RESEARCH ARTICLE

How to apply responsible leadership theory in practice: A competency tool to collaborate on the sustainable development goals

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Abstract
In the era of the sustainable development goals (SDGs) and calls for climate action, business is challenged to respond more effectively to societal and environmental challenges. Collaboration with stakeholders requires an ability for broader collaboration competencies. These form a part of an established literature on responsible leadership (RL) competencies. Human resources managers, consultants and educators in charge of developing such competencies demand clarity on the definition and a practical measurement tool for RL. This paper addresses both by proposing a RL definition and a RL competency model, that has been operationalized into a free online tool for individuals and groups. This free Competency Assessment for Responsible Leadership (CARL) tool is used to assess stakeholder engagement, individual and group leadership development, and internal sustainable development transformation work. The CARL online tool serves to systematically analyze and develop RL competencies, both in business and educational practices, and helps advance the RL theory based on insights from practice.

KEYWORDS
competency framework, leadership competencies, responsible leadership, SDG, sustainability, sustainable business, sustainable development, transformation

1 | INTRODUCTION

Ever since the financial crisis of 2008, the call for responsible leaders in and beyond business has become louder. The continuing string of corporate scandals have all but grown. The ethical-based scandals at Siemens, Volkswagen, UBER and many more have shown that business has not learned its lesson from scandals such as ENRON. This endless series of scandals has damaged the trust in companies and business in general. Some meanwhile suggest that it was the misconduct of leadership and irresponsible leaders that were the main causes for the financial crisis (Pless & Maak, 2011). In the past few years, significant societal changes including the global MeToo and climate movements have resulted in further demands for regulatory requirements for the finance industry in particular, and business in general. The call for responsible leadership in association with good corporate citizenship has been sharpened by the introduction of the sustainable development goals (SDGs) in 2015. The understanding that business plays a key role in resolving societal issues has shaped the expectations in civil society that business must take into consideration public interests, not just private interests (Dyllick & Muff, 2016).

Such expectations pose some difficult questions regarding the focus of business leaders: Should they focus predominantly on internal concerns or should they focus more on external, societal concerns? Which stakeholders should they give preference and how
should they go about in answering this question? Any attempt to answer these questions quickly demonstrates a need to move beyond a simple "right or wrong" thinking. These questions point to a need to move beyond a simplistic "either-or" thinking to embrace the systemic conditions of wicked problems that require an "and-and" thinking capacity. The requirement to deal with conflicting or contradicting stakeholder interests beyond and outside traditional organizational boundaries asks for the ability to deal with moral dilemmas and the capacity to behave in fair and ethical ways (Maak & Pless, 2006a; Maak & Pless, 2006b). The concept of virtuousness in organizations with virtuousness being defined as representing the best of the human condition, adds further depth to this idea (Cameron & Winn, 2012). Early leading companies, such as Danfoss in Denmark, understood that the 2008 financial crisis cannot impede the implementation of CSR initiatives, but rather provides an opportunity to walk-the-talk (Lehmann, Toh, Christensen, & Ma, 2010).

Business practitioners are looking for guidance and support in clarifying the requirements for responsible leadership (RL). We have been repeatedly approached to come up with a clear and simple definition of RL that can be used for personal and leadership development purposes (Muff & Mayenfisch-Tobin, 2014). These demands include in particular three questions:

1. Determining the current state of RL competencies—for an individual or for a group.
2. Assessing the short and long-term effectiveness of RL competencies development.
3. Evaluating existing training offerings in terms of their RL impact.

Back in 2006, the World Business Council for Sustainable Development (WBCSD) engaged a taskforce of business leaders to map out "tomorrow’s leaders," putting responsibility and long-term success measures at the beginning and end of strategy and stakeholder engagement (WBCSD, 2011). It had become increasingly clear, that RL could help provide a better understanding of what might be required from leaders to improve how society thinks about them and their firms (Pless, Maak, & Waldman, 2012).

This paper provides an answer to these specific demands and presents an online-tool for RL competency assessment together with the process used and steps taken to get there. Boyatzis (2008) has argued with conviction that the competencies needed to be effective in the 21st century can indeed be developed, supporting our ambition to not only define but also measure these. Such a tool serves practical purposes, and will allow more and better generation of data that shall seek to advance the scholarly discourse. The perspective applied is conceptual and it uses comparative analysis. The paper is structured as follows: Section 2 gives a brief overview of the literature with the goal to come up with a clear definition and framework (grid) for RL. Section 3 operationalizes the RL grid into a comprehensive model of 45 competencies across 15 aspects that form the operationalizing RL competencies into a survey. Section 4 demonstrates how the operationalized RL model is translated into an advanced online tool. Section 5 summarizes the prototype development process that accompanied the operationalization and online tool development. Section 6 reviews the three questions by practice and discusses potential applications in business and education. Section 7 draws some conclusions, hints at limitations and further research needs.

## 2 | TOWARD A DEFINITION OF RESPONSIBLE LEADERSHIP

Under the heading of RL we find a connection of two different fields of research; research on corporate social responsibility and research on leadership, thereby combining the organizational and the individual level (Waldman, 2011). The increasing research in the past two decades can be categorized into four distinct categories: teaching responsible management, organizing for responsible education, responsible individual learning, and responsible organizational learning (Cullen, 2019). This article focuses on responsible individual learning.

This section reviews the scholarly discussion in the area of RL over time and identifies common themes in an attempt to consolidate the insights into a clear RL definition for individuals and groups. The review shows how five competency dimensions of RL emerged in the literature: creating, managing and securing good relations with stakeholders, ethically correct and values-based behavior, a continuously developed self-awareness, good understanding of the interdependencies of a larger system, and the ability to lead change and innovation towards sustainable development. In order to assess these dimensions from a developmental perspective, three action domains will be added to complete the proposed two-dimensional framework.

There have been significant advances in clarifying different dimensions of RL. Early on, the globally responsible leadership initiative (GRLI) highlighted ethically correct and values-based behavior and action in the context of understanding the interconnectedness of the world in their call for globally RL: “Globally responsible leadership is the global exercise of ethical, values-based leadership in the pursuit of economic and societal progress and sustainable development. It is based on a fundamental recognition of the interconnectedness of the world” (GRLI, 2005). Doh and Stumpf (2005) also emphasized ethical and values-based values behavior and action while also highlighting the importance of developing good relations with stakeholders: “[...] we suggest that the concept of responsible leadership and governance has three important dimensions, each of which can be observed through specific individual or organizational behaviors: (1) values-based leadership; (2) ethical decision making and (3) quality stakeholder relationships”. Schraa-Liu and Trompenaars (2006) advanced the thinking by combining the understanding of system interdependencies with the need for respecting multiple stakeholder relations: “Thus our definition of responsible leadership is that leaders are those who take responsibility towards the bottom-line and shareholders of the organization, while at the same time - through reconciliation - take responsibility towards integrating a diverse workforce, multicultural customers and suppliers, local and global communities, NGOs, environmental concerns and society at large. These leaders recognize and respect multiple demands, interests, needs and conflicts stemming
from diverse responsibilities and reconcile them by mobilizing and successfully engaging the organization and varying stakeholders."

Maak reinforced the importance of stakeholder relations and contributed a new element to the discussion, namely the active engagement of responsible leaders also outside their organization, in society: "[...] building, cultivating and sustaining trustful relationships to different stakeholders, both inside and outside the organization, and in coordinating responsible action to achieve a meaningful commonly shared business vision" (Maak, 2007). Pless further substantiated the idea of active civil engagement and suggested the need and capacity for leading change by embracing the idea of effectiveness as a further element to the catalog of requirements for RL: "a person who reconciles the idea of effectiveness with the idea of corporate responsibility by being an active citizen and promoting active citizenship inside and outside the organization" (Pless, 2007). Pless also embraced earlier definitions of ethically correct and values-based behavior and action and connected these with the idea of creating social change and sustainable value: "values-based and ethical principles driven relationship between leaders and stakeholders who are connected through a shared 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). This notion of capacity for change and active civil engagement was further strengthened by Quinn and D'Amato who added the importance of creating systemic change towards sustainable development: "Globally responsible leadership asks business organizations to pay attention to the impact their operations have on the planet – requiring a systemic view and addressing diverse economic, social and environmental issues." (Quinn & D'Amato, 2008).

