-level: PhD research projects conducted in a doctoral school from a relatively large science and technology university. More specifically, this paper opens a window for discussions on the influence that other university projects (all aligned to the university R&D strategy, theoretically) may have on the doctoral research projects.

The idea of this explorative pilot study has sparked after several observations (accumulated in time) related to not-as-expected results of three doctoral students (call them A, B, C) under own supervision—specifically one-year-delay in doctoral thesis defence and several delays or even failures in the dissemination of their scientific production (*Table 2*).

Table 2.
Unexpected negative results reported in case of three PhD students (early 2024).

Doctoral students	Enrolment [from–to/extended]	Observed by PhD supervisor
A	01.10.18–30.09.21/extended ‘23	1 year overdue in PhD thesis defence & publication of 2 papers delayed
B	01.10.20–30.09.23	Publication of 2 papers failed
C	01.10.22–30.09.25	Publication of 2 papers delayed

As the single common element in all these cases was the students' engagement in two national projects initiated by the university (called them N1 and N2) it was quite normal to pay closer attention to all cases in which doctoral students were engaged in other projects initiated by the university (other than their own doctoral research program).

An empirical but systematic mixed approach was considered, including both secondary (literature survey) and primary research. Following to short survey of literature on time management (specifically time management) and role conflict and ambiguity focused on higher education universe it has become clear that:

- Project management skills are important for all PhD students, regardless their background and careers.
- Setting right priorities is even more important than rigid time-planning.
- Neat project role definition is key to avoid role ambiguity.

Considering the literature gap at the intersection of project management, doctoral research projects, and *two-project roles conflict* (all in higher education environment), as well as the initial data collected in this respect (that indicate towards deeper investigation on possible role or management conflicts between two projects in same organization), a grounded theory type of research (Glaser & Strauss, 1967; Strauss & Corbin, 1994; 1998) is probably suitable.

Despite its critics (e.g., Allan, 2003), the grounded theory was revived as Mills, Bonner, and Francis (2006) have developed the constructivist grounded theory, based on pragmatism and assuming that neither data nor theories are discovered, but are developed by researchers because of their interactions with on field research subjects (participants).

The relatively small size of available doctoral students (a target group of 7) made an experiment impossible (no control group in place).

Considering the research circumstances, the time was probably right opportunity for the study, and the place was a premiere (as no such study was conducted before in Romania), being a good start for comparative studies.

Next to the literature survey this study has had three main stages: (i) Defining the core concept (project interaction) in practical terms; (ii) Formulating the research questions; and (iii) Choosing the methods and instruments for collecting data related to the target group.

3.1. Defining the PhD project interaction

For this study, the PhD project interaction is defined as active engagement of a PhD student in another project of the university, for a limited period during their doctoral studies (in this study, interactions were from 1 to 15 months).

The effects of interactions are scrutinized from the doctoral projects' standpoint; yet from both doctoral supervisors' and researchers' perspectives (Lee & Bongaardt, 2021).

The effects can be positive if they facilitate the doctoral project progress; negative in the opposite case; or neutral if no significant effect is reported.

3.2. The research questions

If objectives of all university projects (and, implicitly, objectives of doctoral research projects) are aligned to the university strategy (and its strategic objectives), the specific research questions in this pilot explorative study are mainly qualitative:

- (i) How could the effects of interactions be measured?
- (ii) Are the effects of interactions always positive?
- (iii) If there are negative effects of interactions, then which are the reasons behind them?
- (iv) Are there any solutions to avoid the negatives or, at least, to mitigate them?

3.3. Research Methods and Instruments

The study included both primary and secondary research (literature survey), which is rather scarce (Ling & Livingston, 2024). This study relies on primary research methods mainly: directly observed and personally experienced doctoral projects in a Romanian university environment, completed with semi-structured interviews with doctoral students.

An interview map (guide) was developed for this purpose (*Table 3*).

Table 3.
Interview guide for PhD project interactions.

