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Human resource management for sustainability transitions: Facilitating
responsible leadership in incumbent firms.

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Abstract

The role of incumbent firms in innovation systems for sustainability transitions has been a rapidly growing topic of the twenty - first century and rightfully announced by countless agencies and, in particular, the United Nations with initiating the seventeen Sustainable Development Goals. To contribute to this discussion, this paper focuses on analyzing the gap of research on managerial studies and sustainability transitions, focusing on the internal organizational functions of human resource management (HRM) and responsible leadership (RL). Responsible leadership is a conceptual theory escalating from the stakeholder theory and corresponds to the three pillars of sustainability concerning economic, environmental and social issues. Responsible leaders not only spread economic growth and concerns within the firm but also concentrate on environmental and societal issues to foster sustainability transitions. As acknowledged by Maak and Pless (2006), responsible leadership can be influenced by participating in service - learning and development programs via human resource processes. In order to expand on how internal managerial departments can influence responsible leadership, the research paper aims to analyze how human resource management, through the HR function of organizing training and development programs, facilitates responsible leadership? Furthermore, this paper develops propositions to benefit and potentially guide further sustainability transition research on how the process of human resource management facilitating responsible leadership can impact innovation systems in which they are embedded.

Keywords

Responsible Leadership (RL)

Human resource management (HRM)

Sustainability transitions

Innovation Systems (IS)

Introduction

Sustainability transitions are essential for the survival of our society and the topic has been increasingly discussed and evaluated since the turn of the century among various actors such as policymakers, sociologists and incumbent firms. Sustainability transitions is defined by Markard (2017) as “long - term, multi - dimensional, and fundamental transformation processes through which established socio - technical systems shift to more sustainable modes of production and consumption” (Markard et

al., 2012 cited by Markard, 2017). Societies are transitioning towards sustainability developments in order to meet the needs of the present without corrupting future generations to meet their needs creating both intragenerational and intergenerational justice (WCED, 1987: 43 cited by Ehnert, 2006). A conceptual approach for observing sustainability transitions are the systems of innovation or, also known as, innovation systems, may it be it regional, national, or global, which have produced viable theoretical frameworks to explore how policymakers, businesses, institutions, etc. can collaborate together to create new technologies and innovations in pursuit of long - term economic growth. For example, the dedicated innovation system described by Pyka (2017) “are complex adaptive systems composed of industrial, scientific, political, fiscal, and civil society actors as well as institutions and the links between the actors that provide a creative environment for mutual learning and knowledge creation in the pursuit of socially desirable and sustainable innovation”. Innovation is produced with collaboration among all actors within systems, therefore, sustainability transition requires cross - fertilization of different knowledge fields (Pyka, 2017). Of these innovation systems’ actors, businesses play a viable role in innovations towards sustainability transitions (Strøm-Andersen, 2019). Harvard Professor Michael Porter also argues that innovation is driven by internal factors such as organizational capabilities as well as external factors such as favorable environments for innovations (Porter, 2001). Porter and Kramer claim that businesses are becoming exceedingly aware of sustainability issues and leverage sustainability as a competitive advantage by going beyond corporate social responsibility and environmental reporting (Loorbach and Wijsman, 2012). Firms are recognizing that sustainability is not just adopted for the means of competitive advantage, rather it is a hygienic aspect to our societal needs in which all departments within the firm should be accountable. According to the knowledge - based view of the firm, knowledge is considered a compulsory, intangible and dynamic resource allowing idiosyncratic development for substantial competitive advantage (Curado, 2006). No doubt that the diffusion of knowledge is a vital source for firms’ constantly evolving internal capabilities and competencies, therefore, it can be a valuable asset to sustainability transitions across systems and their actors.

According to the United Nations Global Compact (2019), 9,953 companies have joined the compact for corporate sustainability initiative to achieve the Sustainable Development Goals by 2030. Various international firms such IBM, Ngrowing, Novo Nordisk, GlaxoSmithKline, and Unilever have already incorporated training and educational programs to support their corporate social responsibility (CSR),

sustainability values, strategies and facilitate responsible leadership in their organization (Caligiuri et al., 2013; Googins, Mirvis, & Rochlin, 2007 cited by Guenter & De Luque, 2014). The emerging field of responsible leadership introduced by Maak and Pless defines the concept of responsible leadership as “a relational and ethical phenomenon, which occurs in social processes of interaction with those who affect or are affected by leadership and have a stake in the purpose and vision of the leadership relationship” (Maak and Pless, 2006). Responsible leaders mobilize people across all parts of the community and ecosystem in which they are embedded to achieve performance objectives according to their organizations’ strategies (Maak and Pless, 2006). With firms adopting the “triple – bottom - line”, responsible leaders have the mission to address not just economic outcomes yet, social and environmental ambitions that concerns all stakeholders involved (Hahn et al., 2014). Management education is a common practice to influence responsible leaders especially in the use of service - learning programs and various training and consciousness - raising experiences to prepare managers and leaders for social, ecological and ethical issues to focus on long-term impact (Caligiuri, Mencin and Jiang, 2013; Mirvis, 2008; Pless, Maak and Stahl, 2011 cited by Stahl and Sully de Luque, 2014). These factors such as training, development and learning programs are linked to human resource management which is essential for sustainable management implementation (Jabbour et al., 2008; Lozano and Huisingh, 2011) and the diffusion of internal and external knowledge pertaining to the matter for the long - term benefits of the organization and stakeholders. Human resource management coordinates the preparation of leaders’ future responsibilities through training, development, education and needs assessments. Therefore, in order to provide a bridge between human resource management with sustainability transitions, this paper analyzes how human resource management training and development programs facilitates responsible leadership in incumbent firms. Propositions are also developed to understand how this impacts the innovation systems in which the organizations are embedded.

The structure of the paper are stated as follows: First, the paper will define and give background knowledge of the key terminologies of responsible leaders and human resource management. This will lead to analyzing gaps of existing knowledge pertaining to human resource management association with responsible leadership and the effect it has in innovation systems. A combinative qualitative methodology based on semi - structured interviews and a systematic literature review was conducted. Managerial studies often involve quantitative methods of research however, a

qualitative methodology seemed appropriate to use since the research topics involve conceptual and theoretical approaches which are also broadly defined and contemporary. In order to grasp how human resource management training and development programs can actually facilitate responsible leadership, open - ended interviews were performed with human resource personnel. A systematic literature review was then conducted in order to understand a broader aspect of how these facilitations could impact an innovation system in which these training and development programs of the firms are embedded. The findings display a comparative analysis of the interviews including descriptions of the human resource personnel interviews, industries they work for, firm value, leadership roles and leadership behaviors. The findings also show separate results in accordance with the information of the systematic literature review. Following the findings, a section of discussion and limitations allows for theoretical thought by raising propositions based on both qualitative methodologies of the semi - structured interviews and a systematic literature review in order to contribute to the ongoing research of sustainability transitions.

Context and theories

Human resource management

For sustainability transitions to occur within the innovation system, all actors must be dedicated to the transformation. Since incumbent firms play a major role in society towards sustainability transitions, internal functions within the firm have a major role in the contribution as well. Human resources are involved in internal and external activities of an organization, therefore, it has a significant role in the performance and success of the organization (Indiparambil, 2019). Traditionally, human resource management (HRM) was described as the process of managing people in organizations and manage employee operations in order “to achieve competitive advantage through the strategic deployment of a highly committed and capable workforce” (Storey, 1995 cited by Indiparambil, 2019). However, firms today have recognized that human resource management has a stronger notion for the organization’s internal competencies and capabilities which are considered essential resources according to the knowledge - based view of the firm. The dynamic capabilities dimension includes exploitation, a firm’s ability to use resources already obtained effectively, and exploration pertaining to the discovery of new resources (Bos-

Nehles and Veenendaal, 2019). Michael Porter's SWOT (strength, weaknesses, opportunities and threats) analysis states how firms can utilize their internal organizational bodies to exploit the firm's strengths while analyzing weaknesses which can then be improved by allocating knowledge and resources which can be fostered by human resource management functions (Cullen et al., 2011). Moreover, human resource management responsibilities include managing employee job cycles from hiring to retirements such as recruitment, training, rewards, compensations, and job rotations in order to get and maintain talented human capital. All the tasks that human resource management implements act as the backbone of the decision - making processes of how human capital functions in the firm and ensures all employees understand and execute the firm's best practices, values and corporate social responsibility. According to the Harvard Business Review tool kit "Make Your Values Mean Something" by Lencioni (2002), values are "imposing a set of fundamental, strategically sound beliefs on a broad group of people". Values are produced with collaborative efforts by top managers, human resource personnel, employees and other stakeholders which then can be codified by leaders to train employees. Additionally, all firms engage in corporate social responsibility which as argued by Ovais and Singh, is more than just a "band - aid" used by human resource departments to cover up firm's neglect to social and environmental issues such as seen from Enron who reported that their core values were "Communication, respect, integrity and excellence" in their company's annual report in 2000 (Lencioni, 2002). On the contrary, these values were advertised more as a public relations stunt rather than the true organizational practices (Ovais and Singh, 2016). As firms engage in sustainability practice, such as companies signed under the United Nations Global Compact, core value statements should act as a moral compass for all stakeholders and not as a "band - aid" to cover corporate corruption. Human resource management has the responsibility to collaborate, guide and foster leaders to implement corporate social responsibilities and values to be transparent in the organizations and all stakeholders. The report *Developing the Global Leader of Tomorrow* emphasized that human resource levers are important for developing corporate social responsibilities and organizational capabilities by building the knowledge and skills through leadership development programs and career development planning (Ovais and Singh, 2016). Since human resources have the function to organize training and development programs to optimize employee competencies and capabilities while projecting company values, they hold a valuable resource towards molding leadership characteristics and qualities. Furthermore,

incumbent firms carry a strong stake in the market, and as noted by Schumpeter in his second mark, are the creators of innovation which are cast to benefit society. Firms are hubs of “creative accumulation” because of their vast stock of knowledge, competencies in research and development and financial resources (Breschi, et al., 2000). To facilitate the characteristics and qualities of responsible leadership, knowledge diffusions are vital. Human resource management carries functions that enable knowledge transfers to build capabilities and competencies needed for responsible leaders through training and development programs. Regardless of the human resource talent pool in an industry or firm’s location, training is essential for the firm’s human resource strategy. As noted by Kianto, Sáenz and Aramburu (2017), skills and competencies deteriorate, therefore, they need to be renewed, retaught or improved. This makes training and development, a knowledge - based tool, essential for the firm’s human resource strategy and building upon dynamic capabilities (Cullen and Parboteeah, 2010).

