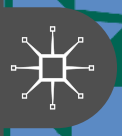

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# Behavioral Competencies for Innovation

## Using Emotional Intelligence to Foster Innovation

Sara Bonesso · Laura Cortellazzo
Fabrizio Gerli

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# Behavioral Competencies for Innovation

"Change is life. Without it, we die. In organizations, without constant adaptation and innovation, our competitors take our market share or change the market. Gerli, Cortellazzo and Bonesso have created a scientific guide to how organizations can foster innovation through thoughtful applications of competency research with their key people and human capital. Using their ideas and methods will not only rejuvenate your organizational climate and increase engagement, but will put you ahead of the competition for a long time!"

—Richard E. Boyatzis, Distinguished University Professor, *Case Western Reserve University, Co-author of the international best seller, Primal Leadership and the new book, Helping People Change*

"This book is written for all of us because the desire to innovate is closely related to the desire to have a purposeful work life … How can people become more innovative and creative? Science and practice will benefit from this hardback from the details on how emotional and social intelligence competencies empower the generation and implementation of creative ideas. It is a must read book for HR professionals if they want to find their way to promote a culture of innovation."

—Tanya Bondarouk, *Full Professor of Human Resource Management, University of Twente, The Netherlands*

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Sara Bonesso
Department of Management
Ca' Foscari University of Venice
Venice, Italy

Laura Cortellazzo
Department of Management
Ca' Foscari University of Venice
Venice, Italy

Fabrizio Gerli
Department of Management
Ca' Foscari University of Venice
Venice, Italy

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# Foreword

For many companies, the need to develop research skills to sustain innovation and the safekeeping of competitive advantage are endless jobs. Once started, the innovation journey requires attention, relational skills, as well as a sense of discovery and direction. In times characterized by technological and entrepreneurial ferment, human capital must unlock its full potential. There is little doubt that the quality of people and their relationships will ultimately make the difference between being a good or a great company.

The digital transformation of processes and the growing support of machines not only for efficiency but also for learning purposes will have to worry about the need for data humanization. New forms of intelligence will also be required at the individual level. The skills of understanding and deploying emotions will be the object of attention and mapping, similarly to what organizations already do for their to-play and to-win skills.

The possession of a high emotional quotient will have positive effects on the reduction of stress, on the effectiveness of communication, on the ability to transcend into the other, allowing the relational and functional skills to express their maximum potential. Not to mention the impact on soft skills. Organizations are no longer required to be just prepared. With emotional intelligence and behavioral intelligence—the set of skills that, influencing other skills, have an impact on the effectiveness of individual and team behavior—can also be ready, responsive to internal and external changes.

The book by Sara Bonesso, Laura Cortellazzo and Fabrizio Gerli explores these themes in an original and credible way. Their research interests—psychology, organizational design, the behavior and skills of organizations, people management—converge in a collective effort that leads companies to reflect on a plurality of elements.

Technological and business model innovation, as well as changes in structures and at the individual level, are basically processes that are triggered by an awareness—the methods for generating and enhancing ideas on the markets are evolving—and by a necessity—mindset must change. In a context characterized by open approaches

to innovation, the reading of skills in terms of emotional and social intelligence can be extremely useful. Without the consciousness that multiple and different intelligences are needed, it is not possible to activate a virtuous loop in the practice of hiring and training of human capital.

This book also reflects on the importance of an explorative attitude of the management team, and in particular of those in charge of aligning the skills of individuals and teams with those required by the competition. As forms of emotional and social intelligence become increasingly important in an open and relatively complex context, the work of those who deal with people and teams should not stop at the traditionally considered ingredients. To understand how to extract the potential of human resources organized in teams (today the 'elementary' unit of innovation processes), evaluation should incorporate a deeper appreciation of individuals' skills portfolios as well as continuous observation of behavioral practices.

In the analysis of behaviors it will be more and more important to observe—in addition to the strengths of the organizations—the emotional strengths of individuals. New models of innovation see social skills as even more important. And, since innovation is a long-lasting process with a high failure rate, it is important to ascertain the 'resilience' of the individuals involved. The humanization of innovation cannot be exempted from a precise understanding of the empathy of individuals and their ability to value feedback and criticisms. Both are opportunities to learn and thrive. They permit to connect to others, to understand their thoughts, to develop that level of psychological security that consents a member of a team to praise others in a genuine way. Emotional intelligence, as this volume suggests, should justifiably be treated as one of the strengths that have the greatest impact on the innovation process.

In the age of knowledge and platforms, the development of a behavioral competency emerges as unavoidable. Teamwork and leadership, to name but two behavioral attributes, play a key role in the advancement of individuals in organizations. In the pursuit of an organization's purpose, a purpose not limited to profit maximization but broadened to impact on a wider community, is of paramount importance that professional growth is matched by personal growth. In my opinion, the link between behavioral competencies and welfare is an issue that entrepreneurs and managers still do not fully acknowledge. In this regard, the analysis of the contributors is worthwhile.

Teaming up, and performing credibly in a team, also has no end in sight. Interacting with others is a continuous process which implies exercising one's own capabilities and evolving them. New product development teams are a privileged observatory for assessing behavioral competencies and learning by interaction mechanisms along the different stages of the innovation process. For these reasons, the focus of the authors on these cross-functional units proves to be particularly useful.

Through the experience gained at the Ca' Foscari Competency Centre at Ca' Foscari University, the authors have been able to document the impact of roles and behavioral competencies on innovation. In my opinion, the interaction that takes

place at the level of cross-functional teams is one of the most reliable ways to verify the existence and proper use of such critical capabilities.

If, in a conscious way, entrepreneurs and managers understand the value of the new approach to behavioral skills, it will be almost inevitable to rethink training and development programs in the area of human resource management. An enriched competency-based framework will inject consistency into the attempt to match the quality of individual and organizational abilities with the new portfolio of attributes that competitive landscapes are asking for. On this point, the credibility of the authors is also fueled by their experience in designing competency-driven management training programs that have also had international visibility and recognition.

The message is clear: a specific preparation is needed for the new recruiters. If the skills at the basis of innovation change, the approach of the breeders towards the most important resource for each organization—humans—must change. It will probably be necessary to systematically entrust the selection and subsequent development of individuals, especially those involved in innovation processes, to an inter-functional and interdisciplinary team. This is a great occasion for stimulating an important cultural growth for companies. And, the magnitude of the new approach is justified by the significance of the issues being addressed.

Talented people want to work for organizations that harness their skills. People are attracted to contexts in which they can express their potential to the fullest. In this sense, if an organization is seen as able to accelerate the development of the same skills that will contribute to career development, it will arouse not only curiosity but attention. In this sense, an organization renowned for being a fertile ground for valuing social and emotional skills will have a significant potential to attract the best.

I had the privilege of observing the professional growth of the authors over a significant period of time. I do believe that their curiosity in exploration combined with methodological rigor in surveying changes and behaviors well synthesize their research skills. Anyone who wants to understand the ingredients of any recipe—even the entrepreneurial one—cannot renounce the enactment of both of these characteristics. Their skills on Organizational Design complete and give meaning to those possessed in the field of Organizational Behavior. We are in the presence of a mutualistic symbiosis: in order to express themselves, behaviors require adequate structures which, in turn, play an important role in the development and affirmation of different forms of competence.

The book is useful not only because it enables us to understand the past (through the treatment of the many contributions on the topic of innovation, social and emotional intelligence, behavioral skills) and the present (through micro-analyses and empirical studies conducted on organizations, individuals, and teams developing new products). The real potential of the authors' observations lies in the accompaniment to the future of a large number of enterprises, not necessarily big.

The stereotype of our enterprises refers to entities engaged in exploitative execution. Little space and time is left for exploration activities, for a careful analysis of individual behaviors and relational practices among members in a team. Instead,

what we are observing advises us to correct the path. Innovation itself, as said at the beginning, is exploration. Every exploration, perhaps even in the reader's experience, generates enthusiasm and suspiciousness. Sometimes we are wary because we ignore the scope and consequences of novelties. A different appreciation of social and emotional intelligence can help to reduce the sense of mistrust of change. Through others, credible people we trust, abandoning the comfort zone is less traumatic.

