

Chapter 2

Challenges for Start-Ups and SME in the Twenty-First Century



Arie Hans Verkuil and Angela Milesi

Abstract The following essay examines the mission of the School of Business at the University of Applied Sciences Northwestern Switzerland and the key question of what pro-socially oriented entrepreneurs can contribute through start-ups and SMEs to meeting the challenges of the twenty-first century. The mission is: “We educate innovative, responsible specialists and managers for an interconnected and ever-changing world.” Along the mission, it defines what can be understood by “innovative and responsible specialists and managers.” Next, exemplary challenges in the twenty-first century are identified under the keywords “interconnected” and “dynamic” world. Finally, the answer to the guiding question of the essay follows. With its fundamental character, this essay addresses besides other interested readers in particular business students and wants to stimulate them to think and discuss the orientation and the benefit of their “mission-based” education.

Keywords Innovation · Ethical principles · New solution strategies · Pro-social entrepreneurship

Definitions

Innovation

Innovation is a multi-layered term that cannot be clearly grasped or defined. One major reason for the lack of a universally valid definition is the variety of contexts in which innovation is used. What is considered an innovation in areas such as technology, business models, products, or services may be irrelevant in another context. Moreover, what is considered an innovation is often subjective because the assessment depends on individual values, beliefs, and preferences. Finding a general

A. H. Verkuil (✉) · A. Milesi
School of Business, University of Applied Sciences and Arts Northwestern Switzerland,
Windisch, Switzerland
e-mail: arie.verkuil@fhnw.ch

definition that is valid for all contexts is therefore difficult. Instead, descriptive definitions are often used to indicate the context and perspective from which the innovation is viewed. For the context of economic development, such a descriptive, contextual definition is already at the beginning of Joseph Schumpeter's use of the term innovation. He first presents the idea of innovation in 1911 (Schumpeter, 1911). As an independent term, he uses innovation from 1939 (Schumpeter, 1939). He sees the essence of innovation in the "implementation of new combinations," which does not take place continuously, but "discontinuously." According to this view, optimizations of existing products would not count as innovations, but inventions would. However, inventions per se are not actual innovations, but at best prototypes or illustrations. The decisive factor is rather the implementation of a new technical, organizational or market solution and thus the "innovation process from the idea to its realization." An invention thus only becomes an innovation through its application. According to Schumpeter, the development of a new sales market, the conquest of a new source of raw materials or semi-finished products or the implementation of a reorganization within an organization can therefore also be counted as innovations. In this sense, innovators bring fundamentally new things into the world in order to make living and working together easier, more pleasant, and at the same time more interesting. They see challenges not as problems, but as opportunities.

Responsibility

Responsibility as a term stands for an ethical principle (Jonas, 2020). An ethical principle is a fundamental rule or belief that serves as a guide for behavior. It is a generally accepted rule that is used to make ethically justified decisions and to guide the behavior of individuals or organizations in the interest of living and working together successfully. Responsibility thus stands for the opposite of indifferent or arbitrary behavior. Responsible behavior is tied to the motives for action (motivation) of responsible individuals. Underlying a particular behavior or action is a person's inner drive, which also determines the nature, direction, and intensity of behavior or action (Reeve, 2016). In contrast to deontological approaches to ethics, which judge the moral quality of an action not from its consequences but from its intrinsic intentions (Schmidt, 2011, pp. 43–49), we do not consider the motivation or the "good" intentions as sufficient for the ethical evaluation of an action. Likewise, we do not consider the contrary approach of consequentialist ethics to be sufficient (Darwall, 2007). Consequentialist ethics looks solely at the effect of an action and judges the value of an action from its resulting consequences. If the consequences are morally desirable, so is the action, regardless of the associated intention or motivation to act.

We consider the intention to act to be just as important as the effect of an action. From our point of view, the intentions to act, which are bound to certain motives, must remain connected just as much as the effect of an action, if responsible action

is to be taken. Only when the intention and the effect of an action are connected can the acting subject actually be held accountable for his deeds in an ethical sense. Thus, if a person wants to act responsibly, he has to account to himself and to others both for his motivation and for the resulting effects. Thus, acting responsibly contrasts to a certain extent with, for example, acting in a purely (legally) compliant manner, which is oriented toward avoiding punishment or sanctions. Those who act in this way can also shamelessly exploit loopholes in the law or, in extreme cases, act in violation of the law if it can be assumed that they will not be held accountable by third parties, and thus gain an advantage that is justified from a subjective point of view. This motive for action corresponds to a purely extrinsic motivation. Such a motivation exists when external circumstances motivate an action, e.g., a financial necessity or even compliance with mutual agreements, contracts, or legal regulations. Reeve's definition, on the other hand, focuses on intrinsic motivation, "the inner drive of a person that leads to a particular action or behavior," while also including the effect of the resulting action—"the inner drive ...] which determines the nature, direction, and intensity" (Reeve, 2016).