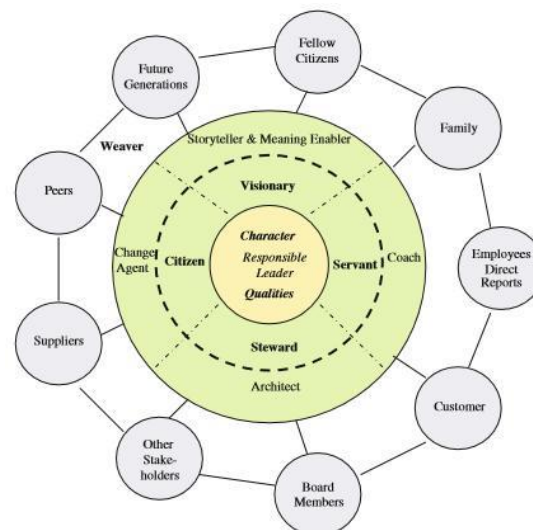
Responsible Leadership

According to the stakeholder approach to leadership theory, leaders of firms create value for all stakeholders involved and guide employees on how to implement these values inside and outside of the firm (Lawrence et. al, 2017). With respect to the current dilemma of sustainability transitions, companies have the opportunity to maneuver managers and leaders in the “doing good” direction by engaging in activities beyond economic development and towards social and environmental welfare (Stahl and Luque, 2014). By adopting the responsible leadership approach, leaders can orchestrate an ecosystem that holds high values on economic, environmental and societal issues. The research field of responsible leadership evolved based on the concepts of corporate responsibility, sustainability and the stakeholder theory (Miska and Mendenhall, 2015). The publication of the Responsible Leadership model by Maak and Pless in 2006 stands as a building block from Freeman’s ethical framework of the stakeholder theory (Miska and Mendenhall, 2015) and continues to expand conceptual research and models. Furthermore, responsible leadership fosters responsible practices by sustaining and building relationships between stakeholders including clients and customers, employees, business partners, social and natural environment, and shareholders (Maak and Pless, 2006). Similar to stakeholder theory, the responsible leadership concept requires interactions with all stakeholders and involves integrating shared goals, values and ethical principles that take place not only internally and

externally of the company but also on a cultural and diverse cognition through local and global interactions (Zczepańska-Woszczyzna, 2016). Responsible leadership is a holistic approach to confronting leadership goals therefore, it can be interpreted differently across borders and innovation systems. For instance, to be an effective leader who is dedicated to responding to economic, social and environmental challenges, responsible leaders must obtain psychological and informative qualities that reflect a sustainability conscious. Informational aspects consist of knowledge and informational flow across all organizations and stakeholders while psychological aspects consist of trust, commitment and holding value throughout an innovation system (Miska et al., 2018). Instead of leaders acting as “servants” serving their organization, responsible leaders rather respond to internal and external stakeholders’ needs and continue this response in order to benefit the whole innovation system (Maak and Pless, 2011 cited by Schüz, 2016). According to Schüz et. al. (2018), a responsible leader must combine leader dimensions of the doer (know - how), the coordinator (know - whom) and the visionary (know - why) while obtaining capabilities pertaining to managerial, interpersonal and reflective skills. In other words, responsible leaders need to be responsive and have the ability to multiple stakeholder demands such as our current and future issues related to business organizations (economic), human survival (societal) and environmental crisis (ecological) (Pirson, 2010). Maak and Pless introduced the “roles model” of responsible leadership where characters and qualities of leaders are arranged into “role sets” that allow integrating diverse roles into one role set that describes a responsible leader. Maak and Pless, and later on in Pless’s narrative approach of “Understanding Responsible Leadership: Role Identity and Motivational Drivers” (2007), base their example of a responsible leader as that of leadership behaviors and qualities inhabited by Anita Roddick, founder of the Body Shop, who was a pioneer of environmental and social intergenerational and intragenerational justice in incumbent firms. Furthermore, her company was an early adopter of the voluntary environmental management system (EMS) and even integrated eco - management and audit scheme (EMAS) to improve environmental performance. The “roles models” include the role of the leader as a steward or custodian of values and resources mirrors, the leader as citizen in which the leader support and cares for communities, the leaders as a servant and the leader as a visionary who provide inspiration for a desirable future. The characters connected to these roles are operational including leaders acting as the architect building systems, processes and morals; change agent for transformations; coach to be a supporter; and lastly storyteller and meaning

enabler to create and spread moral behavior and shared meaning (Maak and Pless, 2006). The roles are relational with specific responsibilities or activities vis - a - vis relational processes in the construction of organizational realities (Dachler, 1992 cited by Maak and Pless, 2019). All these roles are combined, not divided, to indicate and form a single, integrative responsible leader: Steward and Architect; Servant and Coach; Visionary and Storyteller and Meaning Enable; Citizen & Change Agent. Maak and Pless further announce the importance of these roles by adopting the fundamentals of a leader by Plato, describing leaders acting as weavers. Plato stated that people are not sheep who are just following, and leaders are not just shepherds; instead, he regarded the leader as a weaver, who weaves different kinds of people together into the fabric of society. (Plato, 1971; Ciulla, 2004 cited by Maak et. al. 2006). A responsible leader takes all their characteristics defined in the roles sets in order to weave all stakeholders together to form an ecosystem dedicated to foster and protect the development of current and future generations.

Figure 1. The roles model of responsible leadership by Maak and Pless (2006)



Gaps in existing knowledge and research

Discussion on sustainability transitions is continuous and does not have a one - size - fits - all paradigm due to the broad - scale sustainability and innovation systems have. The United Nations have addressed seventeen sustainable development goals and called for further discussions of the role of incumbent firms towards sustainability transitions (view Appendix for viewing all UN's seventeen development goals). The current state - of - the - art for businesses and industries in sustainability transitions research has "so far addressed three main topics: the role of business actors in creating

novel technologies and industries, their role in facilitating institutional change and the relations and struggles between newcomers and incumbent actors” (Köhler, et al. 2019). “From the innovation side, human resources should be viewed as a strategic and integrated field contributing to the organization as a whole, and not just as fragmented practices supporting specific innovation activities, types or even phases” (Leed and Louise 2005). The responsible leadership concept initiated by Maak and Pless (2006) can be used to link human resources and sustainability transition. By definition, responsible leadership is “values-based and thorough ethical principles-driven relationship between leaders and stakeholders who are connected through a sheared sense of meaning and purpose through which they raise one another to higher levels of motivation and commitment for achieving sustainable value creation and social change” (Pless, 2007). A responsible leader needs to promote corporate responsibility internally and externally of the organization thus maintain and build sustainable relations with all stakeholders (Pless and Maak, 2011).

Responsible leadership is a fairly new concept however, researchers have addressed the need for further studies such as from Stahl, Sully de Luque (2014) by questioning how companies can systematically design and utilize human resource management practices and leadership development programs to promote responsible managerial behavior. Responsible leadership theory has also addressed directions for further theory development and empirical research on a micro, meso, macro and cross - level scale. Two approaches have emerged with a focus on the meso - level; the linkages between responsible leadership and relevant organizational elements, including responsible management and corporate governance mechanisms as well as human resource management, while others are concerned with the characteristics of responsible leadership and its effects on firms’ corporate responsibility performances and related outcomes (Miska and Mendenhall, 2015). Regarding responsible leadership and human resource management, Pless and Maak (2011) studied the integrated service - learning program by Price water - houseCoopers (PwC) called “Project Ulysses”. The project sent international teams to work and help communities in developing countries and in return, leaders developed responsible mindsets, ethical literacy, global mindset orientations, cultural intelligence, community building, and self-development (Pless et al. 2011). The project displayed how human resource management implementation of service - learning programs can foster responsible leadership by developing and enhancing competencies. However, this program was on a long - term and internationally orientated basis where teams were located in

communities in other countries for a duration of two months. Discussions for future research on programs were suggested in order to analyze various programs implemented by human resource management with other scales such as a local, regional or national level. Also, Maak and Pless interpret responsible leadership with various characteristics and qualities that are identified by the “roles of model”. Analyzing leader role sets through such programs can be initiated as an agent on recognizing the role qualities required for a responsible leader. Additionally, this analysis could also act as a holistic approach to measure or analyze the roles that portray responsible leadership. As suggested by Miska and Mendenhall (2015), analyzing the linkages between responsible leadership and relevant organizational elements such as ways human resource management can benefit the gap at the meso - level which can be used to connect further linkages at various levels in pursuit of gaining inertia for sustainability transitions.