Furthermore, the contribution I recognize in this volume in terms of preparation for the future concerns the growing affirmation of a system of multiple intelligences that learns in a different but, hopefully, complementary way (human and machine learning). This is something that is happening in a widespread way. For a better interaction with artificial intelligence, whose use is still largely inspired by criteria of efficiency, a natural intelligence is required that also includes social and emotional intelligence. The enterprise becomes not only a distributed intelligence system, but a distributed system of multiple competencies.

Bringing organizations and, above all, individuals to reflect on the adequacy of their repertoire of knowledge, on know-how, and on knowing how to be is both an ambitious and a much-needed objective.

Bologna Business School
University of Bologna
Bologna, Italy

Andrea Lipparini

# Preface

Why do some people get exceptional results? How can we improve the performance of individuals and teams? These are some questions that probably every CEO, HR director, and manager asks himself every day. And they are not the only ones asking these questions. Business schools, universities, teachers, and trainers are all asking the same questions—in addition, of course, to all those who work within organizations of every kind and want to improve themselves.

To provide an answer to these questions, the Ca' Foscari Competency Centre was founded in 2012 within the Ca' Foscari University of Venice in Italy. At this center, team of researchers works with the aim to increase performance, through the development of individual behavioral competencies. People think that having more technical skills allows them to obtain better results. But for more than thirty years, scientific research has taught us that although technical skills are required to perform a job, they alone do not allow us to attain excellent performance. On the contrary, behavioral competencies, like emotional, social, and cognitive competencies, are the true determinants of outstanding performance. Within the Ca' Foscari Competency Centre, and in collaboration with the preeminent scholars and research centers in the world on these topics, we develop training courses to improve these skills and tools to evaluate them, and—above all—we do a lot of research to identify the most relevant skills for specific roles and for specific processes. In so doing, we help thousands of people to obtain better results and, ultimately, to live better lives.

This book seeks to answer the above questions, exploring the role of entrepreneurs and professionals who work in new product development teams, and contains the results of our research on the behavioral competencies that these roles demonstrated in pursuing innovation. This book is a journey into the as yet unexplored world of the sources of innovation, where the roles that are involved in generating innovation face new problems every day and have to adopt a complex set of behaviors to address them.

For those who are directly involved in innovation processes, this book is a guide for evaluating themselves and comparing themselves to others, to better understand one's own strengths and weaknesses, and to learn the ways to acquire certain

competencies that today are not adequately possessed. For those who are approaching to these professional roles, it is a way to immerse themselves into the reality and understand the job content. For those who are in charge of training programs, as well as for educational institutions, this book is a tool to guide the design of new courses and curricula, which include the development of behavioral competencies and use consistent tools and methods. For others, this book aims to be a map to guide them toward a better awareness of what is needed to generate better innovative performance.

Venice, Italy

Sara Bonesso
Laura Cortellazzo
Fabrizio Gerli

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There are so many people who have contributed to our research over the last few years that it is impossible to name them all. Here, we want to express gratitude to some of them who have been particularly outstanding for their ideas, points of view, discussions, intellectual stimuli, encouragements, and criticisms. To Richard Boyatzis we owe the inspiration and the countless opportunities to share our ideas and findings. His suggestions are of immeasurable value, and his tireless support has oriented us within the line of research on behavioral competencies and has helped us to give life to the Ca' Foscari Competency Centre, which currently helps thousands of people to perform better in their jobs and to be happier in their lives. We also express gratitude to the colleagues of the GLEAD—the Leadership Development Research Center of ESADE at Ramon Llull University—and in particular to Joan Manuel Batista-Foguet and Ricard Serlavós Serra, for their continuous willingness to share methods, tools, experiences, and perspectives.

Another big thank you goes to all the colleagues at the Department of Management of the Ca' Foscari University of Venice, with whom we had the opportunity to share our research, and most especially to Anna Comacchio and Andrea Pontiggia, who have demonstrated that they believe in this research and have been a great source of encouragement and of precious discussions, as well as to Elena Bruni, for her valuable presence in the activities of our research center.

We are also grateful to the Scientific Committee of the Ca' Foscari Competency Centre, and particularly to Giovanni Giuriato, Luca Giustiniano, Paolo Legrenzi, and Pia Masiero, for having oriented our lines of research and for the richness of the experiences they bring during each and every meeting.

Of course, this book would not have been possible without the entrepreneurs and the professionals who work in the new product development teams, who generously shared with us some moments of their job and allowed us to understand the deep meaning of their behaviors and choices, as well as to delve into their problems and to follow the decision-making processes they adopted. The regret of not being able to thank them one by one, for reasons of confidentiality, is as great as the gratitude toward them.

Finally, we wish to express our utmost gratitude to Maria Raffaella Caprioglio and Giuseppe Venier, and to all the other marvelous people we have met in UMANA S.p.A, for cooperating in both our research and training activities and being reliable and outstanding partners.

And, of course, we cannot forget our families and friends, who kindly and patiently endured our physical and mental absence while we conducted this research and wrote this book. To them all, we offer a hug of love.

# Contents

# About the Authors

**Sara Bonesso** is Associate Professor of Business Organization and Human Resources Management at the Ca' Foscari University of Venice, where she received her Ph.D. in Management. She is one of the founder and the vice-director of the *Ca' Foscari Competency Centre*, a research centre aimed to improve individuals' performance and employability through the development of behavioral competencies (www.unive.it/cfcc). She has been visiting scholar at the Industrial Performance Center—Massachusetts Institute of Technology (Boston, USA) and at the Fraunhofer Institute for Systems and Innovation Research ISI (Karlsruhe, Germany). She is Associate Editor of *Frontiers in Psychology* (section Organizational Psychology) and member of the *Consortium for Research on Emotional Intelligence in Organizations*. Her research interests lie in the fields of Organizational Design, Organizational Behaviour and Human Resources Management. Her recent research investigates the development and the assessment of emotional and social competencies, the competency profile of big data professionals and of entrepreneurs, the impact of behavioral competencies on entrepreneurial intent, innovation, employability and career development. Her research has appeared in various journals, including Journal of Vocational Behavior, Industrial and Corporate Change, Creativity and Innovation Management, Journal of Small Business Management, Frontiers in Organizational Psychology, Technovation, The Journal of Technology Transfer and the European Management Journal. Her recent works has been presented in several international conferences, such as AOM (Academy of Management), EURAM (European Academy of Management), BAM (British academy of management), IWHRM (International Workshop on Human Resources Management), ICEI (International Congress of Emotional Intelligence), and ISBE (Institute for Small Business Entrepreneurship).

**Laura Cortellazzo** is a post-doc research fellow and adjunct professor at the Department of Management, at Ca' Foscari University of Venice. She is also research fellow at the Ca' Foscari Competency Centre. She received her PhD in

Management at Ca' Foscari University of Venice, and a PhD in Management-People management and organization at ESADE Business School in Barcelona. Her research interests are related to the assessment and development of behavioral competencies, leadership, and individual change. In recent works, she investigates the role of behavioral competencies in fostering employability and career orientation, she analyzes the development of behavioral competencies through experiential learning, and develops and validates scales related to behavioral competencies and leadership. Her recent works has been presented in several international conferences, such as AOM (Academy of Management), EURAM (European Academy of Management), BAM (British academy of management), IWHRM (International Workshop on Human Resources Management), ICEI (International Congress of Emotional Intelligence), and ISBE (Institute for Small Business Entrepreneurship). Her research has appeared in the Journal of Vocational Behavior, the Journal of Small Business Management, and Frontiers in Organizational Psychology.

