

IMPLICATIONS FOR PRACTITIONERS

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Human-centered organization and innovation

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Introduction

An organization cannot exist without its people. A nation that disrespects its people is doomed, and a company that neglects its employees eventually fails.

Science, too, should be centered on people. More specifically, it belongs to everyone in society; it is not only for scientists. Scientists should not simply conduct research according to their own interests without considering the social impact of their research outcomes. Ensuring ethics in the research process is not sufficient; scientists also have to bear social responsibility.

The social responsibility of academic research is currently under close scrutiny. *Responsible research and innovation* (RRI) – also referred to as *responsible innovation* – addresses building trust between society and science (Ten Holter, Stahl, & Jirotko, 2023). Some of the papers in this issue address social efforts to introduce RRI.

Both the RRI special section papers and the other regular papers discuss how people interact with technology and organizations, with common emphasis on “human-centeredness.” In the following sections, we describe the practical implications based on the claims of each paper. These implications are applicable to the implementation of various practices in society. Finally, the overall implication is presented as a conclusion. Notably, the common message of each paper is that *people must be at the center of organizations and innovation*.

Bottom-up flexible introduction of new routines

Ten Holter et al. (2023) examined the process of introducing RRI education into universities from a learning organization perspective, observing Centres for Doctoral Training in UK universities. In these universities, RRI education was made mandatory by the order of the Engineering and Physical Sciences Research Council, which oversees universities. The introduction of RRI education in the target universities was mostly top-down, but there were some bottom-up implementations, which Ten Holter et al. (2023) refer to as “grassroots” or “*de facto*” RRI.

In their analysis, Ten Holter et al. (2023) found advantages in bottom-up implementation of RRI education. In particular, the bottom-up approach mitigates the conflict between the new logic of RRI education and existing incumbent logics that various stakeholders hold.

Furthermore, the same RRI education caused different impact on staff training and student training. On one hand, as students are not holders of the existing logic, they do not need to replace it with the new one, with less conflicts. On the other hand, staff members with existing logic had more conflicts when introducing the new logic. Ten Holter et al. (2023)



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found that, for smooth introduction of RRI education, the bottom-up approach is more effective than the top-down approach.

These findings of [Ten Holter et al. \(2023\)](#) indicate that the bottom-up approach is often effective in incorporating new mechanisms (routines). This is especially true in the case of replacing existing routines with new routines, more so than in the case of adding new routines to a *tabula rasa*. Existing routines are embedded in contexts. Ignoring the underlying context, situation or organizational/workplace culture and replacing only visible routines on top of them will cause conflicts. Furthermore, the new routines may conflict with the values that organizational members hold. To mitigate such conflicts, management should delegate authority and introduce the new routine in a way that is adapted to each context. Even in the case of a top-down approach, the introduction should be flexible, leaving room for adaptation to the context of each unit.

Thus, the situation, context, culture and values of each unit in an organization must not be ignored when introducing new routines. The new routines should be aligned with these. For this purpose, bottom-up approach should be adopted, with delegated authority where possible.

Involve stakeholders in learning

[Sischarenco and Luomaranta \(2023\)](#) examined RRI implementation in product development by ethnographic methods and participatory observation. Their objective was to explore how *RRI keys* (public engagement, gender equality, science education, open access and ethics) are perceived by the industrial project partners. They found that it is not easy to implement the RRI keys in the context they observed. The main reason was that, while the product development processes involve various stakeholders (e.g. universities, regional and national policymakers, and suppliers), it is difficult for these stakeholders to understand, measure and report on the outcomes of RRI implementation.

From such observation, [Sischarenco and Luomaranta \(2023\)](#) assert that companies engaged in product development should involve stakeholders more strongly in their innovation process. Furthermore, they claim that stakeholder involvement stimulates the companies' own organizational learning. [Sischarenco and Luomaranta \(2023\)](#) call such a process "stakeholder learning," stressing that "(t)he responsible values are then enacted by the people in the innovating organization through discussion and gradual learning-by-doing together with stakeholders and internally."

Thus, the importance of stakeholder involvement is emphasized. Of course, involving stakeholders is beneficial to innovation itself as they bring new idea. Moreover, the important point here is that stakeholder involvement plays an important role also for realizing RRI.