Methodology

The goal of this paper is to evaluate how incumbent firms can utilize internal organizational resources, in this case, human resource management training and development function for sustainability transitions. A qualitative methodology analysis was used to solve the research question through semi - structured interviews and a systematic literature review. First, semi - structured interviews with open-ended questions were conducted for human resource management personnel as the personnel have the knowledge and information that can be beneficial to what kind of training and development programs are offered in their organization. Open - ended questions were deemed appropriate for such discussion as this is a conceptually approached topic and firms implement various practices, values and programs for leadership training and development. The questions were administered via phone, skype, and face - to - face interviews with a duration between fifteen to twenty minutes conversation, although some interviewees preferred to respond to the questionnaires back and forth via email. Human resource personnel involved are from a wide range of industries including aerospace, food and beverages, IT services, manufacturing, automation and consulting agencies. Human resource personnel job positions included human resource interns, assistants, managers, specialists, lead training and development coordinators and lead sales trainers. Questions included asking interviewees of their organizations' training, educational and development programs, for instance, service - learning programs that teach managers and company leaders about social, ecological and ethical issues as

observed in the case by Pless and colleagues (2011) for the PricewaterhouseCoopers's (PwC) Project Ulysses. Other topics that guided the discussions consisted of:

- Leadership training and development programs and methods such as coaching, mentoring, job rotations, education programs
- Learning methodologies to improve managerial skills, for example, face-to-face seminars or courses and not face – training on the intranet, distance-learning or courses.
- Location of programs (local, regional, national or global)
- Programs that acknowledge or teach sustainability practices for managers or leadership roles such as ethical practices, helping the community, equal opportunity, creating a cleaner environment, human rights, biodiversity or other sustainability-related challenges
- Learning opportunities about corporate social responsibility, creating long term sustainable innovations, discussion of sustainability challenges and the core principle taught based on the organizations' values and beliefs.
- The main goal of training and development programs such as community engagement, building values, empowering people, sharing values, etc.
- How sustainable development and practices are advertised or incorporated into the company's business strategy and/or practices
- Key sustainability values and practices within the organizations
- Products and/or services with sustainability orientation give it of the product/service or manufacturing process.
- Tangible products that have a “green” label, for example, Fair Trade label, USDA organic label
- Major discussions about ethical issues or sustainability challenges

According to Stahl and Sully de Luque (2014), a growing number of companies implement such training and development programs to support their sustainability strategies and promote responsible leadership in their organizations (Googins, Mirvis, and Rochlin, 2007 cited by Caligiuri et al., 2013). Further information and documents on such programs were investigated such as guidelines, brochures, company websites, best practice statements, values, catalogs, codes of conduct and codes of ethics. The human resource management unit plays a role in recognizing what kind of leader and what roles and attributes must these leaders obtain to adopt the competencies which reflect the firms' values. The role set designed by Maak and Pless is referenced to

recognize leadership roles that human resource management training and development programs aim to form to evaluate if firms already aim to achieve all roles that form a responsible leader or are separate roles. This led to a comparative analysis of the training and development programs by identifying role sets explained by Maak and Pless as various relational and operational characteristics and qualities in an integrative (responsible) leader. For the exclusion of biases during the comparative analysis and in order to avoid displaying hierarchies of programs, firms and human resource personnel names are to remain anonymous. The goal of the paper is to analyze how human resource management can facilitate responsible leadership and not to promote or demote any organization or employees. Therefore, for a matter of inclusion, personal human resource employee names and firm names will be left out. Industries, human resource position titles, location of the interviewee, description of training and development programs and an indication of responsible leadership “role” sets will be analyzed. Pless goes further in - depth to study responsible leadership behaviors by observing the relationship between motivational drivers and a responsible leadership identity through a narrative approach by analyzing the biography of Anita Roddick, a widely acknowledged example of a responsible leader (Pless, 2007). He uses the “roles model of responsible leadership” (Maak and Pless, 2006) as a theoretical framework to examine motivational drivers of Ms. Roddick which contribute to identifying behaviors of a responsible leader. In order to translate how leadership behavior and principles, based on selected roles, are facilitated through the training and development programs, this paper will use this adapted theoretical framework by Pless, 2007 (see Figure 2.). Rather than correlating responsible leadership behavior with interrelated roles sets, for example Steward & Architect, Change Agent & Steward, etc., the adapted framework by Pless (2007) allows room to identify more specific behaviors, attributes, and traits per single role. For example, a leader as a steward metaphorical defines a leader as being a custodian of values that protects personal and professional values (Maak and Pless, 2006). Programs that provide personal and professional integrity using values as a moral compass to further develop the organization and protect individual beliefs can be seen to facilitate the leadership behaviors of the leader of a steward (Pless, 2007). The original roles model of responsible leadership by Maak and Pless is composed of the nine roles and describes different characteristics of a responsible leader and distinguishes value - based roles such as the leader as steward, as a citizen, as a servant, as a visionary and the operational roles of the leader as coach, architect, storyteller, and change agent (Maak and Pless,

2006). The adapted framework conforms certain operational roles such as eradicates the leader as an architect while integrating the leader as a networker into the role set model. This appears to be changed due to represent the nature of the theoretical analysis inducted by Pless in observing Ms. Roddick's leadership behavior and to help examine motivational driving forces of responsible leadership. For clarity and as a means to use more current explanations of roles for understanding responsible leadership, this paper will therefore use the same adaptation framework as Pless had in 2007 by examining relational roles of the steward, servant, citizen and visionary with the operational roles of a networker, change agent and storyteller.

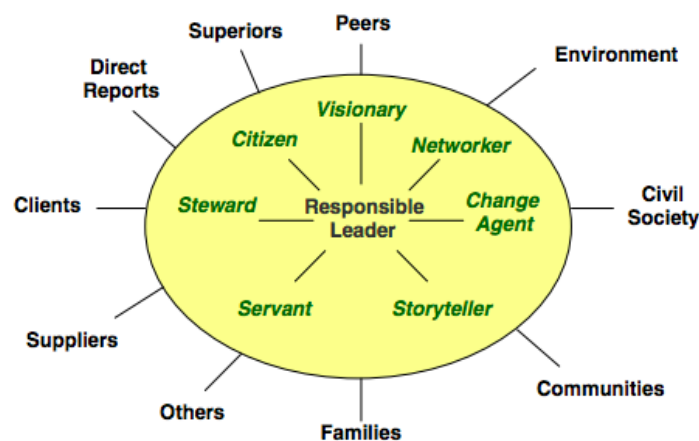


Figure 2. The roles model of responsible leadership adapted by Pless (2007) Source: Understanding Responsible Leadership: Role Identity and Motivational Drivers.

A qualitative systematic literature review was also conducted in order to further investigate the relationship between human resource management and responsible leadership for the purpose of creating propositions of how human resource management training and development programs that facilitate responsible leadership could impact the innovation systems in which the organizations are embedded. This could act as a bridge to link all three conceptual approaches. Google Scholar was utilized as the search engine for gathering articles and journals related to human resource management, responsible leadership and innovation systems. Searches included the combinations of human resource management training and development practices, responsible leadership, sustainability transitions, and innovation systems terminologies and keywords. Combinations included *Human resource management and responsible leadership*; *HRM and RL*; *Human resources and responsible leadership*; *HR and RL*; *Innovation systems and responsible leadership*; *IS and RL*; *sustainability transitions*

and human resource management; sustainability transitions and innovation systems; training and development programs and responsible leadership; HRM programs and RL.

“AND” acted as a Boolean Operator to narrow the search down which displayed literature that compares terminologies and shows relationships. A combination of acronyms such as HRM and RL was used to further the search process. The selection of articles were limited to the English language for all searches and articles and journals that only had open access publications were gathered. The time frame searched excluded articles and journals published before the year 2000 in order to stay with up - to - date information around the fairly new concept of responsible leadership which was first announced in 2006 by Maak and Pless and to analyze updated trends of sustainability transitions at the organizational level given that this is also a topic surrounding current events. Furthermore, the selection of articles to use within the review was chosen based on an abstract context using MAXQDA software, a tool used for analyzing the relative information for observing possible relationships of the concepts.

Analysis of interviews with human resource management personnel

The interviews indicate that human resource management units have taken explicit action to enforce training and development programs to promote leadership behaviors that foster leadership roles described in Maak and Pless’s theoretical framework for responsible leadership. The programs provide knowledge diffusion for building competencies and capabilities required for leaders to be successful and implement firm values around their organization. To analyze how human resource management training and development programs facilitate responsible leadership, the adapted version of the responsible leadership roles set model by Pless (2008) was used to refer to what roles these programs geared towards. As indicated by Maak and Pless, a responsible leader should acquire all role sets and the theoretical framework acts as a steppingstone in order to potentially achieve all aspects of a responsible leader. The findings indicate which roles were selected and recognized as being facilitated through the leadership training and development programs and also indicate which roles are disregarded. Since responsible leadership is thus far measured with a theoretical framework, results are based on conceptual definitions of all roles explained by Pless (2007). From the semi - structured interviews, the following information given is considered valuable for the analysis of what qualities and characteristics leadership

behaviors are supposed to gain through training and development programs and what human resource personnel expects programs to facilitate. Each interview reports the job description of human resource interviewee personnel, a brief explanation of the industry and firm they operate in and a description of human resource management training and development programs. This led to a conceptual analysis of leadership behaviors being facilitated and the roles of responsible leadership identified.

