

**SDG metrics to responsible management in a business school: a social network layout approach**

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# SDG METRICS TO RESPONSIBLE MANAGEMENT IN A BUSINESS SCHOOL: A SOCIAL NETWORK LAYOUT APPROACH

## 1. INTRODUCTION

Sustainability has increasingly become a central theme on the international agenda. Companies have become increasingly sensitive to issues ranging from green production and consumption to social justice (NIDUMOLU *et al.* 2009).

This scenario leads to a growing awareness of the need to integrate policies for sustainable development in the productive chain of large companies and, as a consequence, in the educational institutions responsible for training professionals working in such companies (M'GONIGLE; STARKE, 2006).

In the belief that companies can help achieve the goals for a better world, emerges initiatives like the United Nations Global Compact, the world's largest corporate sustainability, whose mission is

- I) Do business responsibly by aligning their strategies and operations with Ten Principles on human rights, labour, environment and anti-corruption;
- II) Take strategic actions to advance broader societal goals, such as the UN Sustainable Development Goals, with an emphasis on collaboration and innovation (UN GLOBAL COMPACT, 2018)

The perception that sustainable companies can help reduce environmental impact leads one to think that it may be difficult to have responsible companies without leaders aligned with the purpose.

That apparently could be achieved through business and management education, nevertheless, it faces some skepticism about their ability to form conscious leaders, and many authors criticize the decoupling effect in these institutions that do not walk their talk (RASCHE, 2015).

Business schools are in a middle of a struggle that makes them somehow responsible for the crescent environmental and social issues (RASCHE, 2015) and in the other hand extremely important to turn the tide towards responsible management (KELL; HAERTLE, 2013; BADEN; PARKES, 2013).

In this context initiatives like the Principles for Responsible Management Education (PRME), a kind of educational arm of Global Compact, also supported by the UN, figure to be extremely necessary to act as platforms to increase awareness of sustainability in the business schools.

PRME was founded in 2007 and since then focus in preparing students with the leadership competences and tools able to generate true impact and deliver change tomorrow (UNPRME, 2018).

The initiative has around 650 signatories worldwide and an administrative structure composed of regional chapters, one of which is represented by Brazil. As a business-oriented initiative, the Brazilian Chapter is composed mostly of business colleges of the private initiative.

### Frame 1 – Brazilian Chapter Signatories

Antonio Meneghetti Faculdade - AMF Escola de Administração de Empresas de Sao Paulo (EAESP/FGV) Escola Superior de Propaganda e Marketing (ESPM) Estacao Business School
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<p>Faculdade de Economia, Administração e Contabilidade - FEA USP*</p> <p>Faculdades Integradas do Brasil (UniBrasil)</p> <p>Fagen/UFU - Faculty of Business and Management</p> <p>Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto - FEA-RP USP*</p> <p>FIA - Fundação Instituto de Administração</p> <p>Fundação Dom Cabral (FDC)</p> <p>IAG - Business School</p> <p>INSPER</p> <p>Instituto de Tecnologia do Paraná - TECPAR</p> <p>ISAE/FGV</p> <p>OPET - Organização Paranaense de Ensino Técnico</p> <p>SECAL</p> <p>System Federation of Industries of the State of Parana (FIEP)</p> <p>UniCESUMAR</p> <p>Universidade COPEL - UniCOPEL</p> <p>Universidade Tecnológica Federal do Paraná – UTFPR*</p>
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\*Institutions fomented mainly or exclusively by public resources; Source: UNPRME (2018);

Only three universities present in the list are funded by public funds. The Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto (FEA-RP/USP) is one of the universities that lies in the overlap ash zone between a privately run business school and a state-run research institution.

Such a scenario is challenging and rich by the diversity of stakeholders involved in governance and the need for complex management skills. In an environment with a multiplicity of potentially conflicting interests, integrating sustainable development effectively into the students' curriculum is an arduous task in which sustainability communication can act as a vector for stakeholder involvement or decoupling.

## 2. THEORETICAL FRAMEWORK

### 2.1. SDGs metrics in order to avoid the Sisyphus effect

In Greek mythology, Sisyphus was a king of Corinth who, by offending the gods, received as punishment the task of pushing a stone up the mountain to then watch it roll all the way with and unstoppable force. The myth is generally used as an analogy to laborious work and always resumes.