Here, an analogy may be drawn to the definition of innovation according to Schumpeter above. Relevant for responsible action is not the idea, in the sense of an intention to act, but only its realization through the actual implementation of the intention into action. In this sense, taking responsibility means keeping promises or agreements to oneself (self-commitment) and/or to third parties, being accountable to oneself as well as to others for one's resulting actions and their consequences, and bearing the resulting consequences. A "good" motive is not sufficient to justify one's own actions and their consequences. Motives and their concrete realization must be consistent.

Professional and Managerial Staff

Specialists and managers are persons who have specialized knowledge for solving problems in a specific delimitable field of action. An example of a specialist would be a software programmer or IT supporter who can draw on his or her own knowledge or problem-solving skills to solve problems on his or her own responsibility and independently of recourse to the line manager. The higher the division of labor in advanced economies becomes, the more important skilled workers with their specialized knowledge become.

It is more difficult to define what is meant by executives ("managers"). This is especially true if it is implicitly understood to mean leaders. The spread of the term "leadership" can be traced back to a large extent to John P. Kotter. As early as 1990, the Harvard professor stressed the difference between management and leadership (Kotter, 1990). He later argued that managers tend to be administrators, while leaders are visionaries (Kotter, 2008). According to Kotter, there are three core processes to manage in each area.

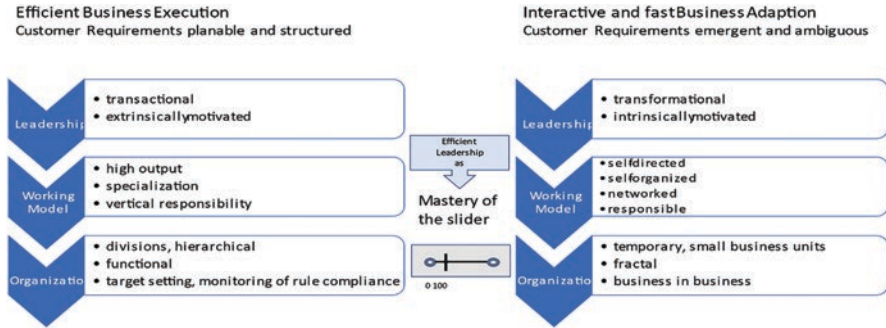


Fig. 2.1 Ambidexterity of leadership. Own representation, adapted from Petry, T. (Ed.). (2019). *Digital Leadership: Erfolgreiches Führen in Zeiten der Digital Economy*. Haufe-Lexware, p. 59

Management:

1. Plan and budget
2. Organize and fill positions
3. Controlling and problem solving

Leadership:

1. Set the direction
2. Align the employees accordingly
3. Motivate and inspire

A successful company needs both, and both functions can and must be combined in one leader, depending on the tasks and roles in the company. The right balance between management and leadership is important. Too much management causes the organization to stiffen internally; too much leadership lacks discipline and structure. This can be ideally illustrated in the image of ambidexterity in leadership (Fig. 2.1):

Summary of Definitions

Innovative and responsible specialists and managers bring fundamentally new things into the world from various aspects. Professionals, for example, develop and implement new solution strategies for existing problems or develop new products and services based on their expertise. Managers contribute to cost reductions and efficiency increases in their organizations through process innovations, and leaders promote transformation processes that fundamentally realign organizations and thus make them more competitive and more able to survive.

Responsible professionals, managers, and leaders are accountable to themselves and others for their motives and the impact of their actions and help to make living and working together easier, more successful, more pleasant, and at the same time

more interesting. They view challenges not as problems, but as opportunities. This is particularly visible in the case of the so-called entrepreneurs. In a start-up or existing SME, they may combine various characteristics of specialists, managers, and leaders in equal measure if they are responsible for the entire process from generating ideas for a new product or service to planning its implementation in a suitable business model to its implementation challenges of a networked world.

The basis of the networked world is information and communication technology. Information and communication technologies have a long tradition. The world has long been interconnected by postal traffic and telecommunications means such as radio, television, telephone, fax, etc.