Deputy Manager of HR: Aerospace Industry

The first interview was with a Deputy Manager of human resources working in the aerospace industry and located in Houston, Texas, United States. Space flight and exploration is the main product and service which means safety and creating quality working environments are considered the utmost importance given that the industry involves high risks. Also, diversity and inclusion are not only highly promoted but mandatory based upon Executive Branch regulations and Presidential Executive Orders since the 1960s and 1970s. The 2016 historical - drama film, *Hidden Figures*, gave an insight of how the agency during the time of John Glenn's pivotal orbit, as well as how most firms in the US, discriminated against employees based on race and gender even if their competencies, capabilities and credentials were above par. After the US Congress amended the Civil Rights Act of 1964, the organization collaborated with the government to authorize Special Emphasis Programs (SEPs) consisting of seven subprograms that cater to various diverse backgrounds and all designating officers and coordinators serving as leadership roles: the African American Program, Hispanic Employment Program, Federal Women's Program, Asian American/Pacific Islander Program, American Indian/Alaska Native Program, Lesbian, Gay, Bi-sexual, Transgender and Queer, and Individuals with Disabilities Program. All programs have designated leaders, directors, specialists or managers in order to execute program motives which include promoting equal participation in the workforce, address barriers, enhance career development and advancement, improve under-representation of employees and developing positive work relationships within the community, workplace, national organizations, universities and other stakeholders part of the innovation system. The Special Emphasis Program engages and collaborates with the government to enforce and educate leaders to incorporate diversity and inclusion in all governmental agencies and organizations.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: protect against discrimination

Servant: promote diversity and inclusion, respect all and treat everyone equal

Storyteller: constantly educate; create open dialogue and inform of equal opportunity

Networker: embrace diversity and inclusion

Visionary: ensures the progress for all and promote a better future

Citizen: engage in government discussion and performing civic duty by valuing political and intellectual freedom

HR Specialist: Food and Beverage Industry

HR Specialist located in Modena, Italy works in the food and beverage industry where the firm produces recyclable packaging material. Training and development programs that strengthen young talent and invest in leadership and technical competencies can be explained in the firm's Future Talent Program. The program seeks to hire promising graduate students who are assigned to job rotations either in the leadership or technical track around the world at firm locations and/or contractor sites. The Leadership Track is a two-year program to develop leadership skills and give broad business knowledge in an international environment while the technical track is a one-year program fostering engineering skills and bring young professionals leading technical knowledge in an accelerated way. The aim of both tracks is to strengthen national and gender diversity through globally - structured training and development and establishing partnerships with universities. For example, a recent graduate from Italy may start in the country of origin then travel to Sweden, one of headquarters, then to contract sites in the United States and Mexico. Both tracks allow trainees to develop skills and enhance knowledge of the different rotations in the program on a global scale. Knowledge flows from both parties across innovation systems with the trainee bringing fresh ideas and competencies brought by their previous education at their home university while the firm can train them to be successful leaders and transfer their ethical and sustainability values. Besides knowledge expansion, the program also emphasizes diversity and inclusion by strengthening nationality and gender diversity in the firm. As of 2018, the company brought three hundred and fifty graduates joining the Future Talent Program in order to become successful and responsible leaders. The aim of the programs is to guide recent graduates into leadership positions as they evolve from university life to corporate life and to strengthen national and gender diversity through globally structured training and development and involves establishing partnerships with universities. Future talent programs for recent graduate students from

all over the world learn the different sectors of the workplace and the core values of the firm. Also, to train and develop the skills learned at university and transfer that knowledge into the program.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value education and innovative mindset

Storyteller: promote sustainability and better future via company core product and United Nations Global Compact

Change Agent: transfer knowledge and skills through collective learning

Networker: strengthen diversity

Citizen: promote learning and development for personal growth

HR Administrator: Healthcare Industry

An HR Administrator in the healthcare industry where the company provided home medical supplies explained that her firm is a socially conscious company as the customer base is the underprivileged population who require disposable medical supplies to remain in their homes and to avoid admission into hospitals or skilled nursing facilities. As such, the company support charities and events serving local communities and residents and all employees are encouraged to take part in these community-supported charitable activities. Their values are “dedicated to fulfilling the medical supply needs of consumers and the caregiving community with a focus on customer satisfaction” and enforce diversity and inclusion and good health and well-being to both employees and customers. The program that she demonstrated building the company’s values was the Individualized Development Plan where an executive coach or leadership consultant teaches managers how to lead with emotional intelligence. For employees who are candidates for a promotion, they receive an Individualized Development Plan from their manager. The plan is for employees who want to match their training with their career goals, internal transfers are available for employees who want to learn new skills. These candidates work closely with their managers to ensure that they can meet the criteria set for advancement. The online platform called the Learning Tree works as a knowledge bank for continuous learning of the program and of training courses.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value patient care and give emotional support

Servant: care for employee advancements and foster employee growth

Networker: equal opportunities for all employees

Citizen: empathize and ensure patients are the priority concern

HR Intern: Professional Service Industry

The next interviewee was an HR intern in the professional service industry. The firm provided services for human resources research and training is also a signatory of the United Nations Global Compact. A Fortune 500 company headquartered in Switzerland with operations and subsidiaries around the world, including the location of the interviewee in Padua, Italy. The company provides the world's largest human resource services including temporary staffing, career transition, and talent development. Even though the company does not work with tangible goods, they are progressive with sustainability practices such as company initiative to save paper by giving every employee an aluminum water bottle to reduce plastic. The slogan of the firm is "better work, better life" therefore, health and wellness solutions are high priorities internally and externally of the company. Employee physical, mental and social health is considered a very important aspect of the firm so sports and fitness are initiated through various programs and advertisements through social media emphasizing leisure, sports and satisfaction. The training program to support this workforce vitality is Win4Youth, a health engagement program in partnership with Plan International, one of the world's largest NGOs working towards human rights and gender equality. Employees, clients and associates all engage in sports activities, log their distances and times and in return, the firm make donations to Plan International. The goal is to support health and wellness to employees of the firm's ecosystem while contributing to external challenges described in the UN SDGs as goals 5, gender equality, and goal 10, reducing inequalities, by collaborating with Plan International who are advocates for children rights and equality around the world.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: promote the health and wellness of employees and contribute to a good cause

Servant: caring for communities

Storyteller: engage and spread awareness

Networker: building relationships through sport activities

Citizen: a partnership with NGO

HR Coordinator: Manufacturing Industry

An HR Coordinator based in a firm located just on the outskirts of Dallas, Texas, USA heavily specified workplace safety programs. The company that the interviewee works at specializes in manufacturing spring devices contracting to a medley of industries including aerospace, medical, flow control, marine, defense, electronics and agriculture. Their core values are “quality, safety and customer satisfaction”. Their safety program is in conformance with ISO:9001-2015, a quality management system. First, formal training procedures are organized for new employees regarding workplace safety and occupational duties which are in conformance with ISO:9001-2015. The learning methodologies include speaking one - on - one, on-site with on-staff safety training personnel and safety videos provided by the Occupational Safety and Health Administration (OSHA), an agency part of the United States Department of Labor. Training involves understanding who to report to for various issues, knowing how to identify and prevent risks and explanations of basic workplace procedures. The virtual training brought by OSHA allows constant training of safety features to bring security to local company employees in all company sites who then take the skills learned to act as responsible mentors by foster training to newly hired employees. Furthermore, training involves understanding who to report to for various issues, knowing how to identify and prevent risks, and explanation of basic workplace procedures and how to properly recycle unused manufacturing material.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value workplace safety

Citizen: care for safety values and the environment through safe recycling practice

HR Analyst: Information Technology Industry

HR Analyst working in an IT consulting company based in Manchester, United Kingdom stressed the importance of diversity and inclusion and is advertised across the company via their website and during initial hiring training programs from on-site locations of the company. Their core values are to “drive ambition, collaboration with building trustworthy relationships and progressive by embracing change and encourage learning”. These values are visible throughout their organization including their website which explicitly announces that there is a lack of diversity in the UK’s tech sector and wants to change this. Therefore, the HR department has implemented various programs internally and externally of the firm on the matter to encourage and invest in talent from

all backgrounds such as promoting women into the STEM field. The workshop Teach the Nation to Code is an education program facilitating diversity and inclusion aimed to address skill gaps in the local, regional and national levels of the United Kingdom. The program sets up free events and workshops targeted towards young professionals, graduates and children to inspire and pursue a career in IT and software development. So far, the program has networked with over 200 learners to foster technological training and development. The mission is to teach, encourage and inspire young professionals into the tech industry by holding training and development workshops across the nation.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value education and constant learning