**Fabrizio Gerli** is Associate Professor of Business Organization and Human Resources Management at the Ca' Foscari University of Venice, where he received his Ph.D. in Management. He is also one of the founders and the Director of the *Ca' Foscari Competency Centre* (a research centre aimed to improve individuals' performance and employability through the development of behavioral competencies) and the Scientific Coordinator of post-graduate courses in Human Resources Management at Ca' Foscari. He has been in charge of several research projects funded by the Italian Ministry of Labor, the Italian Ministry of Research, the European Institute of Public Administration and the European Social Fund. He has been visiting professor at HIBA (Higher Institute for Business Administration) in Damascus. He was also the founder and Scientific Director of the Master Program in Innovation Management and the Scientific Director of the full-time MBA at CUOA Business School, where he was also the Scientific Director of the *Competency Development Department*. He has also been member of the Board of Directors of Fondazione Università Ca' Foscari. He is also Associate Editor of *Frontiers in Psychology* (section *Organizational Psychology*), member of the Editorial Board of the *Engaged Management Review* and peer reviewer for some management journals. In 2011 he was appointed as member of the *Consortium for Research on Emotional Intelligence in Organizations*. His research embrace the fields of Human Resources Management, Organizational Design and Organizational Behaviour, with a specific interest on the development and evaluation of emotional, social and cognitive competencies, and their impact on individual and organizational performance. His research has been presented in several international conferences and workshops, such as AOM (Academy of Management), EURAM (European Academy of Management), BAM (British Academy of Management), EGOS (European Group of Organizational Studies), IWHRM (International Workshop on Human Resources Management), ICEI (International Congress of Emotional

Intelligence), EUROMA (European Operations Management Association) and ISBE (Institute for Small Business Entrepreneurship) and has been published in various journals, including: Industrial Relations, Frontiers in Organizational Psychology, International Journal of Operations and Production Management, Journal of Vocational Behavior, Industrial and Corporate Change, Creativity and Innovation Management, Journal of Small Business Management, European Management Journal, Journal of Management Development, Cross Cultural Management, International Journal of Training and Development.

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# Chapter 1
# Current Trends in Innovation Management and the Role of Human Capital


*Individuals, not the organization, are the ones that identify and exploit new innovative ideas in collaboration with external partners, and they are the ones that may become more efficient at generating new ideas through teamwork and partnership.*

*(Rangus and Černe 2017:169)*

## 1.1 Organizational Solutions to Realize Open and Distributed Innovation

At the beginning of this century, Procter & Gamble shifted from a centralized R&D structure to a decentralized global networking model to approach outside sources of innovation better following the mainstream of the open innovation paradigm (Chesbrough 2003). It abandoned the traditional 'research and development' logic to embrace the 'connect and develop' one. In replacing 'not invented here' with 'proudly found elsewhere,' it significantly changed the way in which the innovation process was organized and altered the skillset required by its professionals. The radical changes introduced encompassed the engagement of outside scientists or engineers in addition to the 7500 in-house researchers; the establishment of relationships with research institutions and universities in different countries; the creation of an IT platform that allows the sharing of technology briefs with the suppliers; the extensive use of web-based innovation intermediaries that help to link externally sourced solutions to internal problems (InnoCentive, NineSigma, YourEncore and Yet2.com); and the development of a network of technology entrepreneurs, senior P&G people based around the world who lead the development of the needs lists, create adjacency maps and technology game boards and define the technological problems to solve and create external connections. Only a few years later, more than 35 percent of the company's new products contained elements that originated from outside, the productivity increased by nearly 60 percent, R&D investment as a percentage of sales declined from 4.8 percent in 2000 to 3.4 percent in 2006, more than 100 new products were generated during the period 2004–2006



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and P&G was the big winner of the New Product Pacesetters list in 2013, launching 7 of the top 10 most successful non-food products of the year (Dodgson et al. 2006; Huston and Sakkab 2006; Ozkan 2015).

This pioneering experience has been followed by other companies during the last decade and has extended to small and medium-sized firms and public and not-for-profit organizations (West and Bogers 2016). The phenomenon of converging technologies has increasingly spurred firms to find innovative solutions in different fields (Enkel and Gassmann 2010), whereas the proliferation of digital technologies in the innovation process has rapidly changed the way in which firms collect, analyze and transfer knowledge and conduct forecasting and decision-making activities (Johnson et al. 2017; Urbinati et al. 2020). Consequently, companies are required to revise their approach to innovation, redesign their internal and network organizational structures and create new roles to streamline the flow of knowledge and its use within the innovation process (Boscherini et al. 2013; Chiaroni et al. 2010; Salter et al. 2014).

Another example of how these trends are progressively modifying the way in which firms organize their innovation process is offered by Swarovski. After a century of monopoly in crystal cutting, the company observed a sudden increase in the number of competitors, which were offering similar products at lower prices. It recognized the need to open up its boundaries to outside knowledge and engage external partners in different stages of the innovation process. In 2012, the company started an organizational change in which the R&D and marketing units were merged to form a research, design and innovation (RD&I) department. Coordination mechanisms have been introduced to improve the capacity to look outside and integrate the acquired knowledge internally; among them, a dedicated team for external collaborations, called open innovation networks, was appointed to search externally for new ideas, develop cross-industry partnerships and define knowledge-sharing practices and intellectual property management policies. In 2016, with the continued growth of digitalization, technical advancements and competition, the company again redesigned its innovation process. The centralized RD&I started to generate internal competition and frustration. Moreover, 'the hierarchical structure and a rather closed innovation cultural mind-set still existed in some parts. Swarovski's open innovation process was still being managed by a selected group of people, and there were limited possibilities for internal and external engagement and experimentation' (Dąbrowska et al. 2019:9). In 2017, the open innovation networks unit was substituted with a new organizational structure and mechanisms that promoted open innovation as a 'way of working' for all internal employees, who were asked to become 'independent open innovation professionals.' Specifically, employees were encouraged to create external networks of their own and to develop an open innovation mind-set. Cross-functional collaboration and knowledge sharing were promoted through internal workshops and the introduction of open innovation platforms and support systems for collaborative innovation and technology intelligence. A reward system encouraging employees' internal and external collaboration as well as experimentation was introduced. Focus area leaders for selected business fields were appointed and empowered with a dedicated budget. Finally, the

company initiated the innovation ventures program to establish relationships with start-ups in digital business areas (Dąbrowska et al. 2019).

The creation of an open and distributed innovation ecosystem also requires the increasing use of users as external sources of creative insights, as in the case of LEGO, which relies strongly on its user innovation community through LEGO Ideas, an online platform on which customers submit their innovative insights for LEGO products. Before being eligible for formal evaluation from designers in LEGO, the idea must obtain more than 10,000 votes of support from other members of the community (Ma et al. 2018). Moreover, with the widespread use of digital technologies, open innovation is increasingly conceived as a platform strategy. The so-called platform ecosystem 'enables external actors to develop complementary innovations in areas that are outside platform owners' expertise' (Hilbolling et al. 2020:20). This is the case of the Philips Hue smart lighting system, a digital product platform that has solicited the contribution of external developers, attracting more than 400 third-party apps.