Notably, as [Sischarenco and Luomaranta \(2023\)](#) describe, RRI is an example of a "policy-driven initiative." Therefore, the importance of stakeholder involvement is not limited to RRI, but also applicable to any other social efforts such as corporate social responsibility and organizational citizenship behavior.

Don't get caught up in an umbrella concept

[Forsberg and Wittrock \(2023\)](#) analyzed best practices of RRI implementation in 12 countries and presented their implications. As a result, they identified RRI's *four dimensions* (anticipation and reflexivity, diversity and inclusion, openness and transparency, and responsiveness and adaptation). They also identified specific practices for RRI implementation, such as organizational policies, training programs, checklists and toolkits, establishing infrastructure, awards, dialogues beyond specific projects and incentive

programs. However, [Forsberg and Wittrock \(2023\)](#) did not recommend simply introducing these practices. Rather, they caution against uncritically applying them to individual organizations and units. In other words, it is necessary to introduce them in accordance with individual contexts and situations. This point resonates with the arguments of [Ten Holter et al. \(2023\)](#) above.

Even though “best practices” are appropriate for their original context, we should not expect that simply integrating them will lead to solving all grand challenges. *Fallacy of composition* may occur; the sum of partially optimal strategies does not necessarily lead to the overall optimization. This is where *systems thinking* ([Senge, 1990](#)) plays a crucial role. Introducing a practice changes the context behind other practices. As a result of introducing a new practice, other practices may become invalid. This is why observation and feedback toward the overall optimization are essential.

Furthermore, [Forsberg and Wittrock \(2023\)](#) warn that RRI is an *umbrella concept*. An umbrella concept is “a broad concept or idea used loosely to encompass and account for a set of diverse phenomena” ([Hirsch & Levin, 1999](#), p. 200). Umbrella concepts have a life cycle and are doomed to be fashionable and then to fade away. [Forsberg and Wittrock \(2023\)](#) criticize the attitude of introducing an umbrella concept as it is without recognizing its intrinsic contents. They argue that emphasizing only the broad umbrella concept of RRI creates confusion.

For this reason, [Forsberg and Wittrock \(2023\)](#) claim that focusing on intrinsic characteristics, dimensions and values of RRI component practices will lead to more complete implementation. However, they do not imply that one should abandon systems thinking. They assert that we should identify the essence of each practice and then integrate them in the most appropriate form, rather than being confused by the ambiguity of the umbrella concept.

Thus, there are problems in unconditional faith in the umbrella concept. When introducing a new practice, it is necessary to look at the specific substance of the new practice, not its appearance. In addition, when introducing a new set of practices, it is necessary to consider the effectiveness of the entire system, rather than just connecting individual best practices together. The effectiveness of the system may be greater or less than the sum of those of the individual elements.

Recognize projects as a double-edged sword

[Braun et al. \(2023\)](#) observed *social labs* for RRI implementation and examined associated advantages and disadvantages. Social labs are experimental venues focusing on generating solutions to complex societal challenges ([Braun et al., 2023](#)). The framework of social labs is widely used to search for clues to solve complex social problems.

The five social labs observed by [Braun et al. \(2023\)](#) all mediate actors in the research and innovation ecosystem, while they have different legal status and organizational structures. Their roles include setting standards, creating knowledge for policy, conveying legitimacy and status, offering ethical and integrity guidance and operating alumni networks. Each social lab is implementing pilot actions for introducing RRI. [Braun et al. \(2023\)](#) examined these pilot actions from the perspective of a learning organization.

As a result, it was found that the context in which the pilot action is executed cannot be ignored. This point is in common with the assertions of [Ten Holter et al. \(2023\)](#) and [Forsberg and Wittrock \(2023\)](#) discussed above.

[Braun et al. \(2023\)](#) also examined the impact of participant status on projects. On one hand, those who left their organization to participate in social labs were able to fully engage in the process. On the other hand, those who participated on part-time basis without

compensation while working for their original organization had difficulties in participation even if they attempted to commit. In other words, participants who participated without compensation were not able to fully participate in what [Senge \(1990\)](#) calls *team learning*. This implies the importance of full-time participation in important projects.