GRULI's renewed and updated call for action for globally responsible leadership in many ways reflected the discussions of these initial years. It highlighted the interconnection between a good understanding of system interdependencies and values-based action that is aligned to social progress: "Responsible leadership implies the grounding of actions in a system of values, which recognize societal interdependence and long-term sustainable development. A truly integral perspective considering a responsibility for the organization and the broader system in which it operates is of essence (Küpers, 2011). If the firm wishes to lend meaning to its actions and wants to give a purpose to economic progress by aligning it to societal progress, ethics are essential to enlighten tough choices and to guide behavior. The main ethical question for our time is to choose what kind of world we want to build together with the immense resources we have at our disposal" (GRULI, 2008). Quinn and D'Amato's focus on company internal activities also rang true with GRLI which stressed the internal leadership dimension of RL highlighting the demands of being an effective change agent within one's organization: "Leadership is the art of motivating, communicating, empowering and convincing people to engage with a new vision of sustainable development and the necessary change that this implies. Leadership is based on moral authority. Moral authority requires convictions, character and talent" (GRULI, 2008). With this duality of internal and external focus, there was another emerging duality expressed by Dassah who points toward the duality between short-term economic thinking and long-term sustainability: "Responsible leaders see beyond their organisations, anticipate and embrace socio-environmental concerns and go beyond short-term profit to long-term sustainability as the ultimate mark of success." (Dassah, 2010).

Subsequently, two additional perspectives were added. Mirvis and colleagues DeJongh, Googins, Quinn and Van Velsor who presented a multidimensional perspective of RL, suggesting three different levels of RL. In addition to the traditional individual level they suggested an organizational and societal level: "Responsible leadership is a function of individual leader (the "Me"), of responsible organizations (the "We"), and of responsible business in the larger ecosystem of investors, consumers, competitors, regulators, and other interests (the "Us") that provide a context for and also have to act responsibly to legitimate and sustain responsible business leadership." (Mirvis, DeJongh, Googins, Quinn, & Van Velsor, 2010). This idea builds on the insight developed by Bolden and Gosling (2006) who have argued for a more discursive approach that goes beyond an individual notion of leadership to include also more collective leadership aspects.

It became increasingly apparent that defining RL required also a broader look at other disciplines such as psychology (Ketola, 2010). Vögtlin and Muff put a focus on the inner dimension of RL by pointing out the need for self-awareness and reflective capacity. Vögtlin pointed out the need for awareness and consideration of the consequences for all stakeholders: "Responsible leadership can thus be understood as the awareness and consideration of the consequences of one's actions for all stakeholders, as well as the exertion of influence by enabling the involvement of the affected stakeholders and by engaging in an active stakeholder dialogue." (Vögtlin, 2011a). Muff suggested more pointedly the need for an understanding of oneself: "Responsible leadership requires a deeper empathy and values-based ethic: an innate understanding of oneself, as well as of colleagues, organizations, communities, the environment, and how all these factors relate to one other." (Muff, 2013).

Increasingly, the descriptions of RL became more complex and comprehensive and started to shift to definitions, which may be interpreted as a sign of maturation. A group of scholars comprising both the field of leadership and sustainability attempted to shift from a description to a definition in the context of a call for a radically new purpose of management education, which was built on a reframing of the role of business as well as the understanding of leadership. De Jongh, Shrivastava, North, Haertle, Muff and Dyllick proposed a definition focused on the individual RL level: "Responsible leaders are therefore individuals who reconcile their personal interests or those of their organization within the context of a wider societal responsibility. They build and cultivate relationships with stakeholders to create shared value, taking into account the potential, long-term impact and indirect consequences of their actions." (Muff et al., 2013). Vögtlin's definition focuses strongly on the importance of stakeholder relations: "Responsible Leadership is to be understood as leading-action, which is
expressed by leaders being (1) conscious of the consequences of their actions for all stakeholders and thus include these stakeholders in their actions and decisions. Furthermore, it implies that leaders exert influence with the goal to (2) encourage an active stakeholder dialogues and public exchange of opinions, to which (3) any concerned party has the opportunity to participate, with the intention that (4) the interests of concerned stakeholders are considered and balanced in a discursive process” (Vögltlin, 2011b, translated from German).

In 2015, this debate and discussion around the dimensions of RL allowed us to weave these different dimensions into a formal definition: (based on Liechti, 2014).

A responsible leader demonstrates a deep understanding of the interdependencies of the system and the own person, is distinguished by an ethical and values-based attitude, and able to build long-term relations with different stakeholders embracing their needs, while initiating change towards sustainable development.

We have since worked with this definition, which comprises the five competency dimensions briefly outlined at the beginning of this section: creating, managing and securing good relations with multiple stakeholders, ethically correct and values-based behavior, highly developed self-awareness, good understanding of the interdependencies with a larger system, and the ability to lead change and innovation towards sustainable development. Table 1 provides a summative overview of the literature review and the competencies found at the time the model was developed:

This definition is—5 years later—still relevant. The increasingly obvious societal and environmental challenges and the louder demands by civil society to embrace the climate crisis has further validated the various aspects of the definition. The world has developed into even more complexity, highlighting the need for RL even more clearly than ever before (Knight, 2018).

While the definition of RL provides an answer to the question, “What does RL mean?” or “What are the key competencies of RL?” there is a second core question we want to address: “What are the relevant domains of action?” In order to define the domains of action, on the model uses the three action domains as used by Datar, Garvin, and Cullen (2010): knowing, doing, and being. Euler and Hahn (2007) refer to them as knowledge, skills, and attitudes. By putting together these two dimensions, we obtain a two-dimensional framework, the “Responsible Leadership Grid”. It includes the five competency dimensions and the three domains of action what results in 15 aspects overall (see Table 2).

These action dimensions seem to be passing the test of time with Laasch and Moosmayer (2016) pointing out the need to consider competencies in an action dynamic beyond knowing, thinking and doing to include relating, seeing, and becoming.

In the next section, the paper investigates the operationalization of these 15 competency areas into a comprehensive RL model with 45 sub-competencies.

### Table 1: Overview of key responsible leadership competencies from the literature review

| Author source | Elements |
|---------------|----------|
| Dassah, 2010, p. 30 | • Understanding the interdependencies of the system |
| Doh & Stumpf, 2005, p. 12 | • Ethically correct and values-based behavior and action • Relationship with stakeholders |
| GRLI, 2005, p. 15 | • Ethically correct and values-based behavior and action • Change and active engagement • Understanding the interdependencies of the system |
| GRLI, 2008, p. 10 | • Understanding the interdependencies of the system • Ethically correct and values-based behavior and action |
| GRLI, 2008, p. 11 | • Change and active engagement • Ethically correct and values-based behavior and action |
| Maak, 2007, p. 331 | • Relationship with stakeholders • Change and active engagement |
| Mirvis et al., 2010, p. 13 | • Understanding the interdependencies of the system |
| Muff, 2013, p. 498 | • Self-awareness • Understanding the interdependencies of the system • Ethically correct and values-based behavior and action |
| Muff et al., 2013, pp. 27–28 | • Understanding the interdependencies of the system • Relationship with stakeholders |
| Pless, 2007, p. 438 | • Ethically correct and values-based behavior and action • Relationship with stakeholders • Change and active engagement |
| Pless, 2007, p. 450 | • Change and active engagement |
| Quinn & D’Amato, 2008, p. 4 | • Understanding the interdependencies of the system • Change and active engagement |
| Schraai-Liu & Trompenaars, 2006, p. 140 | • Understanding the interdependencies of the system • Relationship with stakeholders |
| Vögltlin, 2011a, p. 59 | • Relationship with stakeholders |
| Vögltlin, 2011b, p. 107 | • Relationship with stakeholders |

### 3 | OPERATIONALIZING RESPONSIBLE LEADERSHIP INTO SUB-COMPETENCIES

The idea of “competencies” is not undisputed (Bolden & Gosling, 2006; Carroll, Levy, & Richmond, 2008; Hollenbeck, McCall, & Silzer, 2006) and may still be best framed by the philosophical underpinnings that consider a more integrated conception of competence. Hager and Beckett (1995) have pointed out that the tasks and the
person cannot be considered separately, and that competence cannot be reduced to lists and attributes. They propose an integrated view that considers the context of activity and actor in a holistic manner. Competence is, hence, relational rather than one-dimensional.