Sustainability-oriented policies and programs may suffer from the Sisyphus effect (MATT, 2006; SMITH et al, 2011; JOLLANDS, 2006), especially because of the lack of institutional commitment and their vulnerability to political aspects. The actions are put into practices in a punctual and unstructured manner, which makes them susceptible to discontinuity.

Nevertheless, in the academic structuring system of Brazilian public universities, every few years, the institution deans are changed through elections or nominations. Aspects that may foster even more the discontinuity of policies.

Knowledge management and public commitment are valid approaches in order to avoid the dismantling of policies, both can be achieved by the adoption of a report system.

The schools that join the PRME are committed to the implementation of its principles and to the publication, every 24 months of the report Sharing Information in

Progress (SIP), a document whose function is to share the actions carried out in the entity. The report format is flexible, requiring only four basic elements:

- I. A letter signed by the highest executive of the organization, expressly stating the continuity with the commitments of the PRME;
- II. Description of the practical actions that the institution took to implement one or more principles during the 24 months;
- III. Evaluation of the results in relation to the goals proposed for the period;
- IV. Specific objectives for the next 24 months (UNPRME, 2018).

The commitment embodied in the SIP should reflect an effort to integrate sustainable development into the institution. UN PRME developed a framework of guidance to this challenge, the Six principles are, at the same time, an affirmation and a beacon do Education for Sustainable Development (ESD) under the specific perspective of Responsible Management Education (RME).

Frame 2 – PRME Six principles

<b>PRINCIPLE</b>	<b>DESCRIPTION</b>
Principle 1 - Purpose	We will develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.
Principle 2 - Values	We will incorporate into our academic activities, curricula, and organisational practices the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact.
Principle 3 - Method	We will create educational frameworks, materials, processes and environments that enable effective learning experiences for responsible leadership
Principle 4 - Research	We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value.
Principle 5 - Partnership	We will interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges
Principle 6 - Dialogue	We will facilitate and support dialog and debate among educators, students, business, government, consumers, media, civil society organisations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.

Source: UNPRME (2018)

Within the scenario proposed by the PRME, the business schools declare their alignment with the principles and record such alignment through the proposed Basic Report model, guiding an alignment between their organizational purpose, values and mission, and the quest for sustainability.

In this sense, one of the most valuable resources for effective integration is the use of metrics available in the Sustainable Development Objectives (SDGs) purpose.

SDGs were defined by heads of state and government in 2015 at the UN Summit, based on its previous version, the Millennium Development Goals (MDGs), and constitute a set of clear and well-defined goals to be fulfilled by 2030. If fulfilled, such targets will eliminate extreme poverty and spare future generations from the devastating effect of climate change.

In the SDG document, the following statement summarizes what is expected of the SDGs

The 17 Sustainable Development Goals and 169 goals we are announcing today demonstrate the scale and ambition of this new Universal Agenda. They build on the legacy of the Millennium Development Goals and conclude what they have failed to achieve. They seek to realize the human rights of all and achieve gender equality and the empowerment of women and girls. They are integrated and indivisible, and balance the three dimensions of sustainable development: economic, social and environmental (AGENDA 2030, 2018).

The system of quantifiable goals within objectives with a broad spectrum of action allows sustainable development to assume different formats and be adaptable to the different methodological approaches present in the transmission of knowledge within the Higher Education Institutions (HEi).

Several studies report problems and barriers within the communication of sustainability (DJORDJEVIC; COTTON, 2011), it is expected that such barriers will be potentiated in the context of the business school situated within the sphere of public administration in an institution whose focus on scientific research is remarkable.

In this context, identifying and communicating existing relationships between stakeholder activities and SDGs is critical if integration with sustainable development is meant to be effective.

### 3. OBJECTIVES

The general objective is to identify the relationship of SDGs with bibliographic production and extension activities in the context of the Faculty of Economics, Administration and Accounting of Ribeirão Preto - FEA-RP / USP. To this end, the specific agenda consisted of the following secondary objectives:

I. To identify the relationship between publications in scientific journals and participation in events with SDGs;

II. To identify the relation of the university extension actions promoted by the students of the student entities with the SDGs.