A real technological leap came at the beginning of the millennium with the breakthrough of the basic ICT technology of the Internet and technologies based on it (Fig. 2.2):

The expansion of fixed and mobile networks dramatically increased “interconnectivity” and led to the rapid spread of social media via mobile telephony, for example.

In the business environment, digitization progressed mainly for the following reasons:

1. Digitization of business processes to increase efficiency (88%) and the associated reduction in costs (61%)
2. Transparency of processes (79%)
3. Satisfy the wishes of the clientele (64%)

Combined with ever more powerful computers that process and store large amounts of data and the further development of sensor technology, this opened the way to new business processes in the so-called Internet of Things (IoT): people, machines, and objects are connected in it (Erner, 2019, p. 58). The physical and virtual worlds form a so-called cyber-physical system (CPS). This was the starting point for the fourth industrial revolution under the keyword Industry 4.0.

Examples include the area of machine diagnostics and maintenance as well as the optimization of production processes and supply chains, including flexible adjustments to the required product quantities based on feedback (Erner, 2019, p. 8), and last but not least, other technologies such as blockchain and the so-called artificial intelligence. Blockchain technology can be used in various business models for data storage. It is best known as the basis for cryptocurrencies, which have a still unpredictable impact on the financial system. AI helps to identify patterns in large amounts of data with the help of machine learning. This helps, for example, to detect rare diseases in medical diagnostics or favors the production of individualized goods by recognizing consumer behavior. The same applies to the handling of purchase data in general. They are digitized and analyzed. Intelligent communication systems work out new solutions quickly and specifically (Negri, 2019, pp. 75–76). The risk of not liking a new product is significantly reduced (Keller et al., 2019, pp. 5–6). In parallel, the clientele can compare products transparently. This has led to striking changes in demands and purchasing behavior over the last 10–15 years compared to before the turn of the millennium (Werner, 2019).

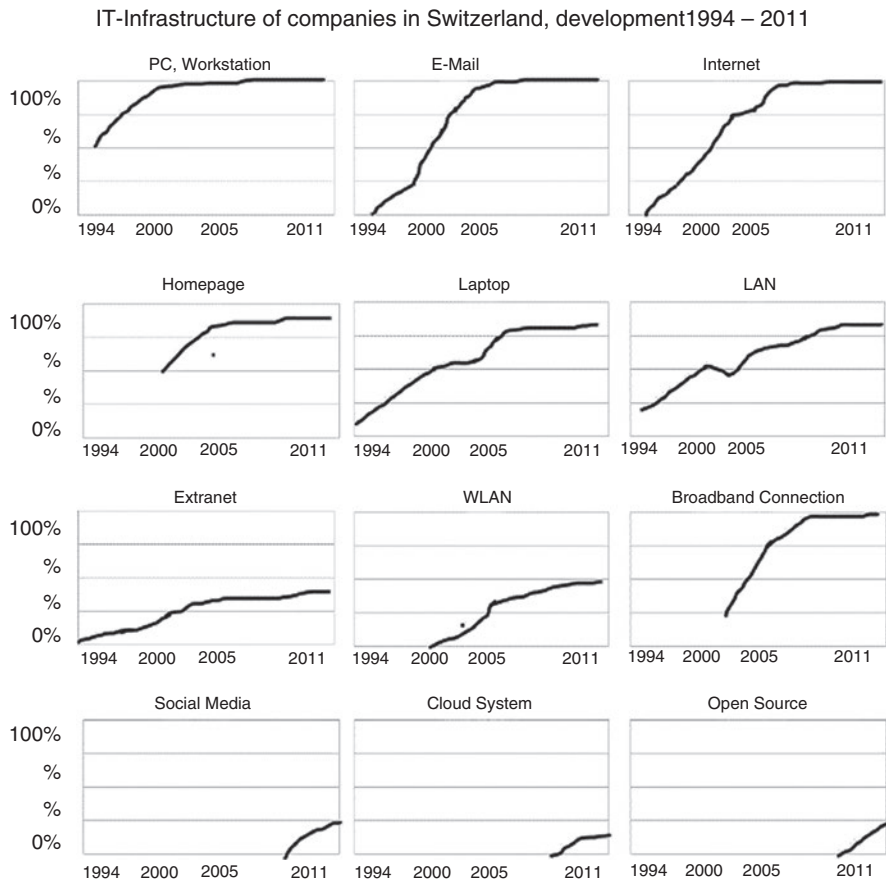


Fig. 2.2 Technological leap at the turn of the millennium, using Switzerland as an example. Own presentation, taken from the Swiss Federal Statistical Office

Digitization is not only affecting the secondary sector of the economy as Industry 4.0. The tertiary sector of the economy is also affected. Here, we speak of Service 4.0, which is making its way into the “business to business” and “business to customer” sectors (B2B and B2C). IT-supported e-services and e-commerce are being supplemented with apps and assistance systems provided by cyber-physical systems.