The question arises how these 15 aspects of RL in its five competency dimensions and three domains of action can be operationalized and later be made measurable? Based on a literature review and tested in our prototyping (see Section 5), we identified three sub-competencies for each of the 15 aspects resulting in 45 sub-competencies across the whole RL Grid. Let us look at each of the five competency dimensions one after the other to specify its nine specific sub-competencies.

Let us look first at the sub-competencies and its sources in the dimension of stakeholder relations (Table 3). In the knowledge domain we identified methods to identify and integrate legitimate stakeholder groups, seeing conflict as a foundation for creativity, and dealing with conflicting interests of stakeholders as most relevant sub-competencies. The skills domain we identified initiating and moderating a dialogue (authentic communication), respecting different interests to find a consensus (active listening, solving conflicts constructively), and developing long-term relationships (including building trust with others). The attitudes domain covers being empathic with a desire to help others, being open and trustworthy, and appreciating the positive in diversity.

In looking at the sub-competencies and sources in the ethics and values dimension we identified the following sub-competencies (Table 4): The knowledge domain comprises understanding dilemmas, in addition to knowing what is right and wrong, and knowing your own values. The skills domain is summarized into the following three aspects: critically questioning and adapting values, acting according to ethics and own values, and being a role model. The attitudes domain is grouped into being honest and integer, seeking fairness, and being responsible toward society and sustainability (serving the common good).

The sub-competencies and sources in the self-awareness dimension include the following elements (Table 5): In the knowledge domain the following sub-competencies are identified: understanding the importance of reflection in the learning process, knowing oneself (including own emotions, interests, needs, and mental models), and understanding one’s own strengths and weaknesses. The skills domain comprises learning from mistakes, reflecting on one’s behavior, mental models and emotions (including identifying and accepting own strengths and weaknesses), and adapting the communication style (using emotions consciously). The attitudes domain includes: reflecting about oneself, reflecting about one’s own behavior, as well as sharing one’s developmental challenges.

Table 6 provides an overview of the sub-competencies and its sources in the systems thinking dimension. The knowledge domain features understanding how the systems works, understanding the interdependencies and interconnections of the system, and understanding sustainability challenges and opportunities. The skills domain is grouped into dealing with complexity and ambiguity (including working across disciplines), estimating consequences of decisions on the system, seeing the big picture and the connections rather than the parts. The attitudes domain includes working across disciplines and boundaries, defending a long-term perspective, and providing a trans-generational perspective.

Table 7 summarizes the sub-competencies and sources in the change and innovation dimension. The knowledge domain includes understanding the significance of a motivating vision in change processes, understanding the drivers and enablers of innovation and creativity, as well as understanding the conditions, functioning, and
The skills domain is grouped into developing creative ideas (including out-of-box thinking, thinking in a visionary manner and advancing innovations), acting to bring about change and translating ideas into action, as well as questioning the status-quo and identifying steps of change for a sustainable future.

Table 8 provides an overview of all 45 sub-competencies of RL identified and summarized from an extensive literature review as well as some additions from the authors to come up with a balanced RL Grid (Muff, 2016). It provides a basis for measuring the new mindset required for “business action on social and environmental issues beyond incremental change and reputation-enhancing benefits to systemic change” (WBCSD, 2011, p. 7). Alternatively, in the words of Jeff Immelt, CEO General Electric, at the time: “Leadership in the 21st century is going to be more lateral and more connected. We are going to need to find people who are more persistent and more adaptable, who are more transparent in terms of what they are doing... Business will have to be networked with governments and society, and we need people who know how to do that.” (WBCSD, 2011, p. 7)

It has meanwhile been demonstrated that RL influences employees proenvironmental behavior (Afsar et al., 2019) underlining the applicability of making RL measurable so that RL can bring benefits to a manager’s sustainability leadership effectiveness.
TRANSLATING THE RESPONSIBLE LEADERSHIP GRID INTO A MEASURABLE ONLINE TOOL

The WBCSD has found that its member companies require sustainability leadership both at the top of the company as well as more broadly throughout the organization (WBCSD, 2011). Measuring competencies at the individual and team level is an essential asset in developing and growing sustainability within and across companies.

Finding a way to measure the 45 sub-competencies in practice and education required some hard thinking and innovation. While students tend to be willing to complete a traditional Likert-scale survey, our practice test company told us clearly that their leaders would not spend 20–30 min on completing a survey. We were also cautioned about the risk of receiving survey input with significant issues of social desirability. Our research partner Fehr Advice in Zurich, Switzerland, the applied arm of well-known behavioral economist Ernst Fehr from University of Zurich, offered an interesting solution that would resolve both the time and the social desirability issues. They provided a smart technology based on assessing response time that was found effective in circumventing the issue of social desirability while significantly reducing the overall survey time.

### TABLE 6 Sub-competencies and their sources in the systems thinking dimension

| Systems thinking | Competencies                                                                 | Source                                                                                      |
|------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| **Knowledge**    | Understanding how the systems works                                          | Formulation developed by authors based on other sub-competencies                           |
|                  | Understanding interdependencies and interconnections of systems              | Svanström et al., 2008, p. 348; Sterling & Thomas, 2006, p. 364                             |
|                  | Understanding sustainability challenges and opportunities                    | Svanström et al., 2008, p. 347                                                              |
| **Skills**       | Dealing with complexity and ambiguity (working across disciplines)           | Muff et al., 2013, p. 33, Pless & Schneider, 2006, p. 217                                   |
|                  | Estimating consequences of decisions on the system (identifying connections) | Marquardt & Berger, 2000, p. 24; Sterling & Thomas, 2006, p. 364, Svanström et al., 2008, p. 347 |
|                  | Seeing the big picture and the connections rather than the parts (thinking in systems) | Marquardt & Berger, 2000, p. 24; Muff et al., 2013, p. 33; Scalberg, 2005, p. 383; Sterling & Thomas, 2006, p. 364 Svanström et al., 2008, p. 348; Wiek et al., 2011, p. 207 |
| **Attitudes**    | Working across disciplines and boundaries                                     | Sterling & Thomas, 2006, pp. 362 and 363                                                    |
|                  | Defending a long-term perspective                                            | Based on Wilson, Kendall, & Brooks, 2006, p. 20                                              |
|                  | Providing a trans-generational perspective                                  | Muff et al., 2013, p. 33                                                                     |