Furthermore, [Braun et al. \(2023\)](#) reported that the focus on RRI triggered participants' reflections on the *mental model* and *personal mastery*. Furthermore, discussing RRI's objectives prompted their reflection on higher-level government policies and the impact of such policies for their own research. Thus, collaboration with diverse members triggers broad reflection. This finding is in line with [Sischarenco's and Luomaranta \(2023\)](#) emphasis on stakeholder involvement.

The above implications are summarized as follows. First, make arrangements to enable members' full-time participation and give them appropriate status in important projects. This allows members to invest their own resources in projects without anxiety. Second, encourage broad reflection through collaboration among diverse members. Note that diversity is a source of innovation.

People are at the heart of innovation

[Kalıpçı \(2023a, 2023b\)](#) examined the relationship between technology acceptance and service innovation in the service sector as well as the mediating function played by *learning organizations* in this relationship. They examined Turkish hotels to find the followings. First, technology acceptance promotes service innovation. Second, learning organization mediates this relationship. Furthermore, this effect involves all three levels of learning organization (organizational, group/team and individual).

These findings suggest that people, not technology, are the primary actor in service innovation. In the conclusion, [Kalıpçı \(2023b\)](#) asserts "In reality, implementing a new technology involves not only technical or project management challenges but also the social component of the technology, which involves users." As this quotation illustrates, innovation always involves users. Moreover, socially effective and appropriate application of technology depends on individuals, groups/teams and organizations of manufactures, service providers and other parties. This point is implied by RRI keys (public engagement, gender equality, science education, open access and ethics).

In particular, it is not the technology but people and organizations that make the final decision based on the output of the technology. Particularly in the service sector, it is the employees supported by technology, rather than the technology itself, who provide services to customers. Hence, people must be at the center of innovation, and it is the principles of learning organization ([Senge, 1990](#)), such as *team learning*, that promote this philosophy.

Training is meaningful only when transferred to practice

In many companies and other organizations, training is conducted to provide staff with practical skills. However, the results of training are not always applied to business operations. In many cases, training is internalized and not transferred to actual practice.

[Jansen in de Wal, de Jong, Cornelissen, and Brabander \(2023\)](#) examined the mechanisms by which motivation (specifically, the unified model of task-specific motivation: UMTM) influences the application (transfer) of training outcomes in the workplace. In the analysis, the following UMTM were applied: perceived freedom of action, sense of personal autonomy, perceived external support, sense of personal competence, subjective norm, and affective and cognitive valence of learning outcome.

The results are summarized as follows. First, when learners have a positive value for the learning outcome, they tend to apply the training outcome in their work practice (i.e. they

transfer the training outcome). Second, the more feasible learners perceive the transfer is, the higher they recognize the value of applying the learning outcomes. Third, the more learners perceive freedom of action and autonomy, the higher they perceive the value of applying the learning outcome. Thus, freedom of action, autonomy, perceived feasibility of transfer and valence of learning outcome promote transferring learning outcomes.

These results lead to following implications. First, organizations should demonstrate the practical usefulness of training to their trainees. Importantly, training should be grounded on actual work practice. Training is not independent of actual practice. Second, learners' self-efficacy should be ensured. In addition, a degree of freedom and autonomy should be given to learners in their practice. Jansen in de Wal et al. (2023) showed that these factors promote the transfer of learning outcomes.

While these are implications for organizations, what is important for each individual is the principle of *self-mastery* (Senge, 1990). That is, each individual must continue to transform himself/herself so that he/she can accomplish what he/she feels is necessary. It must be recognized that self-improvement through training is the responsibility of the individual rather than that of organizations.

Empowerment and listening make leadership effective

A *learning organization* emphasizes *team learning* as one of its disciplines (Senge, 1990). That is, members need to improve their capacities through dialogue and discussion. Eslahchi (2023) describes this as *collective learning*. According to Eslahchi (2023), collective learning is "interactive and communicative processes that can take place within these communities of practice, culminating in knowledge sharing, the exchange of experiences and the formation of shared understanding." Eslahchi (2023) then examined the role of leaders in promoting collective learning under the crisis of the COVID-19 pandemic.

Notably, Eslahchi (2023) takes a "leadership in practice" approach that focuses on the relationship between the leader and team members. Here, leadership is defined as an attribute of leader-member relationship, rather than that of an individual leader. Following this idea, leadership is regarded as a kind of social capital. With this perspective, Eslahchi (2023) conducted a longitudinal case study of a Swedish small social entrepreneurial organization to examine the impact of leadership change on member collaboration.