Bosse and Zink note that technological innovations allow products and services to be offered faster, more individually, more customer-oriented, and at lower prices (Bosse & Zink, 2019, p. 58). The trend toward faster customization and faster delivery of products and services will continue in the near future (Negri, 2019, p. 10).

Challenges of a Dynamic World

The growing number of system elements and their interactions creates a dynamic state, which can be described with the term VUCA world. VUCA stands for volatility, uncertainty, complexity, and ambiguity. Complexity is of central importance in the sense that the term VUCA is mostly used in connection with characteristics of complex situations. In this context, one can speak of dynamic complexity (Scheinflug & Stolzenberg, 2017, p. 1).

Companies have to cope with “two different kinds of complexity” (Senge, 1996). With the so-called detailed complexity, the problem can be worked through according to a precise plan of action. In the case of “dynamic complexity,” one and the same intervention can have different effects in the short term and unexpectedly than planned in the long term. The interplay of cause and effect cannot be surveyed on the basis of knowledge and experience. This makes it impossible to forecast future developments. Surprises or side effects must consequently be included unknown (Grösser, 2012, pp. 67–72).

SME companies have been exposed to the effects of such dynamic complexity for years now (Negri, 2019, p. 75). With increasing digitization, systems are becoming both more susceptible to failure (internal) and more vulnerable (external). Companies must protect themselves against both by means of data backup and other measures. Cyber security is a keyword for vulnerability due to cybercrime. Furthermore, due to globalization, competition and rivalry have expanded from often local to international. Companies have to compete with companies from abroad (Negri, 2019, p. 75). This has also resulted in social changes.

Other key system elements shaping the VUCA world are information and communications technology based on technological progress with its global impact on international trade, the consequences of climate change—as an indirect consequence of technological progress—and the associated trend toward sustainability, and demographic change with its challenges. They are examined in more detail in the following sections.

Internationalization

Technological development based on Internet technology is having an impact on internationalization in the digital sector. Companies use online platforms for trade and offer their products and services worldwide. The same applies to IoT, robotics, and artificial intelligence, which as new technologies support digital global trade, on the one hand, and, on the other hand, have the potential to change it further (Fig. 2.3):

At the same time, this means that international cooperation and partnership are becoming increasingly important. This enables companies to extend their reach beyond national borders and improve their efficiency. At the same time, they must