### TABLE 7 Sub-competencies and their sources in the change and innovation dimension

| Change and innovation | Competencies                                                                 | Source                                                                                      |
|-----------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| **Knowledge**         | Understanding the significance of a motivating vision in change processes    | Formulation developed by authors based on other sub-competencies                           |
|                      | Understanding the drivers and enablers of innovation and creativity          | Formulation developed by authors based on other sub-competencies                           |
|                      | Understanding conditions, functioning and dynamics of change processes       | Formulation developed by authors based on other sub-competencies                           |
| **Skills**            | Developing creative ideas (out-of-box thinking, advancing innovation)       | Scalberg, 2005, S. 383; Wiek et al., 2011, p. 209                                           |
|                      | Acting to bring about change and translating ideas into action (involving and inspiring others) | Sterling & Thomas, 2006, pp. 360 and 363, Svanström et al., 2008, p. 348, Wiek et al., 2011, p. 210 |
|                      | Questioning the status-quo and identifying steps of change for a sustainable future (visionary thinking) | Muff et al., 2013, p. 33; Svanström et al., 2008, pp. 347–348; Wiek et al., 2011, p. 207 |
| **Attitudes**         | Being open, curious and courageous                                          | Svanström et al., 2008, p. 348                                                              |
|                      | Being flexible and adaptable for change                                       | Muff, 2012, p. 655                                                                         |
|                      | Being visionary in finding solutions for society’s problems (and having endurance) | Muff et al., 2013, p. 33, Svanström et al., 2008, p. 348                                   |
Their technology is based on the measurement of user reaction times, taking into account reading speed. The advantage of this assessment lies in the possibility to thus mitigate the effects of social desirability. Nonveridical responding is reflected in longer response times, which are as a result discounted or excluded. The tool measures an association strength for each survey item (a range from $-1$ to $+1$, after re-coding of negatively phrased survey questions, with $+1$ representing a positive association). The assessment tool works with the initial first instinctive reaction a respondent has to a question, preventing and excluding the option to reflect and thus to select a socially desirable answer. The result of a participant's answer is not dichotomous, but a score indicating the extent to which a participant agreed or disagreed to a particular statement, resulting in a more nuanced reflection of respondents' skills and attitudes than standard survey questions. The survey is completed in less than five minutes and needs to be taken without interruption in order to generate relevant reaction times and results. The online tool is called the "Competency assessment for responsible leadership" (CARL) and can be freely accessed either through the dedicated website www.carl2030.org.

A joined research team consisting of the authors and the researchers at Fehr Advice compared the operationalized items of our literature-based survey questions with the existing set of surveys in the area of human decision-making. At the same time, we reviewed existing leadership related surveys to covers areas that were not addressed by the existing range of their online tools. These survey included the socially responsible leadership scale (Dougan, 2006), the Global Executive Leadership Inventory (Kets de Vries, 2005) and the Ethical Leadership Scale (Brown, Trevino, & Harrison, 2005), Furthermore, formulated questions from Hosenfeld (2010), Kotrubczik (2008a) and Scherhorn, Haas, Hellenthal, and

| TABLE 8 | Responsible leadership grid consisting of 45 sub-competencies (Muff, 2016) |
|---------|-------------------------------------------------|
|Domains of action | Knowledge (knowing) | Skills (doing) | Attitude (being) |
| Stakeholder relations | 1. Methods to identify and integrate legitimate stakeholder groups | 4. Initiating and moderating a dialogue | 7. Being empathic with a desire to help others |
| | 2. Seeing conflict as a foundation for creativity | 5. Respecting different interests to find a consensus | 8. Being open and trustworthy |
| | 3. Dealing with conflicting interests of stakeholders | 6. Developing long-term relationships | 9. Appreciating the positive in diversity |
| Ethics and values | 10. Knowing what is right and wrong | 13. Critically questioning and adapting values | 16. Being honest and integer |
| | 11. Knowing your own values | 14. Acting according to ethics and own values | 17. Seeking fairness |
| | 12. Understanding dilemmas | 15. Acting as a role model | 18. Being responsible towards society and sustainability |
| Self-awareness | 19. Understanding the importance of reflection in the learning process | 22. Learning from mistakes | 25. Reflecting about oneself |
| | 20. Knowing oneself | 23. Reflecting on one's behavior, mental models and emotions | 26. Reflecting about one's own behavior |
| | 21. Understanding one's own strengths and weaknesses | 24. Adapting the communication style | 27. Sharing one's developmental challenges |
| Systems thinking | 28. Understanding how the systems works | 31. Dealing with complexity and ambiguity | 34. Working across disciplines and boundaries |
| | 29. Understanding inter-dependencies and inter-connections of systems | 32. Estimating consequences of decisions on the system | 35. Defending a long-term perspective |
| | 30. Understanding sustainability challenges and opportunities | 33. Seeing the big picture and the connections rather than the parts | 36. Providing a trans-generational perspective |
| Change and innovation | 37. Understanding the significance of a motivating vision in change processes | 40. Developing creative ideas | 43. Being open, curious and courageous |
| | 38. Understanding the drivers and enablers of innovation and creativity | 41. Acting to bring about change and translating ideas into action | 44. Being flexible and adaptable for change |
| | 39. Understanding conditions, functioning and dynamics of change processes | 42. Questioning the status-quo and identifying steps of change for a sustainable future | 45. Being visionary in finding solutions for society’s problems |

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Seibold (2012) were also reviewed, amended for the response-time type of situation and subsequently tested.

Appendix 1 shows an overview of the 45 sub-competency aspects and the initially considered and ultimately selected online survey questions generated by the behavior economics survey methods developed by Fehr Advice. The research team identified a total of 127 potential questions that may match and selected a final 16 questions that were deemed suitable to assess the responsible leadership competencies identified. These questions were generated from four online survey sources (Hexaxo survey, Playfulness survey, Global Preferences survey, and the Dark triad survey). These were complemented with an additional eight own formulations that were developed specifically by the research team in this context, adding up to 24 survey questions using the time-sensitive online survey technology developed by Fehr Advice. A total of 21 existing offline survey questions from the Global Executive Leadership Inventory (GELI), the Socially Responsible Leadership Scale (SRLE-R3), Hosenfeld, Kotrubczik and own developed questions for the education prototype were used in the area of self-awareness and across the other four areas of RL to ensure suitability with the original sub-competencies. Of the 21 offline survey questions, eight needed to be adapted after an initial online testing and three existing online questions were recoded (reversed formulation for better functionality). The resulting survey was both validated by four subject experts and initially tested by about 10 persons for clarity, understanding, and redundancy. Of the amended eight off-line questions, five originated from own formulations, two from Kotrubczik and one from the Socially Responsible Leadership Scale. All three online questions that were amended originated from the Playfulness survey. Table 9 provides an overview of the different survey questions’ sources:

A comprehensive overview of the finalized questions is provided in the next five tables below. Table 10 provides an overview of the questions and sources of the stakeholder relations dimension. In total, four of the nine questions came from the tested Fehr behavioral

### TABLE 9  Summary overview of sources for survey questions

| Source       | No. of items | Source detail                                           |
|--------------|--------------|--------------------------------------------------------|
| 21 Offline surveys | 4 | Global executive leadership inventory                   |
|              | 3 | Hosenfeld                                               |
|              | 2 | Socially responsible leadership scale                   |
|              | 2 | Kotrubczik                                              |
|              | 10| Own formulation (used with students)                    |
| 24 Online surveys   | 5 | Hexaxo survey (Fehr online tested)                      |
|              | 5 | Playfulness survey (Fehr online tested)                 |
|              | 5 | Global preferences survey (Fehr online tested)          |
|              | 1 | Dark triad survey (Fehr online tested)                  |
|              | 8 | Own formulation (Fehr online tested)                    |
| 45 Total     | 45| Total items                                            |

### TABLE 10  Overview of CARL online survey questions for stakeholder relations

| Code | Attribute                                      | Source of item                                           | Survey question                                                                 |
|------|-----------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------|
| SK1  | Methods to identify and integrate legitimate stakeholder groups | HEXAXO survey (Fehr) Q40                                 | The first thing that I always do in a new place is to make friends.             |
| SK2  | Seeing conflict as a foundation for creativity | Socially responsible leadership scale (SRLE-R3) by Dougan (2006) | Conflicts can be a basis for creativity.                                        |
| SK3  | Dealing with conflicting interests of stakeholders | Own formulation (BE19 adapted and recoded)               | Finding consensus among different stakeholders is a waste of time.             |
| SS1  | Initiating and moderating a dialogue           | Own formulation (BE07 adapted)                           | I am able to initiate and moderate a dialogue among stakeholders.              |
| SS2  | Respecting different interests to find a consensus | HEXAXO survey (Fehr) Q33                                 | I tend to be lenient in judging other people.                                   |
| SS3  | Developing long-term relationships             | Own formulation (BE03)                                   | Most of my friends I have known for many years.                                |
| SA1  | Being empathic with a desire to help others    | Playfulness survey (Fehr) Q3 adapted                     | I like to cheer up other people and make them happy.                           |
| SA2  | Being open and trustworthy                      | Global preferences survey (Fehr) Q8                      | I assume that people have only the best intentions.                            |
| SA3  | Appreciating the positive in diversity         | Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p. 14) | I like working in diverse teams.                                               |
economics online tools, and five were adopted from traditional RL offline surveys.