These changes implemented in the internal organizational structure (such as the creation of ad hoc units, dedicated teams, spin-offs, start-ups and corporate venturing activities) and the orchestration of the external network—through research contracts, partnerships, crowdsourcing and online innovation communities—also require a redesign of the skillset mobilized by individuals during their innovation endeavor (Bogers et al. 2018). Specifically:

- A different composition of knowledge and competencies is required from R&D personnel, shifting toward a focus on integrators of knowledge and expertise (Petroni et al. 2012). It is becoming necessary for R&D personnel to possess a background of knowledge and experience that enables them to communicate and interact with partners outside the company and operate in different industrial sectors, to recognize cross-industry opportunities and to start collaborations even with partners with a high cognitive distance (Enkel and Gassmann 2010). On the intra-organizational side, they are required to facilitate the absorption of external technological and management knowledge through close collaboration with colleagues in other functional areas. Therefore, they are expected to manifest managerial skills and an understanding of the firm's overall processes in addition to their technical–scientific expertise, which Petroni et al. (2012), in their empirical study, defined 'T-Man.' Individuals should demonstrate their absorptive capacity by combining the exploration of new opportunities (being alert to technological and market trends, open to experience in unfamiliar contexts, oriented toward ambitious goals and willing to communicate and collaborate with external partners) with the effective assimilation of the new knowledge (being aware of the organization's expectations to assess the market potential of a new idea and of its culture and internal language to transfer the external insights and being internally connected with the rest of the organization to increase the acceptance of external knowledge) (Enkel et al. 2017).
- Organizations are adopting a project-based view of open innovation (Bonesso et al. 2014). This implies an increasing need for integration among previously

separated functional units involved in the innovation project to overcome the 'silos mentality' in favor of a more cooperative approach. Indeed, the open innovation paradigm has questioned the conventional stage-gate process adopted in new product development (NPD) projects, highlighting the importance of assuming 'external thinking' at the different stages of the project and not only at its early stage (Grönlund et al. 2010). Consequently, every functional member of the NPD is empowered to engage in the external scanning of the environment, the search for potential partners to engage in the innovation endeavor and the knowledge integration. Therefore, more attention should be devoted to the other functional roles that cooperate with R&D professionals to attain successful NPD project outcomes.

- More intermediary roles act at the interface with the aim of supporting the knowledge flow among external partners, as the company progressively shifts from a firm-centric approach to a collaboration-centric one, in which open and distributed innovation is enacted as collaboration within a large network of partners. In their study, Ollila and Yström (2017) identified three roles that are used in institutionalized open innovation collaboration: (1) the facilitator role, which transfers knowledge across people and organizations and sometimes even between industries; (2) the tactician role, which expands the power base and resolves conflicts; and (3) the sensegiver role, which brings meaning and helps people to make sense of the complexity and ambiguity inherent in innovation. In all these roles, interpersonal skills are crucial to set up the relationships, gain the trust of the partners and coordinate the relationships to achieve the innovation goals.
- Technology intelligence and monitoring activities are assuming relevance, not only in large high-tech companies but also in medium-sized firms (Petroni et al. 2012), and 'individuals are increasingly being encouraged by their employers to seek knowledge from external sources to sustain and stimulate corporate open innovation and strategic renewal programs' (Salter et al. 2015:488). Therefore, new skills at the individual level are required to question the status quo critically, observe the external environment curiously and find combinations of knowledge creatively through active experimentation (Dyer et al. 2008; Sjödin et al. 2018).

Despite the adoption of the open and distributed model of innovation has increased the relevance of the human factor in organizations, our understanding of individual-level contributions to the innovation process in the current context is still limited (Salter et al. 2015). As suggested by West and Bogers (2016:3), more attention needs to be paid to the role of individuals, since the 'innovation activity of an organization is interpreted, decided, and implemented by its employees, and thus we need more research on the influence of these employees.' However, what are the personal characteristics that hallmark those professionals who contribute the most to the innovation process? Adopting a micro level of analysis, the next section will provide a review of the evidence accumulated over time on the contribution of human capital to the innovation process, pointing out the light and shadows of this relationship.

## 1.2 How Does Human Capital Contribute to Innovation? Insights from the Current State of the Art

As discussed in the previous section, the individual is one of the principal tenets in the current open innovation paradigm. However, linking particular dimensions of human capital to innovation is still a matter of debate. By reviewing the scholarly contributions to this issue, we can identify some of the main dimensions of human capital that have traditionally been conceived as enablers for attaining positive innovative outcomes.

The first dimension of human capital is education, in terms of both the achievements/years of schooling and training and the type of disciplinary field. Graduate employees and entrepreneurs, especially if they hold an education in science/engineering disciplines, seem to help a firm to identify and gain benefits more easily from relevant technological knowledge and opportunities (OECD 2011; Østergaard et al. 2011; Romijn and Albaladejo 2002). This can be explained by their willingness: (1) to assess the advancements of new technologies; (2) to gain access to external sources thanks to their relationships with universities and research centers; and (3) to transfer outside knowledge and exploit it internally due to their working methods. However, the evidence regarding the impact of education on innovation is mixed. In their study, Ahn et al. (2017) found that a CEO's academic degree is not significantly associated with open innovation adoption. Schneider et al. (2010) found that educated employees are not necessarily positively related to firms' probability of innovating, and McGuirk et al. (2015) showed that none of the innovation types that they considered in their study are affected by a higher level of education across small and larger-sized firms. Moreover, research has highlighted the need to investigate not only the direct effect but also the indirect impact of human capital on innovation outcomes considering other factors that can explain this relationship better (Kato et al. 2015).

Another dimension that has reported controversial results is professional experience in terms of knowledge accumulated over time in a specific industry or technological field. Work experience allows individuals to acquire tacit knowledge and develop technical skills to support the acquisition of resources for innovation and at the same time decreases uncertainty about the value of opportunities. However, recent empirical studies have found that prior experience does not affect the radicalness of the innovation solutions (Protogerou et al. 2017) and that it may hamper the innovation outcomes due to path-dependent behavior that can hinder new knowledge acquisition or sharing (Ahn et al. 2017).

Another relevant dimension of human capital considered in the literature is the knowledge diversity or breadth, which also represents an essential component of the individual absorptive capacity (Cohen and Levinthal 1990). Research has demonstrated that individuals with a broader knowledge base are able to learn more effectively from external sources, minimizing the amounts of time and resources devoted to the external knowledge search and the coordination costs associated with its internal integration, because it allows them to cope better with the problems associated with partnering a large number of knowledge sources. Moreover, a broader knowledge base favors a combinatorial advantage compared with individuals who are

more narrowly focused. Indeed, being familiar with different knowledge domains allows individuals to recognize opportunities and to create useful and new combinations of knowledge from diverse sources (Bogers et al. 2018; Salter et al. 2015).

Recently, research has started to analyze the impact of personality traits and individual orientations on innovation performance, advancing the understanding of further dimensions of human capital (Ahn et al. 2017; Keller 2017). Moreover, other contributions have focused on specific cognitive processes and related behavioral patterns manifested by individuals that are involved in recognizing external opportunities and translating them into innovative solutions through knowledge recombination. This is the case of those studies that have analyzed how individuals deploy associational and analogical thinking during the innovation process, with specific regard to the figure of entrepreneurs (Baron 2006; Baron and Ensley 2006; Dyer et al. 2008).

Table 1.1 reports some examples of the studies that have analyzed the aforementioned dimension of human capital and its relationship with innovation outcomes.

**Table 1.1** Human capital dimensions and innovation

| Human capital dimensions | Innovation outcomes | References |
|---|---|---|
| Education | Positive effect on firm innovation capacity | Romijn and Albaladejo (2002) |
| | Indirect effect on innovation outcomes through R&D investment | Kato et al. (2015) |
| | No effect on product, service and process innovation | McGuirk et al. (2015) |
| | No effect on open innovation adoption | Ahn et al. (2017) |
| Experience (such as professional background in the field and industry experience) | Insignificant effect on the radicalness of product innovation | Protogerou et al. (2017) |
| | No effect on open innovation adoption | Ahn et al. (2017) |
| Individual knowledge breadth | Positive effect on idea creation | Salter et al. (2015) |
| | Openness to external knowledge | Bogers et al. (2018) |
| Personality traits and personal orientations (such as self-esteem, innovative orientation, ability to deal well with unclear situations, open innovation orientation, entrepreneurial orientation and patience) | Job performance, project profitability and project speed to market | Keller (2017) |
| | Positive effect on open innovation adoption | Ahn et al. (2017) |
| Cognitive skills (associational thinking, analogical thinking and pattern recognition) | Innovation outcomes | Dyer et al. (2008) |
| | Innovative business opportunities | Baron and Ensley (2006) |

From the in-depth analysis of the innovation management studies that have focused on the role of human capital in promoting innovation, some main considerations can be drawn.