Servant: serve the community

Change Agent: change mindsets to encourage all individuals into STEM programs

Networker: diversity and inclusion

Visionary: empowering people

Citizen: caring for communities

Sales Manager Trainee: Automotive

The interviewee works as a Sales Manager Trainee in a global automotive consulting firm and independent research institution specializing in the development, simulation and testing of powertrain systems. The headquarters and location of the interviewee is Graz, Austria however, established subsidiaries around the world who constantly partner and collaborate with other automotive organizations and research institutions. Core values are represented through “Pioneering spirit, client orientation, problem-solving competence, responsibility and independence” and emphasize best practices in the areas of environmental protection, sustainability and global emissions in order to solve current social dilemmas. To further support these values, the firm leaders initiated the firm to become a member of respACT, an Austrian business counsel platform for corporate social responsibility and sustainable development. Ambitions towards a cleaner environment are recognized in the firm’s best practices and annual events. In order to keep up with the core values and current social issues that revolve around the automotive and mobility industry, every year the firm organizes a Tech Day which serves as an event to present and discuss technology and trends occurring in the automotive and mobility industry. The 2019 event was hosted by the

firm located in North America in Detroit, MI, USA where they partnered with Aramco, a national petroleum and gas company, focusing on “Exploring the Future of Sustainability Mobility.” More than 100 attendees participated in the event where they could learn through a rotational exhibition of the firm and Aramco’s innovations and new vehicle technologies such as solutions for in-vehicle measurements, integrated testing solutions and AVL’s energy-efficient emissions testing tool called SlimLine. The event informed attendees from various organizations about the essential goals to tackle emissions and CO2 challenges by attracting well - trained personnel such as engineers and technicians as well as train the public about the need for these technology changes. The goal of the technology day is to train corporate leaders of innovative and sustainable implementations to the mobile industry. This event also serves to present and discuss technology and trends occurring in the automotive and mobility industry where attendees participate and learn through a rotational exhibition of the firm and collaborative partners' innovations and new vehicle technologies. The event informs attendees from various organizations about the essential goals to tackle by attracting well - trained personnel such as engineers and technicians as well as educate the public about the need for technology changes.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: promote and value sustainability practices

Storyteller: inform and educate the public of technology changes

Change Agent: transforming the automobile industry

Networker: collaborate with other firms, industries and the public

Visionary: sustainable future

Citizen: care for the environment

HR Intern: Retail Industry

The interviewee is an HR intern working in a retail company that specializes in arts and crafts supplies. They are headquartered in Dallas, TX with store locations across the United States and Canada. Their program, Holiday Helper, allows the support center team members from corporate offices the opportunity to travel to one of Michaels’ stores to help and experience what store teams experience during the busy holiday season. Corporate employees including managers, travel to store locations across the United States and Canada to assist store employees with customers during busy holiday seasons. Support center team members from corporate offices are given

the opportunity to experience what store teams experience and also help during holiday seasons. This demonstrates a learning experience and fosters building the community by interacting leaders with employees from across the regional market.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value helping employees

Servant: corporate employees and managers assisting store employees

Storyteller: equality, Networker: employees uniting together

Citizen: helping a fellow employee

HR Intern: Automotive Industry

The HR intern has also described that the company has also implemented various graduate training programs to prepare future leadership talent in a career at the firm which incorporates its core values of "accountability, teamwork, servant's attitude, and integrity." Newly graduates are given the opportunity to gain international and diverse experience through an eighteen-month program, three of which is held on international sites. Trainees are assigned a mentor from the management team and trainee team who will help trainee design a customized trainee program which reflects on their strengths and caters to their learning routines. The program also allows trainees to volunteer on a regional level through volunteer programs such as mentoring and tutoring children in underprivileged schools.

Leadership behaviors being facilitated and the roles of responsible leadership identified are:

Steward: value integrity

Servant: care and respect through volunteer opportunities

Storyteller: dialogues for creating an identity for long term growth in the company

Networker: international and diverse inclusion

Visionary: facilitating learning development

Citizen: personal growth and philanthropy act through volunteer opportunities

HR Coordinator: Consulting Industry

PROS is an AI platform company that specializes in pricing software for business to business (B2B) relations. The founders of the company started operations in 2007 yet rapidly expanded the firm by transforming innovating price strategies, management and optimization to help companies increase their revenue. They are

headquartered in Houston, Texas, United States with offices worldwide. Their core value is "help people and companies outperform by enabling smart selling in the digital economy". Diversity and inclusion initiatives are highly encouraged and advertised throughout the company. In order to constantly enhance the skills of workers and enforce best practices such as diversity and inclusion, programs called "boot camps" are held twice a year, typically in Houston. Every department has a boot camp designated to employees working in that given function. Leader and regional managers from all locations participate in order for the whole company to learn of the companies up to date policies, technologies, procedures, etc. which is then spread through subsidiary locations and departments.

Leadership behaviors being facilitated and the roles of responsible leadership identified:

Steward: value diversity and inclusion

Citizen: personal growth in the company

Analysis of the qualitative systematic literature review

The qualitative systematic review was conducted in order to create a link between human resource management and sustainability transitions by discovering further information on how training and development programs facilitating responsible leadership impacts an overall innovation system in which it is embedded. Articles were chosen useful for the review based on synthesizing related publications with the use of MAXQDA software through an abstract analysis. Based on the qualitative systematic review conducted, there are, and not surprisingly, few articles and journals that provide evidence of a clear transit of the research statement. This was predicted and mainly due to the broad nature of sustainability transitions and studies observing the relations between the categories of human resource management, responsible leadership and furthermore innovation systems. Therefore, pieces of literature that were considered relevant were purposely taken from articles and journals in the current millennia, 2000 and onward. This was also mainly attributable because the topic of responsible leadership emerged only recently in 2006 by Maak and Pless and studies for sustainability transitions have also recently gained momentum during this century. Especially, with reference to calls of further research that has been represented by various agencies such as the United Nation's seventeen sustainable development goals mentioned previously. Nevertheless, the review suggests and proposes various conditions of how each subject obtains certain tasks in the process and can be optimized

for taking part in sustainability transitions which encourages many researchers to suggest discussions or calls to conduct further research studies in the direction of sustainability transitions at all levels of the innovation system. Moreover, this allows for the further discussion of sustainability transitions within incumbent firms which do not only initiate leadership roles acting more responsibly but appraises all levels and units of corporate responsibility in the firm including human resource management. For instance, the literature found while searching terminology pertaining to human resource management and sustainability transitions combined, presented publications on human resource management units adopting sustainable development strategies while topics researched regarding innovation systems synthesized into publications proposing potential frameworks and conceptual approaches for sustainability transitions and developing propositions of incumbent firms roles as regime - level actors for sustainability transitions within systems of innovation.

Regime Actors operating in Innovation Systems

As mentioned previously in this paper, sustainability transitions are “long - term, multi - dimensional and fundamental transformations where socio - technical systems shift processes through which established socio - technical systems shift to more sustainable modes of production and consumption” (Bilali,2019). The current and suggested state - of - the - art for understanding sustainability transitions as addressed by Sustainability Transitions Research Network (STRN) in 2019 are notable transitional frameworks such as the multi - level perspective on socio - technical transitions (MLP) and the technological innovation systems (TIS) approaches. These are holistic and conceptual frameworks that are not often seen in managerial studies, nevertheless, the STRN proposes that adapting sustainability transition research questions to fit managerial research could create an intersection of the two studies which would ultimately be beneficial for analyzing incumbent firm transformations (Köhler et. al, 2019). The works of literature for the qualitative review indicate that sustainability transitions is a drastically emerging topic especially within the past ten years (Köhler et. al, 2019) where the research typically builds on various studies including innovation studies, sociology, evolutionary economics to analyze long - term growth evolving in innovation systems (Augenstein et. al, 2015). Even more recently the call for connecting managerial studies into the translational research has created propositions that incumbent firms operate at the meso - regime level and furthermore has called for the need to link responsible leadership and organizational elements to

this approach. The conceptual approach of the multi - level perspective (MLP) that relates to networks of innovation was developed by Rip and Kemp and further elaborated by Geel and Schot by categorizing the coevolution, dynamics and interaction of the different socio - technical system actors into niches, regimes, and landscapes. Niches are the small networks considered to operate at the micro - level consisting of actors with novelty alternatives which ultimately cause the disruption of the current trajectory with radical innovations, ideas and transformations. (Loorbach, Frantzeskaki, & Avelino, 2017) Regimes are considered the established and complex structures that are compiled of technologies, institutions, and actors whose main characteristics are traditionally defined as non - guidance, autonomous and stable. Landscapes are the macro - levels of the systems which consist of external factors and developments such as significant changes of long - term macro - economic, societal, political, ideological, and demographic trends (Geels and Schot, 2007; Loorbach et al., 2017 cited by Strøm-Andersen, 2019). Incumbents are considered core actors in the regime operating in socio - technical at the meso - level (Geels, 2004). According to Bilari (2019), regime actors have the tendency to only go through incremental change and rarely go through transformations, therefore, making socio - technical landscapes at the macro - level harder to transition as well. Incumbent firms in regimes tend to be listed as the top players in the sustainability transition movement and face the challenge of escaping the technical perspective of “doing things better”, but rather radical changes of “doing things differently” (Oppen and Brugman, 2008). Pressure at the macro and micro - level transmits to the meso - level which creates windows of opportunity and influences to create novelty innovations and adjustments at the regime level (Loorbach et al., 2017). When firms propose a different direction towards how their companies should conduct business and innovate, transitions at the regime meso - level can foster easier transitions at the greater scale or the macro - level. For example, responsible leadership within incumbents can promote those leadership behaviors observed by Maak and Pless which include attributes dedicated to sustainability transitions to foster transitions at a greater level of the socio - technical framework. Another emerging framework for sustainability transitions in innovation studies is the dedicated innovation system (DIS) proposed by Pyka, 2017. This serves as a heuristic concept for incorporating normative and transformative knowledge by all actors in innovation systems who are dedicated to foster initiatives towards transformative, also known as transitional, innovations which consequently allows for change towards sustainability (Pyka, 2017). The dedicated innovation system framework is a qualitative and radical notion not only linking actors