Table 11 shows the questions and their sources for the nine sub-competencies in the ethics and values domain. Five questions were developed based on own formulations, three of them first tested with students and two developed for the online survey. The remaining four questions were generated directly from the Fehr Advice online tools.

Table 12 lists the questions and their sources for the nine sub-competencies in the self-awareness dimension. None of the existing online survey questions by Fehr proved relevant and insights from existing leadership surveys including the Global Executive Leadership Inventory (GELI), the Socially Responsible Leadership Scale (SRLE-R3), Hosenfeld and Kotrubczik were used together with own formulations developed and tested prior to their adaptation to the online response-time survey.

Table 13 indicates the survey questions and related sources for the nine areas in the systems thinking dimension. Five questions were developed based on insights gained from the RL grid resulting in own formulations of which three were tested in offline surveys. Four questions were generated from Fehr Advice. There is a clear advantage of using existing response-time questions given their profound testing of more than 1000 completed survey as compared to translating questions using different survey methodologies, such as a Likert-scale.

Table 14 summarizes the survey questions and related sources for the nine sub-competencies in the change and innovation dimension. In this area, a mixture of sources was selected for a best result with two questions from the RL literature (the SRLS-R3 and Kotrubczik), two questions each from the Playfulness and the Global Preferences survey (Fehr), as well three own formulations of which two generated for the benefit of this response-time online survey.

### 5 | Prototyping the Operationalization for the Online Questionnaire

In order to prototype the process of operationalizing the 45 competencies into an online questionnaire and tool we used four different assessments:

1. The survey questions were tested during a two-year period in a suitable Master course at a university in order to assess the relevance of the RL dimensions in a real-life situation.
2. The survey was amended to fit the limited time availability of business practitioners in a sizable in-company assessment exercise, with the purpose to understand the usefulness and applicability of the survey results and the RL Grid in real-life.
3. The outcomes of the first and the second assessments were shared with thought leaders from academia and practice in order to highlight potential shortcomings and challenges.
4. The online tool was exposed to a Beta-test involving 103 users in order to allow the required calibration of the response rates and the generation of the automated results.

#### 5.1 | Survey question assessment in a Master course

A Master course in the area of applied business sustainability using a student-based pedagogy was selected to test the operationalization of the RL Grid. The course was considered due to its innovative and experiential approach that was considered an ideal platform for developing responsible leadership competencies in a Master's level university course (Dyllick & Muff, 2014). The 12-week Master course called
"Strategies for Sustainable Development" at the University of St. Gallen was reviewed for a suitable educational practice test for the RL operationalization. The authors reviewed the end-of-course reflection papers of students, which represented a mandatory requirement for completing the course and represented an integral part of the final grade. These papers were coded in accordance to the RL definitions in order to assess the suitability for prototyping an RL operationalization using this course.

| Code | Attribute | Source of item | Survey question |
|------|-----------|----------------|----------------|
| **Self-awareness** | | | |
| AK1 | • Understanding the importance of reflection in the learning process | Own formulation (IB01 adapted and recoded) | The ability to reflect is quite irrelevant for learning new things. |
| AK2 | • Knowing oneself | Hosenfeld (2010, p. 212) | I think I know myself very well and how I behave in different situations. |
| AK3 | • Understanding one’s own strengths and weaknesses | Own formulation (IB07) | I am aware of my strengths and weaknesses. |
| AS1 | • Learning from mistakes | Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p. 14) | I’ve never done the same mistake twice. |
| AS2 | • Reflecting on one’s behavior, mental models and emotions | Kotrubczik (2008b), p. 45—recoded | I hardly ever reflect on my values, ways of thinking, and ways of behaving. |
| AS3 | • Adapting the communication style | Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p. 14) | I adapt my communication according to the situation. |
| AA1 | • Reflecting about oneself | Global Executive Leadership Inventory (GELI) by Kets de Vries (2005, p. 14) | I’m interested in my own mistakes so I can learn from them. |
| AA2 | • Reflecting about one’s own behavior | Hosenfeld (2010, p. 212) | I like to exchange ideas with others regarding how to improve my behavior. |
| AA3 | • Sharing one’s developmental challenges. | Hosenfeld (2010, p. 212) | I ask others about areas in which I have potential for improvement. |

| **Systems thinking** | | | |
| TK1 | • Understanding how the systems works | Own formulation | I think through a problem until I understand it in detail. |
| TK2 | • Understanding inter-dependencies and inter-connections of systems | Playfulness survey (Fehr) Q5 recoded | I dislike working out solutions for very complex problems. |
| TK3 | • Understanding sustainability challenges and opportunities | Own formulation | The welfare of people and nature is important to me. |
| TS1 | • Dealing with complexity and ambiguity | HEXAXOX survey (Fehr) Q53 | Even in an emergency I wouldn’t feel like panicking. |
| TS2 | • Estimating consequences of decisions on the system | HEXAXOX survey (Fehr) Q20 recoded | I make decisions based on the feeling of the moment rather than on careful thought. |
| TS3 | • Seeing the big picture and the connections rather than the parts | Own formulation (recoded) | I sometimes get lost in details. |
| TA1 | • Working across disciplines and boundaries | Own formulation (SY03) | When looking for solutions I integrate insights from diverse disciplines. |
| TA2 | • Defending a long-term perspective | Playfulness survey (Fehr) Q2 | I prefer to plan ahead rather than living from day to day. |
| TA3 | • Providing a trans-generational perspective | Own formulation | When making decisions one should also consider future generations. |
During a 2-year period, the RL operationalization was used both before and after the course as a way to test the operationalization with multiple-choice questions. The survey investigated to what degree and extent this specific course develops competencies of responsible leaders.

Both the execution and completion objectivity criteria were confirmed by ensuring identical instructions to all students when completing the survey, and the multiple-choice survey. The reliability was evaluated and confirmed through the Cronbach-alpha, albeit only slightly in some domains (the Cronbach-alpha should be significantly above 0.5 but is only slightly above 0.5 in some areas). Given the small sample size \((n = 33)\) for the quantitative survey, the Wilcoxon test for normal distribution was not granted, as the data were ordinal rather than interval scaled. The boxplot in Figure 1 visually compares these averages of 5.05 (before) versus 5.23 (after) on a scale of 1 (entirely wrong) to 7 (entirely correct) indicating a “very significant” statistical relevance \((p\text{-value of } .0087)\).

As it is insightful to look at the opportunities presented by using a RL tool to assess the effectiveness of an educational learning experience, a summary of the learning gained from the RL-based survey follows. The results show that gains in competency are particularly pronounced in the dimensions of ethics and values, stakeholder relations and change and innovation. Moreover, students have progressed significantly in all three domains of action (knowing, doing, and being), albeit not to the same degree in each of the competency dimensions.