### 4. METHODOLOGY

The methodology used was based on two fronts, in the first one we used the representation of the network theory to elaborate a graph of the bibliographic production of the researchers, in the second front we qualitatively analyze the main actions developed by the university students through their academic organizations. In both approaches the objective was to identify the existing bonds between actions and SDGs in order to present a visual scenario of the congruence of the actions of the stakeholders towards the SDGs.

#### 4.1. Social network approach

A social network consists of a finite set of actors and their relationships that can be studied by the techniques of Social Network Analysis (Wasserman and Faust, 1994). Social networks have gained popularity with the recent rise of social media; however, they have long been studied by the sciences, such as sociology and anthropology, in much broader perspectives. The researchers used "textile metaphors" as "fabric" to refer to the social configurations of "intertwining" and "interconnection" (SCOTT, 2017). Network analysis, supported by graph theory, enables the identification of organizational clusters as node systems, or vertices, of permanently or transiently clustered actors, the links of these networks of actors are relational links that can take various forms (SEDLITZ et al, 2015). There is a

propitious and still unexplored field of impact for network theory in the context of public policy (O'TOOLE, 2015). Some work shows that networks can be useful to clarify a scenario in which business elites have a great influence on the decisions of politicians and bureaucrats (JOHNSTON, 2005) or as relational aspects between public agents and entrepreneurs are harmful to the fight against corruption (SETH JONES, 2013).

Data were collected regarding the participation of university researchers in congresses, fairs and academic events, in the period 2016-2018. The data were obtained through an academic platform informed by the researchers. The initial search was based on the application of a filter with the keywords of the description contained in each SDG. After the initial filter, the publications were analyzed qualitatively and had their titles linked to the SDGs with which the theme was more aligned. The same procedure was used for publications in scientific journals.

#### 4.2. Analysis of university extension activities

The FEA-RP has 1400 undergraduate students and has a history of strong and community-based student bodies. There are 13 student organizations that carry out a series of works in partnerships with organizations of the third sector, civil society, government and companies. The activities carried out are thematic with the values of the entities, contemplating a broad spectrum of action. As perceived by BORGES *et al.* (2017) the students create their own hidden curriculum, which include activities about social impact actions, ethics and awareness about society.

We evaluated the practical and theoretical content supporting the main action reported by each one of the student entities and sought to identify which SDGs appeared to be the most contemplated. The bond between the activitie content and the SDGs was validated by a researcher, an employee and a graduated student, all involved with the activities of the student entities.

### 5. RESULTS AND DISCUSSION

#### 5.1. The academic social network layout

The data were adjusted to Gephi software (Bastian et al., 2009) for graph visualization. In network theory the nodes and edges assume different names according to the field of study (Newman, 2010). Here we define as "nodes", the SDGs as well as articles or works; the so-called "edge", the bond connecting the nodes, is represented by the presence of the SDG keywords in the title of the articles and by the subsequent qualitative analysis of the authors. For each category, nodes spreadsheets were created, containing "node id" and "label" columns, and edges spreadsheets containing columns named "source" and "target". The linkage of the nodes occurred through the relation of the article (source) and SDG (target).

The network model obtained through this procedure is called a bipartite network, in which the groups of nodes have common characteristics and only have edges connecting them to the other group.

In the present work it is convenient to use this representation because the objective is to show the linkage of the research to the SDGs, in a relationship in which articles are only linked to the SDGs, and there are no nodes of the same type linked together.

The analysis of the network related to participation in academic events, returned 160 events, and shows that the nodes with the highest degree, number of articles related to it, are the ones representing SDGs 16, 12 and 11, containing respectively 76, 29 and 25 connections. The metric of the Page Rank was also used, although it is a metric originally created in order

to identify relevant internet pages, it is a good tool to quantify the importance of nodes in the network.

The Page Rank algorithm also results in the same SDGs occupying the top positions as shown in Table 2. Both metrics are considered measures of centrality that indicates nodes with the greatest influence on a network.