Section	Research issues	Details
0	Demographics	Age, gender, PhD student status
I	Work experience (other than current PhD research project)	Focus on work experience as: - research-related work as compared to the total work experience - project work experience as compared to the total work experience - work as decision maker (manager) - work as researcher in organizations, type and size - work in research projects – position and duration
II	Specific interactions with university projects (more than one interaction is possible for one PhD research project)	Active in other project/s of the university (duration, period) for a limited period, during doctoral studies as: - expert or specialist (specific terms) - researcher (specific terms) - trainer - trainee - resource person - other type of participation ...
III	Notable experiences	Selection of top three: - positive experiences - negative experiences - other (neutral, mixed, ...)
IV	Impact on PhD students' projects	Value added to own PhD research project – concrete, in specific terms
V	Major lessons learnt	(Open)
Other comments		Other details, explanations, and arguments

4. AN EXPLORATIVE STUDY ON DOCTORAL RESEARCH PROJECTS

During the period under scrutiny (18 months: 1 October 2022–31 March 2024), 15 doctoral students (enrolled to pursue a PhD degree in engineering sciences) were engaged in different phases of their PhD projects. From this pool, 7 doctoral students were identified as subjects of interactions (as defined in this study), and their projects were anonymized: PhD1–to–PhD7.

Notably, the three doctoral students originally observed (*Table 2*) are included.

The seven doctoral students were engaged in four other projects as follows: one international-level project (marked I) engaged 3 PhD students, two national-level projects (marked N1 and N2, already mentioned in comments to *Table 2*), and a single university-level project (U) which engaged one doctoral student. In other words, the PhD students' projects interacted with four other projects initiated in their university.

By duration, there are two categories of interactions: short-term (one month) and longer-term interactions (over one year: 12 or 15 months).

Table 4 depicts these interactions, by project types, including durations of the corresponding interactions.

Table 4.

Seven cases of interactions between PhD research projects and other university projects (durations included).

PhD Projects	Planned duration of the PhD research project [from–to/extended]	Estimated durations of interaction with other university projects			
		I	N1	N2	U
PhD1/A	01.10.18–30.09.21/extended '23		12 months		
PhD2	01.10.19–30.09.22/extended '24	15 months			
PhD3	01.10.20–30.09.23/extended '24	1 month			
PhD4/B	01.10.20–30.09.23		12 months		
PhD5	01.10.21–30.09.24	1 month			
PhD6/C	01.10.22–30.09.25			15 months	
PhD7	01.10.22–30.09.25				1 month

In general, one-month interactions were international exchange visits and study tours, excepting U project, which was organization and participation at a local promotion event (research fair). Longer-term (12 months) interactions meant participation in many routine project activities as meetings and events as well as workshops and training sessions (e.g., developing entrepreneurship and pedagogical skills). N2 interaction involved secondary research (literature survey) and production of research reports, which are related and may be useful to the doctoral project.

Qualitative by nature, this study is balanced in that respect of measuring the effect of each interaction: from both perspectives: PhD student and PhD supervisor.

From PhD student's standpoint, the assessment is descriptive and qualitative (answers to open questions during interviews), and expectedly favourable – viewed through the lens of personal career development (for most of them it is a novel experience).

However, to have an overall quantitative measure of satisfaction because of interaction, the doctoral students also provided an overall score, subjectively, as a quantitative measure of their level of satisfaction on a scale going from positive to negative feelings (3=highly positive, 2, 1; 0=neutral; -1, -2, -3=highly negative).

From PhD supervisor' perspective, the effects are primary quantitative (therefore more objective), in terms of the doctoral project deliverables: deadlines research progress reports and scientific production (i.e. conference proceedings, journal articles, etc.) against the research plan of each PhD student.

The results displayed in *Table 5* answer to the **first research question (i)**, highlighting the main quantitative parameters that can directly and objectively be measured.

Table 5.
Effects of interactions between PhD projects and other university projects.

PhD Project	University project	PhD student perspective [1-to-3 score]	PhD supervisor perspective	
			PhD thesis defence	Scientific production & dissemination
PhD1	N1	fairly positive [1]	1 year overdue	Publication of 2 papers delayed (3, 6 months)
PhD2	I	highly positive [3]	1 year & 6 months overdue	-
PhD3	I	highly positive [3]	6 months overdue	Publication of 1 paper failed
PhD4	N1	fairly positive [1]	-	Publication of 2 papers failed
PhD5	I	positive [2]	-	-
PhD6	N2	positive [2]	-	Publication of 2 papers delayed (9, 12 months)
PhD7	U	fairly positive [1]	-	Publication of 1 paper delayed (6 months)

The examination of *Table 5* also provides a short answer to the second **research question (ii)**: no, the effects of the interactions are not entirely positive. A more detailed answer is even divisive.