Table 15 provides an overview of the competency gains by dimension and by differentiating the statistical relevance by dividing the \(p\)-value results into two separate groups of significance \((X = p < .05\) and \(Y = p < .01)\), the later thus showing a very strong statistical relevance of the results as compared to only a strong statistical relevance of the results of the former. Negative change (NC): These items relate to

### TABLE 14

Overview of CARL online survey questions for the change and innovation dimension

| Code | Attribute | Source of item | Survey question |
|------|-----------|----------------|-----------------|
| CK1  | Understanding the significance of a motivating vision in change processes | Socially responsible leadership scale (SRLS-R3) by Dougan (2006) – improved and recoded | To make change happen successfully, having a vision is not important. |
| CK2  | Understanding the drivers and enablers of innovation and creativity | Own formulation | I know what it takes to be innovative and creative. |
| CK3  | Understanding conditions, functioning and dynamics of change processes | Own formulation | I am aware of the conditions and dynamics of change processes. |
| CS1  | Developing creative ideas | Playfulness survey (Fehr) Q9 adapted | I like developing new ideas with a playful approach. |
| CS2  | Acting to bring about change and translating ideas into action | Global preferences survey (Fehr) Q1 adapted and recoded | I am generally quite unwilling to take risks to bring about change. |
| CS3  | Questioning the status-quo and identifying steps of change for a sustainable future | Own formulation (VE09 adapted) | I often question the status-quo and initialize change. |
| CA1  | Being open, curious and courageous | Global preferences survey (Fehr) Q17 adapted | Excitement, novelty, and challenge in life are very important things to me |
| CA2  | Being flexible and adaptable for change | Playfulness survey (Fehr) Q14 | You shouldn’t take everyday routine too seriously, but rather improvise if something doesn’t work out. |
| CA3  | Being visionary in finding solutions for society’s problems | Kotrubczik (2008b), p. 45 – improved | It is important to me to find solutions to problems that are relevant to society. |

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**FIGURE 1** | Boxplot of the average self-assessment scores before and after the course [Colour figure can be viewed at wileyonlinelibrary.com]
and has allowed opening the research field more widely. To see that the prototype approach has provoked such considerations, it is encouraging. Six aspects emerge as particularly important (in order of size of difference), covering all domains of action (knowing, doing, and being) as well as most competency dimensions (with the exception of change and innovation).

In summary, the prototype that operationalized the RL definition has proven very useful and insightful in assessing responsible leadership competencies in an educational practice setting. It is encouraging to see that the prototype approach has provoked such considerations and has allowed opening the research field more widely.

### 5.2 Testing the usability of the RL grid for business

A practice application was used to clarify and improve the prototype. A leading Swiss telecom provider wanted to know how their managers self-assessed their responsible leadership competencies. The company had a desire in particular to (a) undertake a RL-related self-assessment of its management and (b) assess their existing leadership development programs and trainings in view of their RL impact. The organization had previously undergone an internal process to define what RL meant and had subsequently engaged with Business School Lausanne to assess their findings. The prototype was translated into a company internal survey tool to be used by a representative sample (n = 89) of their three management levels (Zoppi, 2016). The survey triggered the identification of three competency areas as “blind-spots” areas, which were underdeveloped. The RL grid with its 15 aspects and 45 sub-competencies proved an insightful tool for the company and its concern with analyzing and developing specific RL competencies. In addition, the RL grid helped the company to display their existing training offers in a clear way that highlighted overlaps and gaps. Based on a number of follow-on interviews allowed the company to translate the identified blind spots into actions to be added to their training and development priorities (Zoppi, 2016).

### 5.3 Expert review of the learning and insights

A group of experts of Responsible Leadership scholars from theory and practice as well as HR representatives of the involved company met to discuss the outcome of the responsible leadership assessment in the company, in the context of corporate responsibility and business sustainability. The experts reviewed previous prototyping steps in an attempt to triangulate learning around the RL prototype. These insights as well as the interconnection with business sustainability and its transformative common space are reflected in a conceptual article on the topic (Muff, 2016).

### 5.4 Beta-testing of the online tool for calibration

The Beta-test sample of 102 participants served to calibrate the social desirability factor using the association strength of the responses with the question at +0.7. Responses that occurred with an association strength of +0.7 and higher were considered as “completed,” lower results were rejected due to the risk of social desirability. The Beta-test furthermore served to refine the response coding per

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**TABLE 15** Overview of competency gains in the responsible leadership grid of Liechti (2014)

| Competency aspect | Competency dimension | Domain of Action | Before (avg. value) | After (avg. value) | Difference | p-value |
|-------------------|----------------------|------------------|---------------------|-------------------|------------|---------|
| Stakeholder relations | Y | X | X | Y | |
| Ethics and values | Y | Y | Y | |
| Self-awareness | X | NC | |
| Systems thinking | Y | NC | |
| Change and innovation | X | X | X | |

**TABLE 16** Detailed overview of competency gains in the responsible leadership grid of Liechti (2014)

| Competency aspect | Competency dimension | Domain of Action | Before (avg. value) | After (avg. value) | Difference | p-value |
|-------------------|----------------------|------------------|---------------------|-------------------|------------|---------|
| Initiating and moderating a dialogue | Stakeholder relations | Skills | 4.36 | 5.18 | 0.82 (19%) | .0001 |
| Critically questioning and adapting one’s own values | Ethics and values | Skills | 3.73 | 4.39 | 0.67 (18%) | .0095 |
| Understanding interdependencies, functioning and connections of systems | Systems thinking | Knowledge | 5.39 | 6.15 | 0.76 (14%) | .0016 |
| Including ethical aspects in decisions | Ethics and values | Skills | 4.82 | 5.45 | 0.64 (13%) | .0055 |
| Feeling responsible towards sustainable development | Ethics and values | Attitude | 5.18 | 5.70 | 0.52 (10%) | .0047 |
| Knowing oneself, one’s emotions, interests and needs | Self-awareness | Knowledge | 5.27 | 5.79 | 0.52 (10%) | .0014 |
A completed answer resulted in one point in a given dimension. As each of the 15 competency areas consisted of three aspects, three correct answers resulted in a green code (or 3 points), two in a yellow (or 2 points) and one in an orange code (or 1 point). No correct answers resulted in a red code (or zero points).

The calibration procedure has enabled us to verify the scale to attribute to the various competency level in each of the 15 competency areas, by assigning the value 1 to zero of the three elements acquired, the value 2 for having one of the three elements acquired, value 3 for two and value 4 for all three competencies acquired and developed (see Figure 2). The maximum value for all 15 competency areas would thus 15 times 4 equals 60.

We adjusted the three action domains in order to weight the varying difficulties in obtaining the different domains of action. Using a scale of 100%, we attributed 25% to "knowledge," 33% to "skills" and 42% to "attitude." Alternatively, expressed differently, "knowledge" is weighted at 60% of "attitude" and "skills" is weighted at 80% of "attitude." Using this action domains scale, we translate the original competency areas value of 60 into a scale 100 points, thus weighting the five competency areas of "knowledge" with a factor of 1.25, the five competency areas of "skills" with a factor of 1.25 and the five competency areas with a factor of 2.1 (see Table 17).

These calibrations and adjustments allow generating an overall score for the competencies of responsible leadership on a scale of 0 to 100. This provides a sample with an overall sense of where he is at a given point. Furthermore, we are providing insight into how a sample is doing as compared with the maximum value for the five competency dimensions and the three action domains (see Table 18).

Since its inception, the tool has been used widely in business education around the world.

### 6 | POTENTIAL APPLICATIONS AND USE FOR BOTH BUSINESS AND EDUCATION

There is an increasing understanding that there is a need for a fundamental mindset shift from “inside-out” to “outside-in” perspective to enable companies to contribute positively to society (Dyllick & Muff, 2016). This organizational mindset shift is strongly connected to an individual mindset shift from a “self-oriented” to a “systems-oriented” rationale. A “self-oriented” rationale is defined by mostly egotistic values combined with short-term thinking. A “system-oriented” rationale encompasses mostly altruistic values and long-term thinking (Pureza and Lee, 2020).

This research journey started with three clear demands from practice:

1. Determining the current state of RL competencies - for an individual or for a group.
2. Assessing the short and long-term effectiveness of RL competencies development.
3. Evaluating existing training offerings in terms of their RL impact.

Our prototyping suggests that the CARL is an answer to the first two points (1) and (2).