Table 1 – Network statistics: academic events by SDG

SDG	DEGREE	PAGE RANK	MODULARITY CLASS
1. No poverty	0	0,000	5
2. Zero hunger	9	0,015	6
3. Good health and well-being	18	0,025	1
4. Quality education	18	0,031	0
5. Gender equality	2	0,004	8
6. Clean water and sanitation	5	0,008	10
7. Affordable and clean energy	22	0,031	7
8. Decent work and economic growth	7	0,013	6
9. Industry, innovation and infrastructure	21	0,035	2
10. Reduced inequalities	9	0,015	8
<b>11. Sustainable cities and communities</b>	<b>25</b>	<b>0,042</b>	<b>9</b>
<b>12. Responsible consumption and production</b>	<b>29</b>	<b>0,044</b>	<b>10</b>
13. Climate action	0	0,000	11
14. Life below water	0	0,000	12
15. Life on land	0	0,000	13
<b>16. Peace, justice and strong institutions</b>	<b>76</b>	<b>0,120</b>	<b>1</b>
17. Partnerships for the goals	13	0,018	2

Source: Prepared by the authors

The third measure brought here is the modularity class, based on the algorithm of Blondel *et al.* (2008); such a measure is one of many that exist for the identification of communities within networks. A community is a set of nodes that have connections to each other with density greater than the rest of the network. Although the algorithm used is more suitable for use in graphs with weight at the edges (NEWMAN, 2004), which is not the case here, it was satisfactory for the visualization of groupings of articles and related nodes, as we can see in the Figure 2.

For the formation of this graph the Force Atlas 2 distribution was used, available in the standard Gephi Software package. The algorithm of this distribution simulates a physical system in which the nodes repel each other like magnetized particles, and the edges pull the nodes like springs. The system evolves until it converges to a balanced configuration that favors the visualization and interpretation of the network (JACOMY *et al.*, 2014).

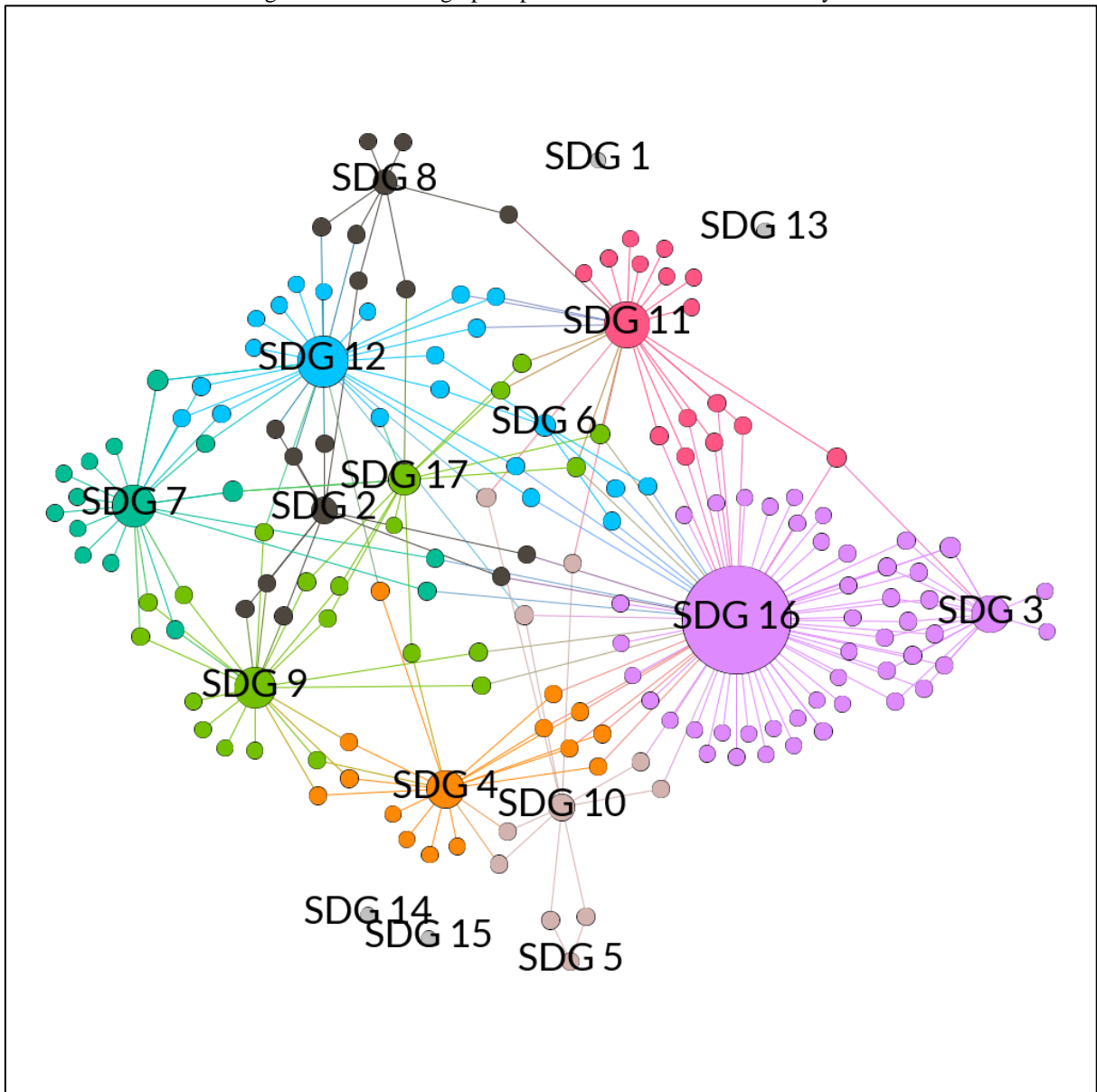
To better visualization we used the communities cluster defined by the Modularity Class measure to colorize the groups of nodes that have related bonds; this generates an excellent informational and aesthetic impact for visualization of the graph.