Firstly, extant contributions have primarily devoted their attention to the 'tangible or generic element' of human capital (Becker 1993) considering the individual level of education and the prior professional experience, finding mixed results on their relationship with innovation outcomes. Some studies have also considered the role of personality traits and individual orientations in favoring individuals' ability to absorb external knowledge from outside (Ahn et al. 2017; Keller 2017). Notwithstanding the relevance of technical skills and personality traits that distinguish innovators from non-innovators, an in-depth account of the actual behaviors manifested by innovators is still lacking. Only recently has the innovation management literature started to consider the so-called 'intangible elements' of human capital (McGuirk et al. 2015), namely the soft skills or behavioral competencies for innovation (Bonesso et al., in press; Du Chatenier et al. 2010; OECD 2011). When considered, these competences have been analyzed in their cognitive dimension, such as lateral and analogical thinking (Enkel and Gassmann 2010; Gassmann and Zeschky 2008), neglecting the relevance of other behavioral competencies that are increasingly considered important to pursue innovation in the current workplace, such as self and interpersonal management skills (Du Chatenier et al. 2010).

Secondly, the extant research has mainly considered the contribution of human capital to the development of new products. The literature has distinguished between technological and non-technological innovations, of which the former encompass product and process innovations while the latter include organizational and marketing innovations (Gault 2018; Geldes et al. 2017; Tavassoli and Karlsson 2015). Even though all these types of innovation contribute to the company performance, they may require different individual capabilities to be pursued (Vila et al. 2014).

Lastly, studies have focused their attention on the investigation of the personal characteristics of R&D engineers and scientists, underestimating the relevance of other professional profiles that may have a crucial impact on the innovation process. As discussed in the previous section, the wide spread of open innovation practices has increased even more the use of cross-functional teams as one of the main internal coordination mechanisms adopted for managing the new product development process. However, limited attention has been devoted to the investigation of the characteristics of human capital of other innovation professionals, operating in functional areas such as marketing, sales, operations and industrial design. Moreover, in small- and medium-sized enterprises, in which typically the decision-making process is highly centralized, the innovation process is strongly influenced by the characteristics of their entrepreneurs and chief executive officers. Empirical evidence has provided support for the importance of the stock dimensions of entrepreneurs' human capital in attaining innovative performance. Nevertheless, few studies have attempted to describe the actual behaviors or skills that distinguish innovators from non-innovators (Ahn et al. 2017; Dyer et al. 2008).

## 1.3 The Emotional Intelligence Side of Innovation

What happens inside individuals' brains when they innovate? A recent development in the neuroscience research has mapped the brain regions activated during divergent thinking (Beaty et al. 2018), confirming and even advancing what prior studies have found in jazz musicians improvising melodies, poets writing lines of poetry and visual artists sketching book cover ideas (Ellamil et al. 2012; Liu et al. 2015; Pinho et al. 2016). Innovation seems to originate from a strong connection between the default network, the executive control network and the salience network. The default network supports idea generation, whereas the executive network promotes idea evaluation. Furthermore, the salience network identifies promising ideas generated within the default network and forwards such information to executive systems for higher-order processing (Beaty et al. 2018). The neurological approach to the micro-foundation of innovation points out the pivotal role played by these three regions of the brain not only in promoting individuals' readiness to be creative but also in demonstrating emotional intelligence, defined as 'the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others' (Mayer et al. 2000:396). More than thirty years of research has demonstrated that emotional intelligence accounts for an important amount of variance in predicting performance in the workplace (Boyatzis 2009; Cherniss 2000), but what is the role of recognizing, understanding and regulating one's and others' emotions in fueling innovation?

Recently, studies have demonstrated that engineers, by intentionally paying attention to openness to and curiosity about the present situation while they are innovating, a state defined mindfulness, strengthen their ability to 'think outside the box' (Rieken et al. 2019). Mindful self-awareness represents the cornerstone of the different emotional intelligence frameworks proposed in the academic literature (Cherniss 2000), but it is not the only element of emotional intelligence that can contribute to innovation. Adopting a behavioral approach to emotional intelligence (Boyatzis 2009; Goleman 1995, 1998), emotional and social competencies encompass both action (that is, a set of alternative behaviors varying according to the situation) and the intent that moves individuals to manifest the behaviors. The most recent advancement in the competency-based model of emotional intelligence defines three main clusters of behavioral competencies, namely the ability to recognize, understand and manage one's own emotions (emotional competencies); the ability to understand other people's concerns, feelings and emotional states; the capacity to build and maintain positive relationships and to behave appropriately with others (social competencies); and the ability to analyze information and situations (cognitive competencies) (Boyatzis 2009; Goleman 1998). Emotional and social competencies involve those parts of the brain that are associated at the same time with emotions (Cherniss 2000) and creative thinking (Beaty et al. 2018). The default mode network is activated when the brain is not performing a cognitive or attentional task, which is called 'passive or wakeful rest,' such as during daydreaming and mind wandering. Recent discoveries in the neuroscience field have found

that the default mode network is also implicated in: (1) thinking about oneself (autobiographical memories of a collection of past events and reflection about personal characteristics and emotional states); (2) thinking about others (understanding of the emotions of other people and thinking about what others might or might not know); and (3) thinking about past memories and the envision of the future. Conversely, the executive network is necessary for selecting and successfully monitoring behaviors that facilitate the attainment of defined goals, such as attentional control, cognitive inhibition and cognitive flexibility, whereas the salience network is involved in the detection and integration of emotional and sensory stimuli. During the last years, neuroscience has made remarkable progress in identifying the brain regions correlated with emotional intelligence. For instance, Smith et al. (2017) found that self-awareness is the result of the perceptual processing of bodily feelings through the salience network and the conceptualization of those feelings by means of the default mode network, whereas empathy, the ability to identify and understand another person's emotions and perspectives, involves motoric, attentional and self-referential processing and requires the joint activation of the default mode, salience and executive networks (Bilevicius et al. 2018).

As most organizations are shifting toward a more complex distributed model of innovation, they require emotionally intelligent employees, who are able to understand and manage themselves and others. Abilities such as building and maintaining social relationships, connecting seemly unrelated domains for creating innovative combinations or being mindful of the present situation to facilitate divergent thinking are assuming increasing relevance in the current way in which companies organize the innovation process. Although neuroscience has offered new insights into the relationship between emotional intelligence and creative thinking, still anecdotal evidence and little research have contributed to the understanding of the behavioral component of emotional intelligence in enhancing individuals' innovation capacity (Du Chatenier et al. 2010; Hess 2014). The challenges posed by the emerging innovation models call for a deeper investigation of the behavioral competencies that play a role in the innovation process and a better understanding of how they are enacted by individuals.

## 1.4 The Aim of This Book and Its Structure

This book, adopting the micro level of analysis, provides the first comprehensive investigation of those individual behaviors required to generate innovation in the organizational context. Offering emerging insights into the human side of innovation through the lenses of emotional and social intelligence competencies, this book aims (1) to advance the understanding of the relevance of behavioral competencies to fostering the innovation process, not only considering their cognitive dimension but also extending the analysis to their emotional and social components; (2) to offer a comprehensive review of the competency profile required by the key roles in charge of the innovation process inside the firm, not limiting the analysis to R&D

professionals but also taking into account managerial positions leading different functional departments as well as entrepreneurs who usually promote and handle different types of innovation at the same time; and (3) to provide insights for educators and practitioners in the human resource management field into those effective behaviors that favor the attainment of innovation outcomes.

The structure of the book is as follows.