#### 6.1 | Determining the degree and extent of existing responsible leadership competencies for an individual and for a group

To date, several hundred of individual users have used the online assessment to determine their personal responsible leadership competencies. The online survey tool generates automatically a free personal

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**TABLE 17** Competency areas and action domains scaling overview

| COMPETENCIES       | Knowing | Doing | Being |
|--------------------|---------|-------|-------|
| Mature             | 4       | 4     | 4     |
| Developed          | 3       | 3     | 3     |
| In development     | 2       | 2     | 2     |
| Underdeveloped     | 1       | 1     | 1     |
| Missing            | 0       | 0     | 0     |
| **Total**          | 60      | 20    | 20    |

| DOMAINS WEIGHT      | Knowing | Doing | Being |
|--------------------|---------|-------|-------|
| Stakeholder relations | 1.25    | 1.65  | 2.1   |
| Ethics and values   | 1.25    | 1.65  | 2.1   |
| Self-awareness      | 1.25    | 1.65  | 2.1   |
| Systems thinking    | 1.25    | 1.65  | 2.1   |
| Change and innovation | 1.25  | 1.65  | 2.1   |

| **Total**           | 100.0   | 25.0  | 33.0  | 42.0  |
|---------------------|---------|-------|-------|-------|
| % of total          | 12.5%   | 25.0% | 33.0% | 42.0% |
profile with an overview of those competencies that can still be improved and developed. A person can retake the survey repeatedly and self-assess her improvement over a self-selected period of time. A growing number of institutions of higher education (see point 2) have started to use the tool to assess the profile of a group of students as a professor starts a given course.

### 6.2 Assessing the short and long-term effectiveness of responsible leadership competencies development

The University of St. Gallen and Business School Lausanne, both in Switzerland, University of Louvain in Belgium, IPMI International Business School in Indonesia, South East Asia, Case Western University in the United States and the University Stellenbosch in South Africa use the assessment as a way to:

- Enable their students to self-generate their individual RL profile before and after a course.
- Generate class profiles of courses, programs, or entire degrees to assess a group’s RL profile and development progress before and after an intervention.

Let us look at the example of a before and after assessment of an MBA course conducted at the Catholic University of Louvain in Belgium in Spring 2017. Figures 3 and 4 show how such an evolution might look like for a program comparing the RL competencies of an entire class at the beginning of a program (Figure 3) versus the end of a program (Figure 4). The teaching faculty or the program management can use such information to understand which areas of RL may have been insufficiently addressed during the program and can discuss with the faculty how this might be improved in a next year. We are starting to calibrate the development by assessing the difference of before and after.

A comparative analysis of the before and after assessments, completed by 10 and 8 participants respectively, allows the participants and lecturer to observe the following developments (see Table 19):

- The course brought an overall increase in responsible leadership competencies of 16%.
- The action domain “attitude” (being) was most significantly increased, by 55%.
- The most change in the competency dimensions occurred in terms of “stakeholder engagement” and “self-awareness” (33 and 34%, respectively).

#### Table 18

| Competency dimensions (rows) | Knowing (Knowledge) | Doing (Skills) | Being (Attitudes) |
|------------------------------|---------------------|----------------|-------------------|
| Stakeholder relations        | 2                   | 3              | 2                 |
| Ethics and values            | 3                   | 3              | 2                 |
| Self-awareness               | 4                   | 2              | 2                 |
| Systems thinking             | 3                   | 2              | 3                 |
| Change and innovation        | 3                   | 4              | 2                 |

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- The most change in the competency dimensions occurred in terms of “stakeholder engagement” and “self-awareness” (33 and 34%, respectively).

#### Table 18

Example of competency dimensions and action domains assessment against the maximum score [Colour table can be viewed at wileyonlinelibrary.com]
It might well be interesting to assess what interventions may have contributed to significant positive changes. Participants as well as interveners are excellent sources for finding potential avenues of answers to this question. Given a change in the number of respondents, we suggest not drawing conclusions from variations below 20% change; these may have causes that are beyond the means of analysis available here. We have noted that negative change does not necessarily imply a loss of a competency, but reflects the increase of awareness of a participant because of having been exposed to certain concepts, experiences, or reflections which may result in participants rating their knowledge, skills or competencies lower than previously estimated in any given dimension. It is therefore not necessarily appropriate to question too much a reduction of a competency, unless before-after invention show consistency in such data over time.

As indicated, pedagogically trained and experienced faculty may be interested to look at a class of students take a “before–after” assessment, in order to understand blind spots and learning opportunities at the beginning of a course. Such insight may serve as an additional measure to understand the impact of any learning intervention over a given period at the end of the course. Given the current limitations of suggestions provided by the tool in terms of how to improve a current level of responsibility, it is considered premature to share course-based surveys with faculty that is not specifically trained in understanding the impact of a preassessment of a class prior to teaching. It has been suggested that such pre-assessments highly influence a teacher (positively and negatively) and it remains yet to be better understood how we can set up this survey to limit unintended negative consequences of such sharing of data at a course level.

### 6.3 Evaluating a broad range of existing training offerings in terms of responsible leadership impact

The experience with the Swisscom company case has shown that by using the RL grid, the human resources team was able to assess the effectiveness of their large training and development offer in accordance to the 15 areas identified, allowing them to understand which dimensions where not addressed at all and where they may have overlapping offers that could be optimized in a next phase.

With Millennials entering the workforce, it becomes clear to what degree this new generation is attracted to sustainable companies (Alonso-Almeida Del Mar & Llach, 2018). This underlines not only the need but also the opportunity for companies to assess how it can upgrade its training to develop RL across its organization and leaders at all levels.
As a result of a number of business schools around the world having started using this assessment, it has been suggested, that this online tool might well be way to answer to the question posed by the U.N. Principles of Responsible Management Education (UN PRME), namely to what degree do you actually educate responsible leaders. Business School Lausanne in Switzerland, for instance, has started to do a survey for all incoming students in all programs (bachelor to doctoral) since September 2016 and at the end of studies across all the same programs. They are using the CARL in combination with the SuliTest (www.sustainabilitytest.org) as a way to assess progress of students in two dimensions of their vision: responsibility and sustainability.

It is our hope that the work reflected in this paper and the resulting CARL tool which has been in use for nearly 4 years now, contributes to the development of more responsible leaders both as continuing development at the firm and during a more formal business education.

In a time where companies are challenged to not only reduce their negative footprint but also to focus on increasing their positive handprint, a model and tool that measures both the “avoid harm” and the “do good” behaviors of leaders and managers (Stahl & De Luque, 2014) must serve—so we trust—a positive impact of business.

7 | CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

This paper demonstrates that the three questions posed by Managers can indeed be answered:

1. The CARL provides a pragmatic and rapid way to determine the state of existing RL competencies of individuals and groups.
2. The CARL assesses the short and long-term effectiveness of dedicated leadership development for a team, division or entire company; and also for a single class, course, or entire program;
3. The RL Grid with its 15 areas provides a pragmatic way of evaluating existing training offerings in terms of RL impact.

The paper, which has existed for a long period as a white paper, has also served to contribute to one of the three conceptual shifts in the field of responsible management studies, namely the shift that transformed the CSR and business ethics discussion from an organizational to an individual level, where we look at the responsible manager (Laasch, 2018).

The practical application of RL shall also serve the need for an entrepreneurship education. Lans, Blok, and Wesselink (2014) point out that there is a need for more work in linking sustainability education and entrepreneurship education.

Last but not least, this article seeks to contribute to the development of measures and assessment, one of five areas that require further research in the field of responsible leadership theories, as pointed out by Waldman and Balven (2014).

Future data that will be compiled with the current and future use of the online tool CARL will allow the further refinement and development of how we best define RL. The tool will generate insight into which of the dimensions are most challenging to develop and which may actually decrease once a participant gains awareness of a given dimension (as is shown in Section 6 in the area of knowledge). Data collected will support further research that will allow a refinement and improvement of the tools and its applications. The current simplistic recommendations that the online tool automatically generates to every user and group can and must be further developed once sufficient data is available. The same applies to the initial attempt of quantifying the progress as outlined in Section 6.

Limitations of this paper include the explorative nature of the approach taken in this paper. The comparative research and the subsequent prototyping in education and practice are solid in their methods as far as such methods may generate solid approaches. While a majority of the survey questions of the online tool have been tested in similar situations, the tool itself does need further practice tests that can only be provided with the usage of the tool. It is important to analyze the effectiveness of the tool once sufficient additional data has been generated.