PhD students' assessment on their engagement in other projects is positive (despite having a negative scale available) although gradual (1-to-3). Oppositely, the PhD supervisor assessed the interactions' negative effects: hard delays (overdue deadline for thesis defence), which required extension procedures (in three cases), as well as failures in scientific production and dissemination of the research results (five cases, with different intensities, measured in number of papers that missed the submission deadlines, or failed completely).

Notably, any delay in the research dissemination means delays in the research process itself.

As opposed to PhD5 project (student actually) who assessed the interaction positively with no negative effects (*Table 5*), the results of PhD2 and PhD3 (shaded)—yet all doctoral students referring to interactions with 'project I'—deserve special attention because they display extreme split between PhD students' highest score for assessing the project experience (+3) and devastating effect on their PhD work (in terms of both research dissemination and overdue PhD thesis public defence).

Could it be the effect of scholarship effect awarded through project I? Probably.

Hence the inference that *negatives in the doctoral process have not much to do with the quality of university projects* (evidenced by the positive scores) but the *resources (mostly time) dedicated to university projects were "stolen" from the already planned resources allocated to PhD projects*.

The interviewees' comments converged to same conclusion (*Appendix 2*):

"Inclusion of mandatory courses that do not align with the specific objectives of the doctoral project introduces a challenge that extends beyond academic requirements. Such compulsory courses may result in a misallocation of time and resources." (PhD4)

“Being required to participate in Z events that do not align with the objectives of doctoral projects can introduce complexities and challenges for individuals involved. This obligatory involvement in unrelated events may divert time and resources away from the doctoral project's core focus, potentially impacting its overall efficiency and success. Such a situation can lead to a sense of frustration and inefficiency, as participants may find themselves navigating through activities that do not contribute directly to their doctoral project's advancement.” (PhD4).

“Since I am not a very flexible person; I like to be punctual and do not appreciate changes in plans. Within the Z project, there have been situations where the plan underwent changes that, for me, resulted in time and energy losses. Once it happened that material which I had already written became obsolete.” (PhD6).

5. RESULTS DISCUSSION AND RECOMMENDATIONS

To answer to the third **research question (iii)** and to identify the reasons behind the negative effects of the interactions that were reported, a case-by-case discussion on the matter is needed.

Overall, the results of shared opinions are not surprising, as standpoints of PhD students and their supervisors are different or even divergent (individual versus PhD project), and so the assessment criteria, objectives, and metrics are.

While PhD students assess the effect of other projects of the university on them (as individuals), the PhD supervisors (under the pressure of observing the administrative milestones) perceives negative effects on the PhD project, which is their core responsibility (in quantitative terms of project management: missed and overdue deadlines and objectives). Nevertheless, it is meaningless to assess which of them is dominant.

Among other reasons mentioned during interviews:

- Beside durations, interaction circumstances are different in each PhD project.
- Besides influence of ‘other projects’ there are other influencing factors (causes of negative effects), which might become significant (PhD topic, PhD student’s interest, experience, family and work environment, etc.)
- Interactions themselves have different natures and peculiarities.

As far as doctoral students’ feedback on the effects of interactions, the positive opinions (*Appendix 1*) versus negative opinions (*Appendix 2*) look rather balanced (yet the positives outnumber the negatives). However, deeper qualitative analysis indicates that negatives are more elaborated formulations focused on essential elements of the PhD projects, while negatives are more formal and oriented on self-satisfaction generated by engagement in Z projects (generic name for other university projects, other than own PhD research project). One pair of examples is relevant:

“Participation in an international program not only has broaden academic and professional horizons but also offered rich cultural exchanges.” (PhD5, *Appendix 1*).

“Frequent encounters with a multitude of presentations and side discussions that deviate towards content that is unrelated to doctoral research can be a significant challenge. This scenario not only dilutes the overall focus of the discussions but also poses a potential hindrance to the efficiency and productivity of the interactions. When faced with a barrage of presentations and discussions containing irrelevant material, the essential objectives of the gatherings may become obscured. The sheer volume of information, coupled with divergent tangents, can lead to a diffusion of attention and effort, detracting from the core goals and themes intended for exploration.” (PhD4, *Appendix 2*).

Both types of opinions are honest. Nevertheless, they explain not only the satisfaction and positive opinions about being involved in other projects (well-designed although), but also a key-conclusion of the findings of our study: *the unexpected negative outcomes in PhD research programs* (delays in observing the deadlines of scientific production and scientific reports, culminating with delays in finishing and defending their doctoral theses) *have their roots in wrong setting of priorities* (and not necessarily in bad time management).