The combination of the Force Atlas distribution and colorization by modularity shows interesting aspects of the university's research landscape. In the case we can identify some communities involving SDG 16 and 3, indicating that the most productive nucleus related to SDGs is the one that deals with issues related to institution strengthening (SDG 16) and the major focus on health (SDG 3). Many of the work within this cluster address issues of the Brazilian Unified Health System (SUS) and logistics management in public hospitals.

One can also observe a region with a relative number of connections involving SDGs 9, 7, 12 and 17. Exemplified by the research involving the alliances between the subject of energy, especially electric and biofuels, with industry, innovation and the promotion of new organizational models for responsible production, especially with regard to topics of corporate governance and stakeholder influence in promoting sustainable development.

The research involving education (SDG 4) and reduction of inequalities (SDG 10) also appears related to a slightly smaller cluster and also connected with the public policy theme (SDG 16). Orbiting on the opposite side, a considerable number of works linked to SDG 11 appear, as a result of the interest in research on local issues, of the community in which the university is located.

Figure 2 – Network graph representation:academic events by SDG



Source: Prepared by the authors using Gephi software (Bastian et al., 2009)

In the analysis of articles published in scientific journals, after the qualitative evaluation, we obtained 69 papers.

The nodes with the highest degree are SDG 12, 16, 8 and 9, respectively with 22, 14 and 11 connections. The Page Rank measures proportionally accompany the degree. The repetition of SDG 16 among the most connected reinforces the importance given to the thematic in the university.