The CARL serves as a database to enrich the current discourse of RL with real-life data that is sought to further advance the related discussion. Thanks to all current and future users and to all those colleagues active in further advancing responsible leadership on an individual, an organizational and a societal level.

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## APPENDIX 1

Overview of 45 RL sub-competencies as compared with the response-time survey questions

| No. | Competency                | Mastery               | Attribute                                                                                           | Hexago personality | Dark Triad | Playfulness | Global preferences | Total |
|-----|---------------------------|-----------------------|-----------------------------------------------------------------------------------------------------|---------------------|------------|-------------|--------------------|-------|
| 1   | Stakeholder relations     | Knowledge (knowing)   | • Methods to identify and integrate legitimate stakeholder groups                                   | 2                   | 0          | 0           | 0                  | 2     |
| 2   | Stakeholder relations     | Knowledge (knowing)   | • Seeing conflict as a foundation for creativity                                                    | 5                   | 0          | 0           | 0                  | 5     |
| 3   | Stakeholder relations     | Knowledge (knowing)   | • Dealing with conflicting interests of stakeholders                                                 | 1                   | 3          | 0           | 0                  | 4     |
| 4   | Stakeholder relations     | Skills (doing)        | • Initiating and moderating a dialogue                                                              | 0                   | 2          | 0           | 0                  | 2     |
| 5   | Stakeholder relations     | Skills (doing)        | • Respecting different interests to find a consensus                                                | 3                   | 0          | 1           | 0                  | 4     |
| 6   | Stakeholder relations     | Skills (doing)        | • Developing long-term relationships                                                                | 0                   | 0          | 1           | 0                  | 1     |
| 7   | Stakeholder relations     | Attitude (being)      | • Being empathic with a desire to help others                                                        | 1                   | 0          | 1           | 2                  | 4     |
| 8   | Stakeholder relations     | Attitude (being)      | • Being open and trustworthy                                                                         | 1                   | 0          | 0           | 1                  | 2     |
| 9   | Stakeholder relations     | Attitude (being)      | • Appreciating the positive in diversity                                                             | 2                   | 0          | 3           | 1                  | 6     |
| 10  | Ethics and values         | Knowledge (knowing)   | • Knowing what is right and wrong                                                                    | 2                   | 4          | 0           | 0                  | 6     |
| 11  | Ethics and values         | Knowledge (knowing)   | • Knowing your own values                                                                            | 0                   | 0          | 0           | 0                  | 0     |
| 12  | Ethics and values         | Knowledge (knowing)   | • Understanding dilemmas                                                                            | 0                   | 2          | 0           | 0                  | 2     |
| 13  | Ethics and values         | Skills (doing)        | • Critically questioning and adapting values                                                          | 1                   | 2          | 0           | 1                  | 4     |
| 14  | Ethics and values         | Skills (doing)        | • Acting according to ethics and own values                                                           | 2                   | 0          | 0           | 1                  | 3     |
| 15  | Ethics and values         | Skills (doing)        | • Being a role model                                                                                 | 2                   | 0          | 2           | 0                  | 4     |
| 16  | Ethics and values         | Attitude (being)      | • Being honest and integer                                                                           | 2                   | 3          | 0           | 0                  | 5     |
| 17  | Ethics and values         | Attitude (being)      | • Seeking fairness                                                                                    | 1                   | 0          | 0           | 2                  | 3     |
| 18  | Ethics and values         | Attitude (being)      | • Being responsible towards society and sustainability                                               | 0                   | 0          | 0           | 3                  | 3     |
| 19  | Self-awareness            | Knowledge (knowing)   | • Understanding the importance of reflection in the learning process                                  | 0                   | 0          | 0           | 0                  | 0     |
| 20  | Self-awareness            | Knowledge (knowing)   | • Knowing oneself                                                                                    | 0                   | 3          | 1           | 1                  | 5     |
| 21  | Self-awareness            | Knowledge (knowing)   | • Understanding one's own strengths and weaknesses                                                    | 5                   | 0          | 0           | 0                  | 5     |
| 22  | Self-awareness            | Skills (doing)        | • Learning from mistakes                                                                             | 0                   | 0          | 0           | 0                  | 0     |
| 23  | Self-awareness            | Skills (doing)        | • Reflecting on one's behavior, mental models and emotions                                            | 0                   | 0          | 0           | 3                  | 3     |
| 24  | Self-awareness            | Skills (doing)        | • Adapting the communication style                                                                   | 0                   | 0          | 1           | 0                  | 1     |
| 25  | Self-awareness            | Attitude (being)      | • Reflecting about oneself                                                                           | 1                   | 2          | 1           | 0                  | 4     |

(Continues)
| No. | Competency          | Mastery     | Attribute                                                                 | Hexaxo persona | Dark Triad | Playfulness | Global preferences | Total |
|-----|---------------------|-------------|---------------------------------------------------------------------------|-----------------|------------|-------------|--------------------|-------|
| 26  | Self-awareness      | Attitude (being) | • Reflecting about one's own behavior                                    | 2               | 2          | 0           | 0                  | 4     |
| 27  | Self-awareness      | Attitude (being) | • Sharing one's developmental challenges.                                | 1               | 0          | 1           | 0                  | 2     |
| 28  | Systems thinking    | Knowledge (knowing) | • Understanding how the systems works                                    | 0               | 1          | 0           | 0                  | 1     |
| 29  | Systems thinking    | Knowledge (knowing) | • Understanding inter-dependencies and inter-connections of systems       | 0               | 0          | 2           | 1                  | 3     |
| 30  | Systems thinking    | Knowledge (knowing) | • Understanding sustainability challenges and opportunities               | 0               | 0          | 0           | 1                  | 1     |
| 31  | Systems thinking    | Skills (doing) | • Dealing with complexity and ambiguity                                   | 3               | 1          | 2           | 1                  | 7     |
| 32  | Systems thinking    | Skills (doing) | • Estimating consequences of decisions on the system                     | 1               | 0          | 1           | 0                  | 2     |
| 33  | Systems thinking    | Skills (doing) | • Seeing the big picture and the connections rather than the parts       | 0               | 0          | 0           | 0                  | 0     |
| 34  | Systems thinking    | Attitude (being) | • Working across disciplines and boundaries                              | 0               | 2          | 0           | 0                  | 2     |
| 35  | Systems thinking    | Attitude (being) | • Defending a long-term perspective                                       | 0               | 0          | 2           | 0                  | 2     |
| 36  | Systems thinking    | Attitude (being) | • Providing a trans-generational perspective                            | 0               | 0          | 0           | 0                  | 0     |
| 37  | Change and innovation | Knowledge (knowing) | • Understanding the significance of a motivating vision in change processes | 0               | 0          | 0           | 0                  | 0     |
| 38  | Change and innovation | Knowledge (knowing) | • Understanding the drivers and enablers of innovation and creativity   | 0               | 0          | 0           | 0                  | 0     |
| 39  | Change and innovation | Knowledge (knowing) | • Understanding conditions, functioning and dynamics of change processes | 0               | 0          | 0           | 0                  | 0     |
| 40  | Change and innovation | Skills (doing) | • Developing creative ideas                                              | 5               | 0          | 1           | 1                  | 7     |
| 41  | Change and innovation | Skills (doing) | • Acting to bring about change and translating ideas into action         | 0               | 0          | 0           | 1                  | 1     |
| 42  | Change and innovation | Skills (doing) | • Questioning the status-quo and identifying steps of change for a sustainable future | 2               | 0          | 2           | 0                  | 4     |
| 43  | Change and innovation | Attitude (being) | • Being open, curious and courageous                                     | 5               | 0          | 2           | 1                  | 8     |
| 44  | Change and innovation | Attitude (being) | • Being flexible and adaptable for change                               | 1               | 0          | 4           | 0                  | 5     |
| 45  | Change and innovation | Attitude (being) | • Being visionary in finding solutions for society's problems            | 0               | 0          | 0           | 0                  | 0     |

Note: there was no suitable online questions for the dimension "self-awareness." These were sourced from existing off-line surveys. In italics, the online survey questions selected for the competencies.

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