Chapter 2—*The Intangible Human Side of Innovation: A Competency-Based View*. Starting from the premise that it has become strategically important for firm performance to identify and evaluate the key characteristics of those individuals in charge of the firm innovation process, the chapter focuses on the intangible elements of human capital and specifically on the role assumed by emotional and social intelligence competencies. After illustrating the history of the concept of emotional intelligence and the related theoretical approaches, the chapter adopts a competency-based perspective, introducing the concept of behavioral competencies and their relationships with individual performance. It also reviews the most relevant and consolidated competency inventories developed in the last decades, opening the debate on how the existing frameworks can be integrated to address better the current needs of companies in facing the emerging challenges of the innovation process. The chapter contributes to this issue by proposing a fine-grained classification of thirty behavioral competencies for innovation as a result of a comprehensive analysis of the extant competency-based research and the recent contributions in the field of innovation management. The competency framework encompasses six areas of competencies (awareness, action, social, cognitive, exploration and organizational action) that will be adopted in the empirical studies described in Chaps. 3 and 4.

Chapter 3—*Entrepreneurs and Innovation: Mobilizing Behavioral Competencies in Different Types of Innovation Processes*. Entrepreneurs represent an essential driver of innovation through the development of new products and processes, the exploitation of new markets, the introduction of new ways to organize firms and the implementation of new business models. While the connection between entrepreneurship and technological (product and process) and non-technological (organizational, marketing and strategy) innovation has been widely acknowledged, there is an increasing need to investigate the factors that may better explain the differentials in terms of entrepreneurs' innovation capacity at the individual level. Evidence has been provided on the positive relationship between the tangible elements of entrepreneurs' human capital, in terms of educational background and prior technology knowledge, and their ability to pursue innovation, while limited attention has been devoted to those competencies that entrepreneurs require to promote and implement different technological and non-technological innovations. This chapter addresses this void by presenting stories of entrepreneurs who have introduced changes into their firm's products, processes, organization, marketing and strategy along with the related behavioral competencies that they mobilized to implement these different types of innovation successfully. The narratives illustrated in the chapter are based on empirical research conducted on a sample of Italian entrepreneurs leading small and medium-sized companies in different industrial sectors.

Chapter 4—*Behavioral Competencies in New Product Development Teams*. The behaviors of the key roles involved in NPD projects emerge as salient factors in explaining firm innovation performance. However, in prior studies, the description of their competency profile has remained vague, and research has mainly focused on the job profile of R&D specialists, underestimating the skillset of the other professionals who co-operate in the NPD process. This chapter addresses this void by exploring the competency profiles of R&D experts, marketing professionals and industrial designers involved in successful NPD projects in leading Italian innovative companies. The behavioral competencies of the three functional roles are analyzed according to the competency framework presented in Chap. 2, and their detailed and vivid narratives contribute to the understanding not only of the distinctive characteristics of each role but also of those behavioral competencies that all professionals should manifest to attain positive NPD outcomes.

Chapter 5—*Managing Innovation Through a Competency-Based Approach*. Starting from the theoretical and empirical contributions provided in the previous parts of the book, this chapter contributes to the current debate on how to foster firm innovation capacity by nurturing the behavioral competencies of the key roles involved in the innovation processes. Specifically, the chapter discusses how higher education can play a salient role in increasing awareness of the impact of behavioral competencies on innovation through the promotion of initiatives and training programs that enable entrepreneurs and innovation professionals to acquire the appropriate competencies and support their optimal use for innovation activities. Moreover, it offers insights into how HR practitioners can benefit from the competency-based approach, on the one hand, to improve the effectiveness of the selection and recruiting processes of candidates who are asked to contribute to the innovation activities and, on the other hand, to design competency assessment and development programs. Further, the chapter discusses how firms can benefit from a competency-based development program across organizational units to stimulate individuals' awareness of the relationship between behavioral competencies and innovation.

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# Chapter 2
# The Intangible Human Side of Innovation: A Competency-Based View


*If defined as a single construct, the tendency to believe that more effective people have the vital ingredients for success invites the attribution of a halo effect. (…) The separate competencies, like the clusters, are, we believe, the most helpful focal point for description and study of performance.*

*(Boyatzis 2008: 8)*

## 2.1 Emotional Intelligence: The Origins

In the last decades, the concept of emotional intelligence has radically changed both the working and the training environment by offering a new perspective on the main influences on performance at the individual level. Multinational companies have started to implement training programs and adopt emotional intelligence as a key element for recruitment processes, showing notable results. For instance, a project undertaken in PepsiCo revealed that executives selected based on their emotional intelligence clearly outperformed their colleagues, leading to powerful improvements of organizational outcomes, such as a 10% increase in productivity, an 87% decrease in executive turnover and an increase of over 1000% in the return on investment.

The idea at the basis of the concept of emotional intelligence is that success in work and life depends not only on cognitive abilities but also on several personal characteristics that comprise the understanding and management of emotions and relationships (Cherniss 2010). This idea evolved in the last century through the contribution of several authors who investigated a central element of human survival: intelligence. The definition of intelligence is still quite controversial. Some people consider those who attain high grades at school to be intelligent. We all remember that classmate who, with little effort, achieved an A grade in all subjects, but we also remember the classmate who was always in the last row, not very interested in gaining an A, who is now a successful entrepreneur. Are we saying that good grades at school are not important? Of course not. We are saying that,



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according to experts in the field, intelligence is not only learning from books, or taking tests, but also the ability to deal with cognitive complexity (Gottfredson 1997), to achieve goals in a wide range of environments (Legg and Hutter 2007) and to make sense of and deal effectively with the environment (Wechsler 1944).

The roots of emotional intelligence can be traced back to the 1920s, when Thorndike highlighted the transversal importance of the ability to manage social relationships in human activities, classifying it as a form of intelligence. The author suggested the existence of three types of intelligence: abstract (related to verbal and symbolic thinking), mechanical (related to motion of the body and objects) and social. The latter was defined as 'the ability to understand and manage men and women, boys and girls—to act wisely in human relations' (Thorndike 1920:228) and conceived as a complex set of abilities, attitudes and social habits (Cherniss and Goleman 2001).

In the 1980s, Gardner (1983) elaborated the famous new conception of multiple forms of intelligence, based on the idea that there is not a single type of intelligence but rather a much wider range: linguistic; logic; musical; kinesthetic; visual–spatial; interpersonal; and intrapersonal. Interpersonal intelligence and intrapersonal intelligence constitute a strong basis for the current conception of emotional intelligence, as they consider the abilities to recognize and understand emotions of the self and of others and manage those emotions to regulate one's behaviors and social interactions as fundamental abilities to function intelligently in everyday life (Goleman 1998).

In the same period, the seminal work of Richard Boyatzis (1982) and David McClelland (1973) gave birth to a research movement that challenged the prevalent idea that traditional intelligence measures and psychometric tests are the best way to predict performance. Studies started to acknowledge that general ability is able to explain about 10 to 30 percent of the variance in job performance (Jensen 1980, 1998). Thus, the drivers of differences in job performance remained mostly unexplained.

Obviously, performance can be conceived as being a result of multiple factors. For instance, winning a soccer game may depend on the technical ability of the individual, but this is not the only driver. The outcome is also influenced by team members' ability to communicate and cooperate, by the ability to manage emotions in stressful situations, such as when the cheering in the stadium is hostile, by achievement orientation and by the ability to lead others with positivity to overcome difficulties. Similarly, the performance of managers was found to be influenced by both technical abilities and skills related to the management of the self and others. Goleman (1998), analyzing outstanding performers from hundreds of organizations in the U.S., recognized that effective people are characterized both by hard technical skills and by cognitive, social and emotional abilities and that the skills that distinguish leaders who excel in their role are mostly of the emotional and social type.