Another important point to make is related to who is really the decision maker in PhD projects: PhD student or PhD supervisor? This is an issue symmetrical to the role conflict, which is also related to right and sharp design of job descriptions and project roles. In any case, the pivotal role of the PhD supervisor must be emphasized. He is the one that should support PhD student to prioritize and balance his responsibilities (even when the roles are neither right nor sharp designed (or, even worse, the roles are not there at all).

Regardless PhD supervisor's subjectivity, it is not clear—it is quite strange—why doctoral students do not seem to care much about their failures working on their doctoral research projects, while enjoy the positives of other projects.

Could these be the “good intentions” that “pave the road to hell”?

5.1. Recommendations

The results are not definitive, but they allow the formulation of several concrete, core-recommendations centred on better coordination between PhD research projects and university projects, mainly at the management level, to avoid or mitigate the negative effects (**research question iv**):

- Themes of PhD research projects were already set when doctoral students are invited to join [other] University projects, in many cases just to complete the number of participants (target group). Then: invitation should be selective (restricted to projects with aligned objectives, only).
- This invitation should be made *via* Doctoral School/s; and participation of the PhD student/s in [other] University project/s should have the formal agreement of their PhD supervisor/s.
- Before agreeing, PhD supervisor/s should be informed in advance about the activities their PhD student/s have to complete during respective interaction period.
- A formal communication channel and clear communication protocols between the University's project manager and PhD supervisor should exist for the duration of interactions, at least.
- PhD supervisor should be informed in a timely manner about activities completed by the PhD student (while the University project advances). None of these happened in the cases discussed.

It is well understood that a series of basic principles of management in higher education (research included) are respected:

- Objectives of research projects are aligned with University's strategic objectives.
- Research objectives of the University are in line with the needs of industry.
- A proper constitution of the University is in place, to regulate the relationships organization-projects and detect possible conflicts in their early stages.

6. RESEARCH LIMITATIONS AND FUTURE RESEARCH

Expected correlations between durations of interactions and delays in doctoral research projects were not identified, given the small size of the group investigated. Larger groups or samples will probably reveal such correlations.

The number of cases analysed is a limitation; yet the findings open further research paths for longitudinal and mainly transversal studies—extending the investigation to other domains of doctoral research—other than engineering sciences (management and industrial engineering, in particular) as well as to other universities. In-depth studies, by types of interactions, are also possible.

It is important to mention that data collected from a limited number of cases do not allow identifying correlations between interaction durations and interaction effects (neither positive nor negative ones). However, possible correlations between interaction durations and their negative effects (as overdue deadlines for doctoral thesis defence and/or dissemination papers) might be topics for further studies.

Nonetheless, it should be said that negatives reported are just instances, among many successful stories (in which interactions with other University projects stimulated the progress of doctoral research projects).

The current study was a premiere (as no such study was conducted before in Romania). Its approach can be a good start not only for deeper, longitudinal, and extended research, but for future comparative studies as well.

7. CONCLUSION

Besides the approach of this narrow research area and associated methodology, this piece of work reveals novel types of inter-project tensions and conflicts within higher education institutions. The research questions were addressed, and all answers provided, thus research objectives were matched. However, new questions arise, and paper limitations point to further research directions.

The findings (typology and measurement of PhD project interactions; reasons behind the negative effects of interactions—among them) are critically useful to doctoral schools and PhD supervisors as well as to major stakeholders: higher education strategists, policy and decision makers, administrators and research managers. The set of recommendations goes to them.

The conclusion looks like a snowball effect: a small piece of snow which can cause a catastrophic avalanche. The serious failures of doctoral research projects have causes in careless design of project management structures (i.e. hierarchies, communication protocols, and alike), poor priorities setting, and lack of attention paid to alignment of project objectives with strategic objectives of the university—all appearing to be easy-to-do things in novel and attractive projects. Don't they look like *good intentions*?