Table 3 - Network statistics: published papers by SDG



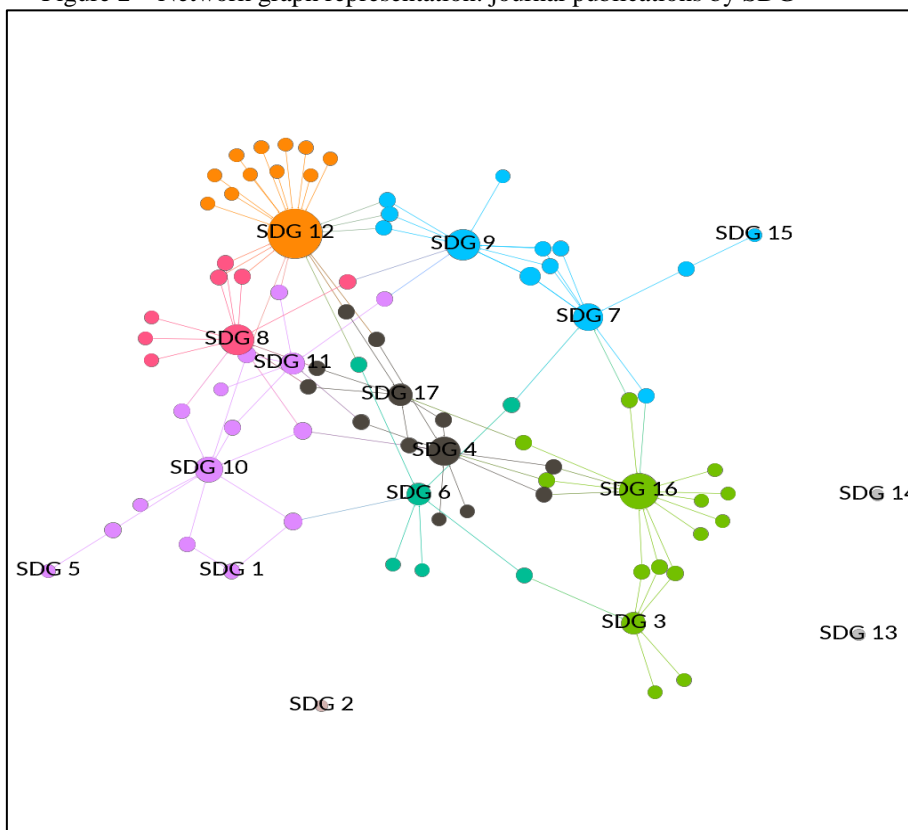
SDG	DEGREE	PAGE RANK	MODULARITY CLASS
1 – No poverty	2	0,011	4
2 – Zero hunger	0	0,006	1
3 – Good Health and well-being	6	0,030	8
4 – Quality education	10	0,041	9
5 – Gender Equality	1	0,009	4
6 – Clean Water and Sanitation	6	0,029	2
7 – Affordable and clean energy	9	0,028	0
<b>8 – Decent work and economic growth</b>	<b>11</b>	<b>0,046</b>	<b>3</b>
<b>9 – Industry, innovation and infrastructure</b>	<b>11</b>	<b>0,037</b>	<b>0</b>
10 – Reduced Inequalities	8	0,030	4
11 – Sustainable cities and communities	6	0,026	4
<b>12 – Responsible consumption and production</b>	<b>22</b>	<b>0,102</b>	<b>5</b>
13 – Climate action	0	0,006	6
14 – Life below water	0	0,006	7
15 – Life on land	1	0,009	0
<b>16 – Peace, justice and strong institutions</b>	<b>14</b>	<b>0,062</b>	<b>8</b>
17 – Partnerships for the goals	6	0,024	9

Source: Prepared by the authors

Comparatively, it is observed that is this network SDG 12 appears more relevant, reflecting the greater number of studies related to the relationship of organizations with sustainability in general. The SDGs 10 and 11 appear as a new grouping, relating the interest in local issues with the fight against inequality. In addition, the grouping between innovation and energy is also repeated in this network.

Colorization was again used for modularity, instead of the Force Atlas 2 we used another force-directed algorithm available at Gephi: the Yifan Hu (HU, 2005); cause in this case it provided a clearer view of the data.

Figure 2 – Network graph representation: journal publications by SDG



Source: Prepared by the authors using Gephi software (Bastian et al., 2009)

The presence of a regular number of nodes linked to SDG 9, in both events and publications networks, reinforces Ávila, et al. (2017) perception regarding the strong bonds between innovation and sustainability in a higher education context.

In both representations, considering the events and the publications in scientific journals, it can be observed that some SDGs are not linked to the researches. One of them is the SDG 13, regarding actions against climate change. It may seem frightening that there is no specific research on climate issues, which is considered the central point of sustainability. However, the logical justification for this is the structuring and complementarily of SDGs, as well as the central position occupied by SDG 13.

Many of the research-related SDGs have targets that act against climate change, so the fact of not explicitly speaking about action against climate change does not mean that such SDG is not reflected by the vector of another SDG such as SDG 9 and 7, which reflect innovations in the industry and approaches to clean energy.

With regard to SDG 14, on the preservation of life in the oceans and seas, it is believed that it is not very present due to the cultural context in which the institution is located, located in the interior of the state, many kilometers from the nearest beach. If the university was located on the coast, actions involving local problems would be more likely to connect more directly with such SDG.