Subsequent studies revealed that emotional intelligence and general intelligence seem not to be much associated and that both contribute uniquely to performance and organizational advancement. This means that people who are good at analytical reasoning may or may not be good at managing emotions and relationships, and

vice versa, and that both elements are required to drive effective performance. Let us imagine Paul, who is a project manager with very good analytical skills and verbal and numeric comprehension abilities, but he is not very good at handling conversations with his collaborators, he rarely explains the arguments behind his decisions and he mostly keep his eyes on his mobile during meetings. Hellen is a very good listener; she often spends time with her collaborators talking about their life and asking for ideas and feedback. However, her analytical skills are not particularly strong and she often has trouble understanding the figures and data provided by the general manager. Who will be an effective project manager? Even though Paul is technically irreproachable, the lack of engagement with his team will meddle in the creation of a good organizational climate and create misunderstandings and a lack of motivation, thus undermining the outcome. Hellen's collaborators are more likely to experience a better working environment and will feel understood and valued, but technical errors will lead to delays and budget deviations that will move Hellen's team away from the expected performance. Usually, the greater the responsibilities, the more frequently we will find a Paul rather than a Hellen. This is not because people with greater responsibilities tend to disconnect from their collaborators but because a certain level of technical abilities is considered to be a threshold to have access to a role of responsibility. Thereby, technical skills are believed to be necessary to obtain a job, but they are not sufficient to achieve an outstanding performance in that job.

## 2.2 From Emotional Intelligence to Behavioral Competencies

All theories on emotional intelligence highlight the role that emotions play in everyday life and are based on the assumption that people differ in their ability to understand, use and manage emotions. However, different approaches to emotional intelligence have emerged in the last decades, providing their own definition and measurement model.

The cognitive approach. This is based on the work of Mayer, Salovey, and Caruso (1999), who considered emotional intelligence as a mental ability that comprises four components: the ability to perceive emotions, the ability to use emotions, the ability to understand emotions and the ability to manage emotions. The measure associated with this model is an ability test (MSCEIT), designed to measure the ability to learn emotional skills, just as IQ measures the ability to learn various cognitive skills (Ackley 2016). This approach has been criticized for being related more to traditional cognitive measures than other approaches (O'Boyle et al. 2011; Webb et al. 2013).

The internal approach. Bar-On's model defines 'emotional social intelligence' (ESI) (Bar-On 2006) as a mix of competencies, skills and facilitators that determines effectiveness in everyday activities. The construct is operationalized through the emotional quotient inventory (EQ-i), which is primarily based on self-report measures, although the last revision also included a 360-degree assessment. This

self-report approach has been criticized mainly because it measures the products of emotional intelligence rather than its constituents and because of the overlapping with personality measures (McEnrue and Groves 2006).

The behavioral approach. Based on the seminal work of McClelland, Boyatzis and Goleman, the behavioral approach, rather than focusing on what emotional intelligence is, focuses on how it translates into effective performance. This is determined through a set of behavioral competencies, which are defined as 'sets of behaviors organized around an underlying construct called intent' (Boyatzis 2009:750). Behavioral competencies are alternative behaviors that are manifestations of the same underlying intent. Therefore, the concept of competency encompasses both actions (described as behavioral indicators) and the intent that moves individuals to manifest the behaviors (which is explicit in the definition of the competency). For instance, different actions, such as defining challenging goals, putting effort and dedication into their accomplishment and measuring improvements, are all considered to be a manifestation of the ability to be achievement oriented. In addition, the same action undertaken with different intents can be related to different competencies. A simple action, such as asking questions, can reflect empathy if the person asks questions to understand better the thoughts, emotions and point of view of the speaker but can also reflect an orientation toward change if the questions are asked to challenge the status quo.

One of the main advantages of adopting a behavioral perspective is that the competencies related to emotional intelligence are conceptualized in terms of observable behaviors. This means that measures rely not on ability tests but on the observation of the person's adopted behavior, using behavioral indicators and evaluating the frequency with which a person manifests the specific behavior. The assessment can be undertaken in different ways, such as with the contribution of external raters or through the direct coding of behaviors from audio/video tapes or through simulations of critical incidents (Boyatzis 2009; Cherniss 2010). The Emotional and Social Competency Inventory (ESCI) was designed as the main measurement tool for the behavioral approach (Boyatzis 2016), and it consists of 12 competencies. The ESCI was conceived as a multi-source feedback assessment, or 360-degree assessment, which allows the assessment of competencies by adopting a multiple perspective, asking the supervisor as well as peers and subordinates to complete the same type of questionnaire. The 12 competencies are categorized into 4 main areas: (1) the knowledge of one's internal states, preferences, resources and intuitions (self-awareness cluster); (2) the ability to recognize, understand and manage one's own emotions (self-management cluster); (3) the ability to be aware of others' feelings, needs and concerns (social awareness cluster); and (4) the ability to handle relationships with others (relationship management cluster) (Boyatzis 2009).

Compared with self-assessment models, which have been criticized for possible bias related for example to social desirability, 360-degree feedback tools have the benefit of providing multiple insights and perspectives and revealing the interpersonal nature of the individual beyond his/her singular perspective. Indeed, this evaluation system has been recognized as one of the most pervasive innovations in leadership development over the past 20 years (Hezlett 2008).

Another way in which behavioral competencies are assessed is through interviews and coding procedures. The Behavioral Events Interview technique (Boyatzis 1998; McClelland 1998) has frequently been used by scholars to investigate individual behaviors. This technique is based on semi-structured interviews aimed at gathering detailed information on a set of recent and specific events drawn from personal working experiences in which the interviewee felt effective/ineffective. The interviewee is asked to recall critical situations and to describe his or her actions, thoughts and feelings, the context, the solutions and the outcomes (Dainty et al. 2005). To avoid abstraction and hypothetical responses, the interviewer is trained to find specific evidence. For instance, if the interviewee says 'I'm a participative manager,' the Behavioral Event Interview establishes the need to ask for an example in which the manager acted in a participative way (Spencer and Spencer 1993). The interviews are usually transcribed and coded by researchers, who identify behavioral competencies according to the behavioral patterns adopted by the interviewee during the critical event. This methodology has been used to assess behavioral competencies in the two empirical studies that are presented in the following chapters.

## 2.3 The Relationship Between Behavioral Competencies and Performance

Different from the cognitive and the internal approach, the behavioral approach is based on a strong relationship between action and job performance. To identify the competencies related to superior performance, samples of best performers and samples of average performers in various jobs were identified, according to some consistent performance criteria. Data on the adopted behaviors were collected using the Behavioral Event Interview technique. The main objective was to investigate those behaviors that distinguished the best from the average performers. These behaviors resulted as emotional, social and cognitive competencies. Indeed, these behavioral capabilities have been shown to enable people to pursue effectiveness at the individual, group and organizational levels in several contexts. For instance, Boyatzis (2006) showed that the behavioral competencies of consultants of a multinational financial company predicted revenue from clients and gross margin. Some competencies were found to be associated with consultants' higher financial performance, in particular those related to self-management, such as taking a risky stand, self-control, adaptability, conscientiousness and value learning. By conducting a study of 158 managers at Johnson & Johnson Consumer & Personal Care Group, Cavallo and Brienza (2006) found that the competencies of self-confidence, achievement orientation, initiative, leadership, influence and change catalyst differentiate superior performers from average ones. Similarly, analyzing a group of engineers, who usually require strong technical skills, Boyatzis et al. (2017) demonstrated that

behavioral competencies predict effectiveness to a greater degree than general mental ability and personality traits.

Understanding and managing emotions were found to be key elements, especially in predicting performance when people are providing services. Understanding one's own and others' emotions and being able to regulate and use emotions predicted how well full-time frontline employees in hotels were able to achieve customer satisfaction (Kim et al. 2012). Similarly, Beigi and Shirmohammadi (2011) showed that, in a large public-sector bank in Iran, employees' behavioral competencies predicted the overall service quality. In a very different field, urban school districts, Williams (2008) analyzed the characteristics that differentiate outstanding from average principals. The best performers showed higher intensity in adopting 12 of the 20 analyzed behavioral competencies than average performers. Significant differences were found, especially in six critical competencies: self-confidence, achievement orientation, initiative, organizational awareness, leadership and teamwork/collaboration. Clearly, even though studies have shown a general positive association between behavioral competencies and performance, the competencies that distinguish the best performers in each role may vary according to the characteristics of the role that is being investigated. In a similar vein, in the next chapters, we will identify those competencies that distinguish people who run innovation processes effectively.