at all systems levels from local to global to form a bond towards sustainability transitions by changing current paths such as oil production systems or CO2 emissions but also addressing transformations needed in economic, social and cultural systems (Pyka, 2017). Where (national) innovation systems focus on generating competitive advantages within the system through innovation and technological progress for the economic growth of the innovation system, a dedicated innovation system “aims at governing open-ended processes of paradigmatic change towards economically, socially, and environmentally viable systems, i.e. sustainable systems.” Dedicated innovation system theory goes beyond the focus of economic development and technological innovation in order to achieve sustainability transitions that are deemed imperative to our global society (Pyka, 2017). Since incumbent firms also hold a hierarchy in how innovations play into society, sustainability transitions within the firm seem inevitable for survival not only for the firm but, for all actors in the innovation system. Furthermore, this approach stresses the importance of the knowledge - based view in order to transform systems. The knowledge - based view, in consideration of the firm, professes how knowledge is a crucial resource of the firm in which influences dynamic capabilities and determines the success of the firm leading to competitive advantages. Therefore, knowledge - based capabilities are competitive advantages and are created by superior talent through learning processes and ability to learn faster also known as absorptive capacity (Curado, 2016). As knowledge is considered a leading resource for sustainability transitions in a dedicated innovation system, firm’s human resource departments are a crucial player to seek superior talent that can undergo further training for learning developments that cater to these transformations.

Human resource management adopting sustainable development strategies

For all actors to be fully incorporated into the sustainability transition, adaptations at each level of innovation systems are essential to fulfill the goal. Training and development programs hosted by human resource management have been proven to be an important element to coach leadership skills and managerial styles useful for orchestrating firm success and sustainable competitive advantage through methods of capability and competence building and knowledge diffusion (Aragón - Sánchez, Barba - Aragón and Sanz-Valle, 2003 cited by Enhert, 2006). While human resource management is the practice of managing human capital and allocating these resources to fit the firms’ and employees’ needs, the internal function is able to facilitate strengths and recognize weaknesses to improve workforce capabilities as observed through the

semi - structured interviews for facilitating roles of responsible leadership. In order to cater to the current concern of sustainable development, trends are developing in the field of human resource management strategies and practices such as the emerging field of human resource management called sustainable human resource management (SHRM). Sustainable human resource management promotes employee well - being through personal, financial, social and ecological goals in relation to the organization (Indiparambil, 2019) and is defined as “the adaption of human resource management strategies and practices that enables the achievement of financial, social and ecological goals, with an impact inside and outside of the organization and over a long- term time horizon while controlling for unintended side effects and negative feedback” (Ehnert et al. 2016 cited by Indiparambil, 2019). The subject is yet again a conceptual approach regarding human resource management strategies and correlates to the conceptual approaches of responsible leadership and corporate responsibility by adopting activities aimed for long - term economic, social and ecological growth through recruitment and selection, training and development, deployment, and retirement (Thom and Zaugg, cited by Ehnert, 2006). Bombiak and Marciniuk - Kluska continue the explanation of sustainable human resource management by translating the aspects of the three pillars of sustainability (economic, environmental and social issues) which are mutually enforced and interrelated in the view of human resource management as the ability to implement activities to reduce environmental harm (ecological), satisfy basic material human needs with applications that do not harm the environment such as technologies and other techniques (economic) and provide social minimum to stakeholders involved such as but not limited to safety, education, eradicate poverty and hunger, equal opportunity, diversity and inclusion, etc. (social aspect) (Bombiak, et al., 2018). Additionally, the authors state that the idea of sustainable development and the aspects of social, economic and ecological correlate to the characteristics of sustainability, durability and self - sustainability. *Sustainability* involves the need to develop and protect the current environment and for future generations, *durability* are the conditions to acquire those environmental resources. *Self - sustainability* is the interrelations of the three factors of social, environmental and economic aspects that are required for long - term growth (Bombiak, et al., 2018). Therefore, sustainable human resource management connects the method of human resource management and sustainable development however, this strategy conforms to another component that combines corporate social responsibility and human resource management called Socially Responsible Human Resource Management (SRHRM). Bombiak and

Marciniuk - Kluska continue to advance the strategic concept of sustainable human resource management to foster sustainable organization - building for human resource management practices by explaining socially responsible human resource management (Bombiak, et al., 2018). Socially responsible human resource management in actual practice of “CSR’s internal dimension and fosters corporate social responsibility with a view to attaining environmental and social values by developing ethical attitudes based on honesty and trust in employees” (Bombiak, et al., 2018) which in turn, promotes sustainable development. This explains that the focal point for initiating sustainable development through human resource management practices that starts with fostering personal attitude and ethical behavior that can be integrated throughout the employee workforce. Other authors have also contributed to the discussion of socially responsible human resource management such as Martínez, López - Fernández and Romero - Fernández who create a theoretical, integrative model of socially responsible human resource management as a conceptual basis in order for human resources to start incorporating socially responsible orientations into the field (Martínez et. al, 2016). They evolved the terminology based on corporate social responsibility as defining socially responsible human resource policies to “improve the ethical, social, human and working conditions of workers, promoting their satisfaction and proper development in the company and to obtain a differential added value for companies as a result of this process, increasing in the last term the global employee’s performance” (Martínez et. al, 2016). Furthermore, each function of human resource management such as attraction and retention of employees, management of employee relations, communication and dialogue, diversity and equal opportunity, work-family balance, health and safety at work and training and continuous development can be analyzed to perceive socially responsible practices. Training and continuous development activities are apprehended to foster employee knowledge, skills and competencies for socially responsible practices by stimulating learning methodologies such as programs observed in semi - structured interviews plus continuous learning, for example, the intranet and distance learning course.

The works of literature have moreover expressed correlations and conceptual elements that could foster responsible leadership based on corporate social responsibility and sustainable development implementations into human resource management as seen in the strategies of socially responsible human resource management and sustainable human resource management yet, as presented by Gond and colleagues, human resources direct contribution to responsible leadership has been

neglected. The direct contribution still has not arisen however; implicit contributions remain a useful resource such as the use of the functional role of human resources as configurations to develop responsible leadership. This method further emphasizes how the adoption of corporate social responsibility into the human resource management strategies shows a positive correlation to deploy responsible leadership when corporate social responsibility is located within the human resource function and has directly emerged from the human resource department or has been launched by the leaders of the human resource management team (Gond et. al, 2011). Therefore, it is valid that human resource management incorporates such practices through their functions especially for continuous learning in training and development programs. Since Gond also implies that employees are important stakeholders when making decisions related to corporate social responsibility and are often at the core of the corporate social responsibility strategy. In addition, Szczepańska - Woszczyzna (2015) predicts that the corporate social responsibility to the human resource interface method for analyzing human resource management contribution to responsible leadership can also be valuable when responsible leadership play a contributing role in foster responsible behavior to human resource management. This suggests that corporate social responsibility gives a back - and - forth exchange of knowledge and open dialogue between the subjects that are inevitably deemed essential for sustainability transitions (United Nations, 2019). However, Szczepańska - Woszczyzna (2018) study of Polish firms operating in a transactional region in order to analyze how responsible leadership contributions to human resource management concluded that only a small percentage of firms operating in Poland implement only corporate social responsibility practices that would be necessary for the contribution between the actors. Furthermore, corporate social responsibility is another conceptual approach that is hard to measure and some companies that have claimed to implement corporate social responsibility just use it as a tool for public relations to gain a competitive advantage as previously mentioned by Ovais and Singh (2016) and abuse of corporate social responsibility can also be observed in the famous case of the Enron scandal. Ovias and Singh further indicate that responsible leadership characteristics are adopted in incumbent firms who are well established in the market and companies in transactional regions may have different perceptions of responsible leaders characteristic and corporate social responsibility due to the “different beliefs about their responsibilities toward different stakeholders, with accompanying implications for their understanding and pursuing responsible leadership” (Ovais and Singh, 2016). As described by Becker (2011), human resource

management has only marginally been involved implementing social responsibility and sustainability as a core activity into employee and stakeholder interactions even though there is proof that human resource management is in a good position to develop and train these initiatives (Fenwick & Bierema, 2008 cited by Becker, 2011). The literatures additionally illustrate positive correlations of human resource management practices for social responsibility and sustainability which also proves to have a positive effect on forming characteristics of responsible leadership in incumbent firms however, the research is implicit and broadly conceptual. Macke and Genari (2017) conduct of a deep systematic analysis of sustainable human resource management definitions which further expresses that functions linked to human resource management, especially those of training and development, are essential for a sustainable management implementations (Jabbour et al., 2008; Lozano and Huisingsh, 2011 cited by Macke et al, 2017). Additionally, the authors research proposes a possible link of the stakeholder theory, which is the foundation and theoretical framework of the responsible leadership theory, and sustainable human resource management based on four main reasons that demonstrate effective management by the need to develop a stakeholder - driven mindset, the process of human resource management must broaden its performance beyond the economic objectives of shareholders, differentiated view of the purely instrumental approach, in which the understanding of organizational conflicts is unbiased and mutual understanding between managers and employees, and favor ethical and justice processes of human resources in the organization (Guerci et al., 2013 cited by Macke et al., 2017).