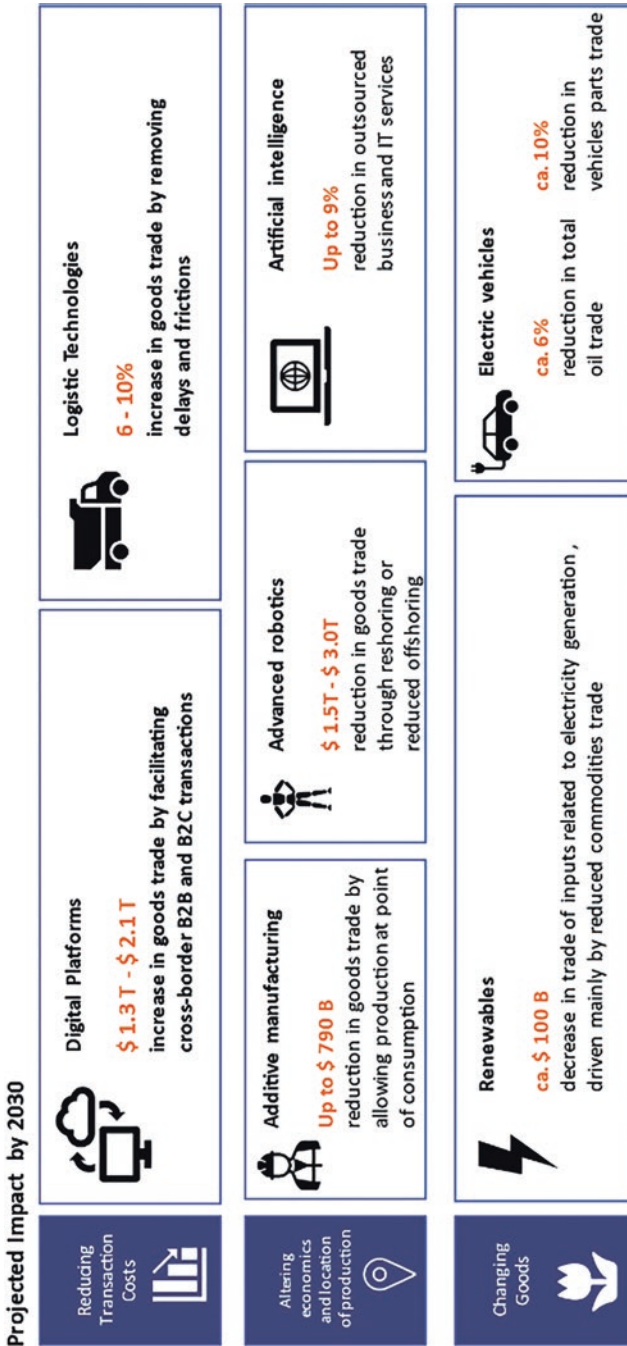


Fig. 2.3 Technological development and impact. Source: IMF; WTO; OECD; UNCTAD; McKinsey Global Institute analysis

ensure that they comply with the data protection and other laws of different countries. Data protection and data security are of paramount importance, not only to gain the trust of international clientele. One example of this is the cyber security mentioned above.

Climate Change and Sustainability

As early as 2007, a survey of 2611 companies conducted by the Cologne Institute for the German Economy as part of the IW Future Panel (Lichtblau & Neligan, 2009) climate change ranked third among future strategically relevant challenges, after raw material scarcity and demographic change (Mahammadzadeh, 2010, p. 47).

Sustainability and social responsibility are gaining in importance as consequences of climate change. The role of demographic development will be addressed in the following chapter.

For many years, the so-called “Earth Overload Day” has shown the date in the year when what the ecological systems can regenerate globally per year is used up. Thereafter, annual consumption exceeds the available resources, and humanity lives until the end of the year according to the principle of overexploitation (Thomaschewski & Völker, 2017, p. 23). Sustainability is the use of resources that takes only as much as can be regenerated, so that nature is not harmed in the long term. The principle of sustainability originates from forest management (Thomaschewski & Völker, 2017, p. 15). If one transfers sustainable management to a company, three pillars of sustainability, the so-called triple bottom line, must be taken into account. The triple bottom line concept calls for simultaneous consideration of environmental, economic, and social dimensions and their interactions.

Ideally, the three dimensions are described as three effectiveness targets or target and measurement systems of sustainability like this:

1. Economically sustainable companies guarantee sufficient cash flow and continuously generate above-average returns for their stakeholders.
2. Ecologically sustainable companies use natural resources only as long as their consumption is below natural reproduction.
3. Socially sustainable companies help society by contributing to the increase of human capital (Thomaschewski & Völker, 2017, pp. 18–19). In this context, human capital does not only mean a purely economic end-means relationship, but the responsible respect for people with their unique and non-negotiable (human) dignity.

With these sustainability goals in mind, a company can embark on the path of sustainability. In doing so, it not only makes a small contribution against the future ecological, social, and economic consequences of climate change, but also reduces the risks of later financial damage with early investments in sustainable products or solutions. The cost of future failures as a result of global warming could significantly exceed the expenditure on preventive investments (Hecht, 2009, p. 157).

If new target groups are also reached through the switch to sustainability, competitive advantages also result (Thomaschewski & Völker, 2017, p. 74). One challenge of global warming that should not be underestimated is greenhouse gas emissions. Here, too, measures for reduction should be aligned with the three pillars of sustainability (Zabel, 2010, p. 25).

Demographic Change

The term “demographic change” neutrally describes the change in the composition and size of the population, taking into account the age structure, birth rates, death rates, as well as immigration and emigration, including nationals and foreigners (bpb Bundeszentrale für politische Bildung, 2016). The increase in life expectancy over the past few decades, combined with the persistently low birth rate since 2004, is leading to an aging population in Europe. According to Eurostat’s July 2021 statistics-based article, the EU-27 population is expected to peak at 449.3 million by about 2026 and then gradually decline to 416.1 million by 2100. The EFTA and candidate countries and the United Kingdom will be similarly affected (Eurostat, 2021). In parallel, the average age of the population will also rise sharply at the beginning of the twenty-first century and is expected to stabilize from 2040 onward (Immerschitt & Stumpf, 2019).