## 4.2. Students actions

The FEA / RP-USP student bodies are organized based on an informal curriculum, not necessarily linked to the curricular structure of the university. Although they receive structural assistance from faculty staff and teacher mentoring, the entities have administrative and financial autonomy, as well as their scope of activities.

The brief synthesis of the student's organizations and its main expertise is related in the table below.

Table 4 – Students organizations and expertise




<b>ORGANIZATIONS</b>	<b>APPROACH / EXPERTISE</b>
Júnior FEA-RP	The Junior consulting company of FEA-RP, like other Junior Companies, relies on renowned teachers' support and tracking within USP, as well as having a below-market price, because it is a nonprofit organization and has unpaid work.
ENACTUS	Enactus FEA-RP is a local office of the organization present in several countries, it brings together students from various courses of the Ribeirão Preto campus, with the mission of identifying opportunities and transforming them into reality through entrepreneurial projects that promote agents of social, economic and environmental change in Ribeirão Preto and region.
Núcleo Empreendedores (Entrepreneurs Center)	The NE are the guidance for the development of business plans, feasibility analysis of the projects; advice to seek financing and consulting for the implementation of new companies. Also they promote events focused on discussion and propagation of entrepreneurial culture and to disseminate and encourage entrepreneurship Social Initiatives.
University Volunteer Center (CVU)	CVU's mission is to be a center to promote volunteering in the university environment, creating opportunity for students, teachers and staff to act in social projects, providing personal growth and development of our community. The vision of CVU is to be a model volunteer center that can be applied to any college in the country, contributing to social entities and developing projects of a transforming nature of reality.
Flaviana Favaretto Condeixa Student Association	The Association is the most representative students group at the college. It was founded at 1993, and it is comprised by students and the mission is defends the academics as is the law and justice. It is a non –profit purpose Association, so the resources stemmed by events and courses are reinvested for the FEA-RP Wellness.
iTeam	Its mission is to carry out the reception, integration and adaptation of the exchange








		students. Beyond offering advice to those interested in making exchanges and language courses for both Brazilians and foreigners. As well as organizing events, lectures and parties as main activities.
Nexos Pública	Gestão	An organization that promotes innovation and improvement of public management. Acting as a link between the local public administration and the university.
Financial Club (CMF)	Market	The Financial Market Club started its activities in 2009 with the purpose of meeting the university's lack of practices related to the financial market and finances in general. Through courses, events, discussions and projects, in partnership with market professionals, they carry contents throughout the year for the most diverse public, both university students and young people and adults in Brazil.

Source: Elaborated by the authors with the information collected in the SIP Reports (FEARP, 2018)

The main extension actions were mapped based on the registration of the submissions made to the “Sustainable Organization Award” in the years 2016 and 2017. The competition is hosted by the FEA-RP staff and aims to reward the entity with the most impactful action / project in the current year.

Frame 4 – SDG and extension activities bonds

SDG	ORGANIZATIONS AND ACTIONS	DESCRIPTION
	One of the projects that ENACTUS promotes is the Projeto Roda de Saia.	In the Roda de Saia, women have the opportunity to develop their skills with sewing, which has become a complement to family income. In addition, there are weekly meetings of the project members with the women to accompany the work, to follow up individually with them and to receive feedback on how the team works and whether they are satisfied with the project.
	All the organizations usually replace paid income for non-perishable food donation.	Recurring and integrated practice in the culture of the entities, both for academic events and university festivals. They raise food at their events and with their members to be donated to organizations and people in need.
	Júnior-FEA hosts the important campaign named Programa FEA-VIVA	The FEA-VIVA is an event that aims to make students, teachers and USP staff, as well as the population of Ribeirão Preto, aware of the importance of blood donation. Thus, the event aims to provide all the infrastructure for the donor with transportation and food. Held twice a year in partnership with the Academic Center Flaviana Condeixa Favaretto, the event has brought the entity acknowledgement : Friends of the Blood Center Seal.
	The Flaviana Condeixa Favaretto Student Association promotes a Vestibular Preparing School.	The Preparing School has popular prices for poor students. Although they have monthly payments, the students that demonstrate low income don't pay anything. They provide quality education for them, and the results back through approvals at a lot colleges in São Paulo State. Also, many students act also as teachers in the school.
	The “Chama as mina” initiative is a campaign promoted by the Associação Atlética Acadêmica Flaviana Condeixa Favaretto (A.A.A.F.C.F)	The project “Chama as mina” promotes women's empowerment and combats violence against women, especially in the university environment.
	The Núcleo Empreendedores is the main partner of the Integrated	Created in 2004, PICE is one of the oldest social initiatives of the a Culture and Extension projects of the FEA-RP. The project aims at self-management training of local micro-entrepreneurs in low-income