Discussion

This paper has served to aid sustainability transition studies by incorporating managerial aspects at the regime through a qualitative - method analysis based on semi - structured interviews and a qualitative systematic literature review. The interviews with open - ended questionnaires display training and development programs facilitating the responsible leadership “role sets” by Maak and Pless and describing behaviors and characteristics of responsible leaders while also indicating the physiological aspects of leadership qualities that are prevalent for a responsible leader. These are active and perceived through personal morals and ethical behaviors deemed necessary to achieve a sustainability balance. The interviews further indicate how human resource management contributes to responsible leadership by facilitating programs that enhance these psychological and behavioral aspects which are deemed

to suit the economic, social and environment of long - term growth of all stakeholders involved. Unfortunately, the systematic literature review did not provide exact information or transit on how human resource management facilitating responsible leadership can impact an innovation system in which it is embedded. The research topic is following the current dilemma of sustainability issues and therefore, other publications have often described the need for further research implications and imperative necessity for change in current trajectory towards a sustainability transformation. However, the reviews did provide an understanding of potential frameworks and conceptual approaches that allows for proposing propositions for future research on sustainability research at the regime level.

The semi - structured interviews created a means as to how human resource management, specifically the training and development programs that are organized by this department of firms, facilitate responsible leadership. The evidence of the interviews indicate that firms have programs geared towards training and developing leadership behaviors into roles that are in captive of the responsible leadership “role set”, however, do not indicate that all roles are facilitated in order to create a web of integrated roles as described by Maak and Pless in order to gain the holistic status of a responsible leader. Of course, as responsible leadership is a theoretical approach to indicate which role sets are identified through leadership behaviors, others may argue that behaviors being facilitated could be transferred to another through gained knowledge or previously learned capabilities and competencies. The intent of the programs are to build - up competencies and thus, a responsible leader would broaden competencies that would benefit larger causes related to societal and environmental issues. This analysis was meant as a stepping - stone in order to grasp the conceptual measurement of recognizing a responsible leader in a way that utilizes the internal resources already collected by a firm. The “roles model” of responsible leadership adapted by Pless (2007), as seen in Figure 2 in the methodology section, describes seven leadership roles as leaders acting as the *steward*, *servant*, *storyteller*, *change agent*, *networker*, *visionary*, and *citizen*. Of the ten human resource management training and development programs described by human resource management personnel, the leadership role of the steward was prominent in all programs. The metaphorical expression of the leader as a steward as a custodian of values, protector of personal and professional integrity and lead a business responsibly even through troublesome times thus pre - serving entrusted those values (Pless, 2007). In addition, the later most reoccurring and popularly facilitated leadership roles included leader as a citizen

exhibited in nine of the programs, networker indicated in seven programs, and with leadership roles as a servant and storyteller within six of the described programs. Leader as a citizen is described as a person driven by responsibility throughout life, concerned about civic health and is an active member within their community as a citizen (Pless, 2007). Many programs incorporate this leadership behavior by partnering with nonprofit organizations or even government agencies to care for the communities in which they are embedded and to furthermore promote safety and well – being of these communities and environment. The leadership role of a networker is the metaphorical notion of the “web of inclusion” who strengthen interrelationships and honor inclusion (Helgesen, 1990 cited by Pless, 2007). Of the programs that fostered networker leadership, human resource management personnel explained the importance of diversity and inclusion in relation to the global market and ways to facilitate diverse and creativity among teams in the firm. For instance, the HR Analyst in the Information Technology firm described how their firm’s program facilitated diversity and inclusion and aimed to address skill gaps in the local, regional and national levels. This furthermore encourages young females into STEM programs which has only recently gained momentum in recent years in order to break the glass ceiling and diversify a sector which was once predominantly reserved for men. Leader as a servant and leader as a storyteller both were seen in a total of six of the ten firms’ programs shared by human resource management personnel. Servant leaders have often been the popularly adopted managerial style by leaders as the concept concern about serving their followers to achieve a common purpose by being “able to recognize, respect and care for the needs of others” (Pless, 2007). The characteristics of a servant leader and leader as a citizen correlate in the fact that they care for their ecosystem and help the needs of others through a mutual value system. Storyteller was also common among leadership roles in programs in which leaders are able to state a vision for the firm, community and individual employees and able to teach how to achieve personal as well as organizational goals. These leadership qualities of a storyteller include charismatic behavior which inspires stakeholders as well as encourages leaders to be mentors that embrace communication and dialogue. For instance, the HR Specialist for the Food and Beverage Industry firm highlighted how the programs for newly graduate students facilitates the metaphorical leadership role of a storyteller by openly communicating and inspiring sustainability behavior and values which reflects the company’s products. Leadership roles that were less predominant were that of a visionary observed in four programs and that of the change agent observed in three of the programs. Visionaries

connect minds and consciousness to guide people with common values to a common future. Anita Roddick of the body shop was a leader with a dream and vision to help guide planetary citizen's and fight issues concerning poverty and the environment (Roddick, 1991 cited by Pless). Such behavior can be facilitated by programs such as those that empower people to creative and independent thinking which would later be transferred to leadership followers. Furthermore, informing and educating stakeholders of visions creates further communication and dialogue which is also reflected by the leadership role of a storyteller. For instance, the Sales Manager Trainee in the Automotive industry firm describes how the program facilitates the leader as a visionary to adopt a sustainable future vision and educate the public of these visions. Lastly, the leadership role as a change agent corresponds to the transformational leadership style. This deals with transforming mindsets in the direction of the common goals and values which can be implemented as a sustainability transition strategy. The Sales Manager Trainee also explained how the program is teaching the transformation of the automobile industry away from the current trajectory in which carbon emission is abundant into an industry with innovative sustainability implementations such as electric mobility. Drastic transformations such as these are indicated as a necessity in various publications related to sustainability transitional studies as stated in the findings of the systematic review. An example taken from the literature review is the dedicated innovation system approach that addressed in order to exit the current path trajectory into a sustainable path, fundamental transformations are needed throughout all levels of systems and all actors need to be involved (Pyka 2017). Moreover, the review gave an explicit awareness of how human resources management has the capabilities, knowledge and resources to implement responsible leadership and additionally, an implicit signal to how this could potentially impact the innovation system. Transformations are led by awareness plus experience (Bonfiglio, 2015). In the TedTalk conference for TedxSomerville held in 2015, Drew Bonfiglio explains how awareness can be gained through the micro - level of an individual with any everyday incidences such as observing poverty, employee abuse, environmental changes such as the current dilemmas of wildfires occurring in Australia and California, USA. Of course, awareness can be observed through everyday circumstance within personal communities, however, we as individuals can go beyond the horizons of our local communities and gain awareness of sustainable development issues through various platforms such as podcasts, the internet, etc. Gaining awareness leads to experience by individuals putting themselves in processes to understand and learn how to solve certain

issues. Bonfiglio further explains that responsible leadership “forces the mind to view the world in a new lens” (Bonfiglio, 2015). However, not everyone at the individual level has the capability and/or resources to gain experience even if the awareness is acknowledged. Therefore, companies can utilize their resources to give awareness, may it be through individual employee discussions, corporate officials implementing best practices and values, or gaining experience by partaking in training and development programs that facilitate knowledge exchange and diffusion. Through this way, one can propose that human resource management acts as a *mediator* to connect responsible leadership to the entire innovation systems by implementing the “experience” elements for responsible leaders. The responsible leadership roles and behaviors can be observed by being facilitated at the regime level through training and development programs functioned by human resource management and which consequently act as a *transitional intermediary* to various levels such as landscapes and niches in the multi – level perspective approach. Human resource management facilitating responsible leadership can also be a transitional intermediary for benefiting a dedicated innovation system. Of all the conceptual approaches, they all share the component that knowledge is a vital resource for sustainability transitions. Therefore, a proposition for future research is analyzing the extent of sustainability transitions in managerial studies through knowledge exchange. As the field of human resource management adopts approaches and practices that focus on sustainable development practices, transferring this knowledge in organizational training and development programs will allow a faster and more efficient transition to facilitate responsible leaders. Moreover, these leaders will be able to facilitate these views to the organizational bodies in which they manage. This can be seen as a ripple effect however, these effects as seen in the innovation theory does not necessarily driven by a top - bottom effect nor a bottom-up. These developments are interrelated and have the tendency to shift through cross - fertilization levels. Human resource management carries functions that enable knowledge transfer to build capabilities and competencies needed for responsible leadership through training and development programs. Regardless of the human resource talent pool in an industry or firm’s location, training is essential for the firm’s human resource strategy. As noted by Kianto, Sáenz and Aramburu (2017), skills and competencies deteriorate, therefore, they need to be renewed, retaught or improved. This makes training and development, a knowledge - based tool, essential for the firm’s human resource strategy and building upon dynamic capabilities (Cullen and Parboteeah, 2010). A keyword - based analysis developed by Urmetzer et al. (2019) research:

“Learning to change. Transformative knowledge for building a sustainable bioeconomy.”, which acquires the keywords for sustainability innovation systems from Abson et al. (2014), can be used to identify knowledge exchange with sustainability knowledge vocabulary. Based on sustainability ecosystems, the knowledge - based theory implies three knowledge sets: system knowledge, normative knowledge and transformative knowledge. Systems knowledge is a descriptive understanding of the current social and ecological functions, including social–ecological interactions and understanding how those interactions affect future ecosystem flows (Abson, et al. 2014). While systems knowledge has a descriptive focus by recognizing how things are, normative knowledge “relates to judgments of how a system ought to be” and place value in those judgments by evaluating potential states of the world (Jax et al., 2013, Wiek et al., 2011 cited by Abson, et al., 2014). Transformative knowledge is the outcome of the two knowledge sets based on descriptive and normative values so that competencies are “acquired to effect a transgression from the status quo to the desired state. This requires a revision of inherited values and assumptions as well as the acquisition of skills to effect the desired societal change” (Urmetzer et al., 2019). This knowledge set can be used as a tool for evaluating knowledge diffusion and the recognition if transformations are occurring or need to occur within an organization which, as stated in the dedicated innovation systems framework, is a vital and fundamental to exit the current path trajectory into a sustainable path.