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APPENDIX 1

Examples of PhD students' positive feedback on their engagement in projects [called Z generically], different than their own doctoral research project

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| <ul style="list-style-type: none">▪ “Interaction with Z projects might grant access to specialized facilities, equipment, or datasets that significantly enhance the quality of research.” (PhD1)▪ “Networking opportunities: collaborating with other projects can create opportunities to network with established researchers, potentially leading to future collaborations or job opportunities.” (PhD1)▪ “Interdisciplinary collaboration: engaging with projects from different academic disciplines allows for a broadening of perspectives and approaches.” (PhD1)▪ “Interdisciplinary collaboration on sustainable energy solutions was an opportunity to collaborate with researchers from the sustainable energy initiative. This collaboration not only enriched my research but also broadened my perspective on addressing real-world challenges.” (PhD2)▪ “Collaboration with engineering department resulted in a joint publication in a reputable journal and presentations at an international conference. The exposure and feedback received not only enhanced the quality of my work but also allowed me to establish valuable connections with researchers from different corners of the globe.” (PhD2)▪ “I had the opportunity to interact with people from other countries and observe their educational system as well as their perception on topics related to green energy and environment protection.” (PhD3)▪ “The recreational activities represented a good chance to get familiar with other cultures. The total project time was well balanced between these activities and the actual presentations, meetings, and visits.” (PhD3) |
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- “Networking with PhD peers from diverse international universities offer a wealth of benefits that extend beyond the immediate academic context. This chance to connect with individuals in the global academic community is a gateway to a myriad of opportunities, fostering both personal and professional growth.” (PhD4)
- “Networking with professors from different countries adds a layer of richness to this experience. Connections with academics open avenues for mentorship, guidance and exposure to diverse academic traditions and approaches. This global engagement allows assimilation of varied viewpoints, contributing to a more comprehensive understanding of one's field of study.” (PhD4)
- “Participation in an international program not only has broaden academic and professional horizons but also offered rich cultural exchanges.” (PhD5)
- “Networking with fellow researchers and students from various countries provided me with valuable insights into different approaches to sustainability and renewable energy.” (PhD5)
- “Conducted online or in person, work meetings were mutually agreed upon with each member, based on their schedule and needs.” (PhD6)
- “Knowledge transfer and networking are the most positive results of interaction. Participation at Z common events, conferences and workshops generated opportunities to share ideas, get feedback, and make connections.” (PhD7)

APPENDIX 2

Examples of PhD students’ **negative** feedback on their engagement in projects [called Z generically], different than their own doctoral research project

- “At times, the meetings in Z project felt slightly political with local public figures attending events.” (PhD3)
- “Although this is a personal negative experience, traveling to the location of the Z project was difficult.” (PhD3)
- “Being required to participate in Z events that do not align with the objectives of doctoral projects can introduce complexities and challenges for individuals involved. This obligatory involvement in unrelated events may divert time and resources away from the doctoral project's core focus, potentially impacting its overall efficiency and success. Such a situation can lead to a sense of frustration and inefficiency, as participants may find themselves navigating through activities that do not contribute directly to their doctoral project's advancement.” (PhD4)
- “Frequent encounters with a multitude of presentations and side discussions that deviate towards content that is unrelated to doctoral research can be a significant challenge. This scenario not only dilutes the overall focus of the discussions but also poses a potential hindrance to the efficiency and productivity of the interactions. When faced with a barrage of presentations and discussions containing irrelevant material, the essential objectives of the gatherings may become obscured. The sheer volume of information, coupled with divergent tangents, can lead to a diffusion of attention and effort, detracting from the core goals and themes intended for exploration.” (PhD4)
- “Inclusion of mandatory courses that do not align with the specific objectives of the doctoral project introduces a challenge that extends beyond academic requirements. Such compulsory courses may result in a misallocation of time and resources.” (PhD4)
- “Within the Z project, an initial activity involved identifying articles from relevant databases. I faced difficulties in this stage because I did not have free access to certain relevant databases, making the task more challenging.” (PhD6)

- “Since I am not a very flexible person, I like to be punctual and do not appreciate changes in plans. Within the Z project, there have been situations where the plan underwent changes that, for me, resulted in time and energy losses. Once it happened that material which I had already written became obsolete.” (PhD6)
- “Even though the activities included in the Z project are present in the initial plan, they have undergone slight deadline modifications. This has provided us with more flexibility to address challenging aspects, but as someone who appreciates plans, it did not help me much.” (PhD6)
- “Interaction between my doctoral project and Z project displayed significant divergences regarding objectives. In addition to diverse own interest, divergent opinions can negatively impact the results of the doctoral project.” (PhD7)
- “Interaction between the technology-based doctoral project and Z project generates communication obstacles that hinder interdisciplinary collaboration.” (PhD7)

¹ *Facilis descensus Averno* (Latin): *The path to ‘underworld’ is easy* (Virgil, Aeneis, Book VI, line 126, 29–19 BC).

² This chapter is an updated and extended version of a previous paper (Scarlat, 2024).