Entrepreneurial Training Program (PICE)	Training	communities, aiming to foster, the entrepreneurial spirit, enabling it in the search for solutions to the problems of income generation. For this, a methodology is used that includes lectures, workshops, training, classes and discussion tables. The project lasts one year and is expected, as a result, that its beneficiaries will be able to find opportunities for the continuous development of their enterprises, promoting the collective well-being.
	The Hackribeirão event was promoted by Nexos Gestão Pública.	Hackribeirão was a civic hackathon, whose objective was to develop solutions related to municipal public administration problems.
	Project “Pé-de-meia”, is promoted by the coordenado pela entidade estudantil Clube do Mercado Financeiro	The Nest Egg Project, aims to help families get out of debt through weekly private meetings, which we believe is a turning point in the lives of these people.
	The GIRA Conhecimento initiative is hosted by the University Volunteer Center (CVU)	GIRAs are actions planned in partnership with the Speech-Language Pathology and Nutrition courses, with the objective of carrying out pedagogical and recreational activities in local Non-Governmental Organizations (NGOs). Actions attend children, young and old, and promote interest in basic health , education and pedagogical development and care for the elderly,
	Júnior FEA-RP promotes the External Prospecting Project (EPP)	The EPP aims to carry out a consulting project, at no cost, for a third sector entity that has any disability management
	The Earth FEA, is an annual event hosted by the Flaviana Condeixa Favaretto Student Association.	EarthFea is an annual event of the Condeixa Favaretto Flavian Academic Center that has had 3 editions and is usually held in the second half of the year. The main objective of the event is to address themes related to sustainability and the environment interrelated to the day-to-day importance of the practices and also to highlight the importance in its 3 pillars of FEA undergraduate courses.
	The Bidding Monitoring Platform (PALP) was developed by NEXOS Gestão Pública.	PALP is an application that aims to increase the control of public bids by accessing information quickly and unbureaucratized. It has been used in several local prefectures, as well as in the university's own bidding procedures.
	All the organizations	The partnerships are represented by the interaction in the projects together. There are plenty of working committees that bring together members of all entities into joint actions. They support and relate each other through events, financially, councils and staff.

Source: Elaborated by the authors

The following SDGs were not directly contemplated by any of the actions: SDG 6, SDG 7, SDG 15, SDG 14. This may be related to the strong connection, real or perceived, between these SDGs and the ambient aspects of the triple bottom line of the sustainable development, which may be harder to integrate in the management education than the economic and social ones.

In comparison to the data obtained through the analysis of the academic production, a greater displacement can be perceived in the activities of university extension towards the SDGs more connected to the social aspects of sustainable development. These are

characteristics of the university extension in the context of the Brazilian public universities and that, apparently, in the FEA-RP / USP finds flow through the actions of the entities.

## 5. CONCLUSION

Business schools play a key role in the development of the skills and mentality of tomorrow's managers, thus acting as catalysts of social and environmental responsibility in organizations, it is in this assumption that PRME targets its mission, also supported by several business schools in Brazil and the world.

The communication of sustainability, achieved through reports and the like, has an impact on the management of knowledge and the continuity of policies for sustainable development. Allied to this, the representation through graphs of academic production and university extension activities allows the stakeholders to clearly understand their role within the academic community, as well as their positioning in the global SDG agenda.

The mapping of student actions demonstrates that there is a search for alternatives outside the formal curriculum of the institution and that, in general, extension actions are very closely linked to the SDGs. It is also believed that many students do not recognize that they act in the promotion of a global agenda, simply acting almost instinctively in the quest to generate socio-environmental impact. The limitations of the study lie in part in the difficulty of capturing the secondary interactions of the SDGs with the structure of the bipartite network of graphs. It is suggested that future studies evaluate, by means of networks, other forms of academic interaction, such as co-authorship and orientation of theses and dissertations.

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