Limitations

This paper shows a qualitative analysis based on semi - structured interviews and a qualitative systematic literature review. Companies have various training and development programs to foster multiple sustainability transitions and responsible leadership. Future research could focus on case studies to analyze all of one firm's various training programs and evaluate if there are different approaches to facilitate responsible leaders including researching the psychological aspect of responsible leadership. Furthermore, future research could analyze how human resource management other functions such as how recruitment could play a role in facilitating or scoping out responsible leaders. Sustainability is a paradigm concept and can be perceived differently based on firm, culture, environment, individual and other actors. Therefore, analyzing sustainability transitions through a cultural basis may deem relevant especially with incumbent firms operating at a global or multinational scale. Questions relevant to firms may be: Who are the decision makers of which

sustainability development and how can the United Nations seventeen developmental goals play a role in our company? Also, how can firms incorporate this into are leadership styles in training programs and in other aspects to utilize our human resource management unit for sustainability transitions? Furthermore, in which way can responsible leaders influence or facilitate human resource management to incorporate further programs to enhance sustainability? Since knowledge is a back and forth operation within this study, responsible leadership could use the role set as described by Maak and Pless to analyze human resource management roles which could also be implemented into the emerging fields of sustainable human resource management or socially responsible human resource management. Responsible leadership is also a fairly new concept which, thus far, indicates a more conceptual approach with theoretical frameworks which is naturally harder to measure than other managerial or economic studies with quantitative data. Moreover, companies may have managers that follow responsible leadership yet, not have the label and company used different ways to describe their involvement in corporate social responsibility, responsible leadership for sustainability transitions may be over or under stated. For future research, studies can go beyond interviews and more experience – based methodologies such as shadowing human resource personnel or responsible leaders to get a first - hand impression of how knowledge diffusion projects in training and development programs or other aspects in the human resource management reign.

Conclusion

As stated by the German philosopher Immanuel Kant in his theory of categorical imperative, people know right versus wrong and behave in a way that is based on a rule that leads to benefit oneself or community under this certain rule. Firms undergo an ethical challenge when it comes to sustainability transitions that face intragenerational and intergenerational justice or in other terms, the obstacle to develop responsibilities that will not harm the current generation nor disrupt the needs of the future generation. Therefore, firms operating at the regime level face imperative action for sustainability transitions and use the development as a method to ensure that stakeholders and innovation systems are not worse off in the present nor future. Unfortunately, a perceived downfall and drawback of adopting sustainable practices in incumbent firms are costs. For instance, proprietary costs arise when reporting sustainability in a firm which also exposes firm's strategic alignment, strengths and weaknesses and managerial systems. On the contrary, when incumbent firms partake

in sustainability development, they gain external and internal advantages including competitive advantage, creating customer loyalty, stakeholder engagement, increase trust of employees and help guide behaviors of stakeholder through methods such as corporate social responsibility and responsible leadership. Furthermore, firms already have the resources such as training and development programs that already appear to facilitate a responsible leader who will act for the good of all stakeholders and to the whole innovation system. Therefore, the transition to sustainability is quite the opposite of costly as resources are already implemented and has the potential to be swiftly adopted. Moreover, firms today have recognized that sustainability is not just adopted for the means of competitive advantage, rather it is a hygienic aspect to our societal needs in which all departments within the firms should be accountable. With incumbent firms adopting the “triple – bottom - line”, responsible leadership has the mission to address economic, social and environmental ambitions that concerns all stakeholders involved (Hahn et al., 2014). This paper was in effort to aid sustainability transitions studies by incorporating managerial studies involving human resource management facilitating responsible leadership, an emerging, conceptual approach to leadership styles in which the three pillars of sustainability are focal points in leadership behaviors and qualities. Maak and Pless describes the concept of responsible leadership as “a relational and ethical phenomenon, which occurs in social processes of interaction with those who affect or are affected by leadership and have a stake in the purpose and vision of the leadership relationship, thereby broadening the view from a traditional leader – subordinate relationship to leader – stakeholder relationships” (Maak and Pless, 2006). Responsible leaders are individuals in leadership positions who pursue effective leadership in accordance to the idea of corporate responsibility “by being an active citizen and promoting active citizenship inside and outside the organization” (Pless 2007, cited by Maak and Pless, 2011) thus they build sustainable relationships with all stakeholders not just ones involved internally in the company to achieve mutually shared objectives based on a vision and morals of the good for all (Maak 2007, cited by Maak and Pless, 2011). Moreover, a responsible leader takes the responsibility to guide and mobilize their following to achieve goals in an ethical manner (Maak and Pless, 2006 cited by Doh, Stumpf and Tymon, JR., 2011) based on those ethical – driven principles that, as a reference to Immanuel Kant, is imperative for “doing good”. Responsible leadership research involves examining the dynamics of a responsible leader through a stakeholder theory context and psychological aspects of a leader such as ethical norms, values and principles (Pless, 2007). Pless in his study “Understanding

Responsible Leadership: Role Identity and Motivational Drivers" builds on insights of responsible leadership by describing responsible leaders' behaviors based on the case study of the founder of the Body Shop, Dame Anita Roddick, who is considered a leader of sustainability practices for incumbent firms. In order to analyze such behaviors that facilitated responsible leadership through human resource management and training programs, this paper adopted Pless's adopted roles model of responsible leadership including leadership as the steward, servant, storyteller, change agent, networker, visionary and citizen. Furthermore, the study conducted by Maak and Pless (2011) of the Price water - houseCoopers (PwC) service - learning program called "Project Ulysses" displayed how human resource management implementation of service - learning programs can foster responsible leadership by developing and enhancing competencies. Based on the semi - structured interviews, this papers' research further indicates that responsible leadership can be facilitated through the internal firms' unit with leadership behaviors of a steward being the most predominant style following leadership behaviors of a citizen and then of a networker. Human resource management is the practice of managing people to reach a shared goal and to recruit and mobilize peoples' behaviors in order to competitive advantage. Emerging theoretical approaches of human resource management as seen in the systematic literature review involves human resource management in a more sustainable context by adopting sustainable development strategies such as sustainable human resource management (SHRM) and socially responsible human resource management (SRHRM). These can be used and integrated into responsible leadership studies in order to facilitate responsible leaders. Also, the papers' research aimed to analyze the impact of facilitating responsible leadership through training and development programs organized by human resource management has to the innovation systems in which they are embedded. After the semi - structured interviews, a systematic literature review was conducted in order to show the relationship between the factors of human resource management, responsible leadership and innovation systems for the cause of sustainability transitions' research pathways. As predicted, the current publications are rather short and do not provide an explicit direction of the correlation. This is due to the fact that the subject of sustainability transitions is continuous and does not have a one - size - fits - all paradigm due to the broad - scale sustainability and innovation systems have. Furthermore, responsible leadership is a fairly new concept which has also been called for future studies. For instance, how internal functions of a firm can implement such qualities and behaviors of a responsible leader (Stahl, et al., 2014). Nevertheless, this

leads to the proposition that human resource management facilitating responsible leadership can act as a transitional intermediary for innovation systems' theoretical frameworks. This study gives a conceptual approach to economic studies and managerial studies which as noted by Pkyra (2017) is rare, however, for long – term and sustainable growth, conceptual frameworks allow systems of innovation to change trajectories such as carbon emissions and inequalities in the workplace and transition towards a sustainable present and future.

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Appendix

“The 17 sustainable development goals (SDGs) to transform our world” by the United Nations

Goal 1: No poverty, Goal 2: Zero hunger, Goal 3: Good health and well-being for people, Goal 4: Quality education, Goal 5: Gender equality, Goal 6: Clean water and sanitation, Goal 7: Affordable and clean energy, Goal 8: Decent work and economic growth, Goal 9: Industry, Innovation, and Infrastructure, Goal 10: Reducing inequalities, Goal 11: Sustainable cities and communities, Goal 12: Responsible consumption and production, Goal 13: Climate action, Goal 14: Life below water, Goal 15: Life on land, Goal 16: Peace, justice and strong institutions, Goal 17: Partnerships for the goals.