Demographic change is causing a reduction in the workforce. The retirement of the baby boomer generation can lead to a reduction in the workforce in companies. This also means a loss of qualified skilled workers. In a 2015 study, the Prognos Research Institute showed that Germany is expected to have a shortage of 1.8 million skilled workers by 2025, four times as many as in 2017 (Ehrentraut, 2015). Using a different approach, a picture emerged in Austria that certainly permits a comparable conclusion. Here, too, finding suitable skilled workers is more difficult than ever before and was seen as the greatest threat to the development of companies. The proportion of companies with major recruiting difficulties rose from 15% in 5 years to over 25% in January 2020, with differences depending on the industry and region. For 36% of companies in Austria, the shortage of skilled workers is associated with a loss of turnover; 9% lose more than 5% of their annual turnover (Lehner, 2020).

The Cologne-based Institut der deutschen Wirtschaft (Institute for the German Economy) also forecasts a long-term decline in economic output for Germany due to a lack of qualified workers. In 2018, the German economy lost more than 30 billion euros or about 0.9% of economic output as a result (Burstedde, 2018).

The shortage of labor will therefore occupy a prominent place among the challenges facing companies in the coming years and may threaten their economic development. At least for the supply of skilled workers, the problem could be temporarily alleviated in part by raising wages—which requires corresponding economic opportunities for companies—and/or with instruments of migration policy.

Contributions of Pro-socially Oriented Entrepreneurship

Entrepreneurs, as innovative and responsible professionals and managers, exploit entrepreneurial opportunities that they discover (Kirzner's opportunities), create themselves (Schumpeter's opportunities) or validate (Fuelistaller et al., 2019, p. 41 ff.). In the twenty-first century, the challenges of a networked, dynamic, and internationalized world play into all these fields of entrepreneurial opportunities. In addition, raw materials are becoming scarce, climatic changes are occurring, and demographic change is reducing the labor force. Pro-social entrepreneurship is facing up to these realities. In doing so, it can draw on the opportunities offered by technological and digital development for the business idea. In turn, pro-social entrepreneurs act responsibly by seeking early solutions to invest in sustainable products or services that help reduce the harmful effects of climate change and address the social impacts of demographic change. They are guided by the three pillars of sustainability with ecological, economic, and social sustainability goals. They will not only be accountable to themselves and others for their purely business (economic) success, but will also be measured by whether and to what extent they have been able to put their motives into practice in a sustainable manner. They will thus learn from their mistakes and see challenges as opportunities to continuously optimize their innovations.

Summary

The mission "We educate innovative, responsible specialists and managers for an interconnected and ever-changing world" provides the School of Business FHNW with orientation on how and in which topics future specialists and managers should be educated. In doing so, we come to the following conclusions:

1. Technological development offers opportunities for regional and international trade as well as potential for addressing the harmful effects of climate change.
2. Demographic change has a significant impact on the available skilled workforce and leads to difficulties in the supply of skilled workers. The impact on the economic development of companies can cause economic performance to decline.
3. Pro-socially oriented entrepreneurship uses entrepreneurial opportunities in start-ups and SMEs to address the challenges of a networked and dynamic world. It is guided by the three pillars of sustainability. Pro-social entrepreneurs will not only be accountable for their business success, but also for the implementation of their motives and the impact of their ethically responsible actions.

Conclusions

These findings lead us to the following conclusions:

Specialists and managers trained along the mission innovatively use the opportunities of technological change and meet the challenges of climate change and demographic development with ethically responsible action. They bring fundamentally new things into the world and are accountable to themselves and others for their motives and the impact of their actions. Ethics plays a central role in this. Pro-socially oriented entrepreneurship contributes with responsible management.

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Arie Hans Verkuil, Prof. Dr., is a theologian and holds a doctorate in business ethics at the University of Zurich. He holds a post-graduate degree in nonprofit management from the Institute for Association, Foundation and Cooperative Management (VMI) at the University of Fribourg; furthermore, he is graduated in Swiss Postgraduate Studies in Human Resource Management (SNP). He is a lecturer in management, mindful leadership, and ethics at the School of Business, University of Applied Sciences Northwestern Switzerland, and heads the Institute for Corporate Management there. In addition, he supervises the overall research programs of the School of Business and temporary member of the leading management board. He was a strategic advisor to the Swiss Federal Administration for many years.

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