As a result, Eslahchi (2023) found the importance of empowerment. In the organization that Eslahchi (2023) observed, a time-reporting system was once introduced by the (former) top management. The intention was to review the allocation of each person's work, but the members interpreted this as a manifestation of mistrust by the top management. However, after the leadership change to a new CEO, the members began to feel "trusted" by the new top management, and their trust in the leader improved. In addition, the members began to feel that they were "being listened to" by the CEO. This feeling fostered mutual trust between the top management and the members, fostering a more cooperative and innovative work setting. Thus, the leader's attitude of listening and steady actions led to innovation.

The new CEO also saw the pandemic as a learning opportunity and introduced various practices to promote collective learning. The most prominent action was empowerment. He encouraged members' active participation by involving them in organizational decision-making processes, such as creation of new project ideas, in which they had not been allowed to participate in the past. Thus, a culture of continuous learning and collaboration was fostered.

These results suggest the importance of empowerment. Nowadays, strengthening governance and accountability is a global trend, which no one can be against (Bovens, Schillemans, & Hart, 2008). There are more and more cases of strict time management in

companies, as in the case of [Eslahchi \(2023\)](#). However, this may undermine members' sense of self-efficacy, resulting in declined motivation. We should also recognize the importance of listening. Listening is the first step in building rapport. No matter how valid a leader's arguments may be, they will not resonate without rapport.

Feedback builds relationships

With the evolution of telecommunications technology and the availability of high-speed communication networks, more and more organizations have introduced remote training, particularly since the COVID-19 pandemic. Remote training overcomes some of difficulties associated with participating in training.

However, as [Balconi, Angioletti, and Cassioli \(2023\)](#) stresses, "distance education in organizational contexts can be seen as a double-edge sword." The lack of nonverbal cue associated with remote training prevents sharing tacit knowledge ([Polanyi, 1983](#)). Meanwhile, whereas neuroscience (electroencephalography) is increasingly introduced to educational research, this technique is rarely used in studies on *learning in remote work*. [Balconi et al. \(2023\)](#) applied this technique in addressing the difficulty of remote training.

The results revealed that feedback is important even in remote environments. As [Balconi et al. \(2023\)](#) argue, feedback creates the basis for dialogue and facilitates establishing interpersonal relationship. Therefore, feedback also plays an important role in emotional aspects in addition to providing information.

Thus, we should recognize the importance of feedback in remote education. Feedback does not only provide information (generally formal explicit knowledge) about the results of actions. Feedback is also a medium to build a relationship between the trainer and the trainee. Therefore, feedback must be provided by a person, not by a computer or artificial intelligence (AI). Who would be satisfied with having established a rapport with AI?

Conclusions

The most important conclusion to be drawn from the papers included in this Issue is that *people must be at the center of both innovation and organizations*. RRI is an initiative for socially oriented innovation which focuses on the benefit of each member of society. In particular, technological innovation must respect the dignity of human being.

Meanwhile, in innovation processes and other work settings, to motivate people and lead organizations, leaders must listen to their members, empower them and provide careful feedback ([Balconi et al., 2023](#); [Eslahchi, 2023](#)). Training is ineffective if it ignores trainees' emotions and cognitions, such as self-efficacy ([Jansen in de Wal et al., 2023](#)). Service innovation should also be centered on organizations and people ([Kalıpcı, 2023a, 2023b](#)). The history and cognition of individual members, as well as the context in which they are placed, must not be ignored in RRI implementation ([Braun et al., 2023](#); [Forsberg & Wittrock, 2023](#)). Similarly, gaining the understanding of stakeholder constituencies is another key to achieving RRI ([Sischarenco & Luomaranta, 2023](#)).

Remarkably, as [Balconi et al. \(2023\)](#) emphasize, *human-centeredness* becomes more important under pandemics and in remote environments. This point will never change even if the use of AI becomes ubiquitous. Both *learning organization* ([Senge, 1990](#)) and *organizational learning* process ([Shrivastava, 1983](#)) have people at their center. It is each of the learning organization disciplines ([Senge, 1990](#)), such as *self-mastery* and *team learning*, that promote developing human-centered organizations.

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