Besides the evidence of the effect of behavioral competencies on individual performance, research has shown that the behavioral competencies of a leader also influence the performance of the team. For instance, Koman and Wolff (2008) analyzed a military sample of 349 aircrew and maintenance team members representing 81 teams. They found that leaders' behavioral competencies influenced the creation of emotionally competent group norms that allowed the team to manage the emotional and social processes effectively. Norms are supposed to be developed in consonance with the team leader's behaviors, thus reflecting his/her behavioral competencies. The ability to create norms for the management of emotions and relationships at the team level was in turn found to be associated with higher performance in terms of the accuracy of missions and the number of accidents. Welch (2003) showed that, when teams adopt behavioral norms that include empathy, the use of assertive communication, inclusiveness of all team members, adaptability to different situations, influence and the willingness to improve self-awareness, they boost their performance and deal better with organizational challenges and conflict. Not only team performance in terms of accuracy but also team creativity can be fostered by the leader's behavioral competencies. This is what Castro et al. (2012) showed in their study of one of the largest healthcare organizations operating on the Iberian Peninsula. They posited that empathic leaders, who recognize their followers' emotions, values and fears, are able to help their followers to recover from negative emotional states and to take creative steps to solve problems (Zhou and George 2003). Empathic leaders help their followers to create a more optimistic view about the future and be more confident about their own ideas. They create supportive relationships with their followers, who perceive that they have the

opportunity to propose their own creative ideas and will receive support in the case of failure.

Obviously, enhanced individual and team performance contributes to the achievement of better organizational outcomes. In 2002, the Sheraton Studio City Hotel in Orlando implemented a new training program on behavioral competencies across the organization, mainly focusing on fostering teamwork, trust and motivation. In one year, the hotel experienced improvements in guest satisfaction (+8.2%) and market share (+23.4%) and a reduction of employee turnover (−19.6%).

Research later started to investigate not only whether people with strong behavioral competencies perform better but also whether they feel better. According to this stream of studies, behavioral competencies contribute to higher levels of psychological and physical well-being and more satisfying interpersonal relationships (Bisquerra Alzina and Pérez Escoda 2007; Pérez-Escoda et al. 2010). They are also associated with greater satisfaction with one's working activity. Amdurer et al. (2014) examined a sample of MBA students and assessed their career satisfaction and career success 5 to 19 years after graduation. The results supported the association between behavioral competencies and career satisfaction and success, although one specific competency, adaptability, seemed to drive this relationship strongly, while competencies related to relationship management failed to predict both variables. Miao et al. (2016), combining the results of multiple scientific studies, showed that emotional intelligence abilities predict not only organizational commitment and turnover intentions but also job satisfaction. In a later study, the authors demonstrated that this relationship is not influenced by gender, age or tenure, thus implying that, regardless of economic and demographic variables, emotional and social abilities relate positively to a higher level of satisfaction with a job (Miao et al. 2017).

## 2.4 A Framework of Behavioral Competencies for Innovation

When referring to the behavioral approach of emotional intelligence, the main reference framework is the one developed and validated by Boyatzis and colleagues. As described earlier, the ESCI model comprehends 12 competencies that are grouped according to different characteristics. Emotional competencies refer to abilities that have the self as their core, while social competencies refer to abilities that include relationships with other people. Competencies can also be classified according to the type of behavior shown. Some competencies are based on acquiring awareness and thus mainly require an understanding of the self or of other people. Other competencies imply action and the ability to manage the self or the relationship with other people. In Fig. 2.1, we summarize the 12 competencies of the ESCI model according to the aforementioned categories.

Other frameworks provide a classification of behavioral competencies, including definitions and descriptions of the set of behavioral indicators through which each

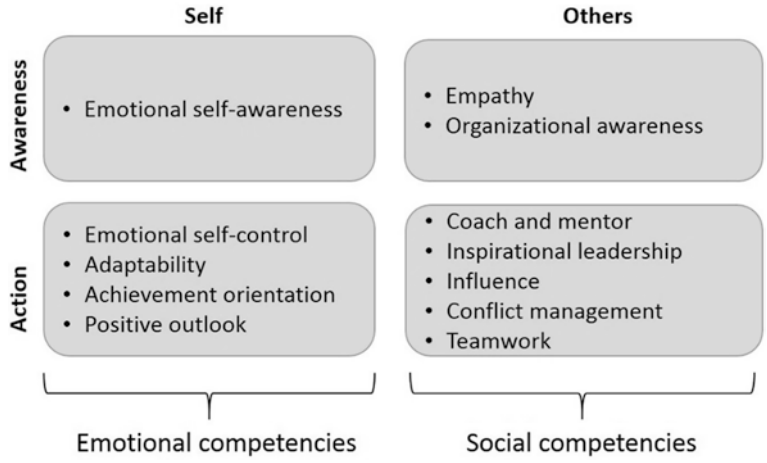


**Fig. 2.1** The ESCI competency framework

competency is manifested. For instance, Spencer and Spencer (1993) identified 19 behavioral competencies referring to effective leaders. Compared with the ESCI model, Spencer and Spencer's (1993) model also includes accuracy, information seeking, customer orientation, networking, self-confidence and commitment to the organization.

The existing codebooks and models have proved to be valid across samples and sectors. However, they were originally developed mainly in the 1980s and 1990s. In the last decades, the organizational and business environments evolved and became more complex, entailing a reconsideration of the competencies that drive effectiveness nowadys. In response to the increased need for innovation and speed that firms are facing, managers are asked not only to revise their innovation strategy and related organizational structure but also to rethink the competencies that leaders and, in general, employers need to mobilize innovation processes.

Innovating is complex and usually involves a mix of rational, intuitive, emotional and social processes. The dichotomy between emotional skills and rationality is also present in the innovation field, with researchers who believe that better innovative solutions may be reached when emotions are removed and logical rational thinking is adopted (e.g. Stanovich and West 2000) and authors who sustain that innovation is not only a matter of cognitive abilities and processes but rather an emotional activity. At Google, members of People Operations realized that, to be creative and innovative, people need to be in the right emotional state. Indeed, doing something new can be scary; thus, the key to managing an effective team is to promote psychological safety, allowing each member to take risks without feeling insecure or embarrassed. Innovation is sometimes seen as a product of complex problem-solving activities. Nevertheless, also in this case, previous studies have acknowledged the relationship between emotions and decision making. Some exemplar


**Fig. 2.2** Competency Hexagon

cases of patients presenting brain impairment have allowed researchers to understand the relevant role that emotions play in real-life choices. Damasio (1994) revealed that the decision-making defect of a patient who underwent surgery to remove a meningioma was not due to a lack of social knowledge or deficient reasoning, attention or working memory; rather, it was associated with a lack of emotional perception. In fact, after the surgery, the patient experienced diminished emotional arousal that 'prevented him from assigning different values to different options, and made his decision-making landscape hopelessly flat' (Damasio 1994:51). Thus, even when innovation is perceived as a consequence of complex problem solving in which choices are crucial, emotions play their role. Recent developments in artificial intelligence have also exploited the role of emotions in decision-making processes. Interactive voice response systems and some automotive software use their ability to detect human emotions to calculate their response and reaction.

To describe the pivotal role that behavioral competencies play in people's readiness to innovate, we complemented the traditional behavioral competency models (such as Boyatzis 1982, 2009; Spencer and Spencer 1993) with further patterns of behavior that are consistently related to innovation. The framework, which is represented in Fig. 2.2, comprises traditional competencies related to the awareness and management of self and others and adds competencies related especially to cognitive patterns, behaviors in organizational contexts and exploring abilities. Dyer et al. (2008) inductively identified the attributes that characterize innovative entrepreneurs compared with managers. *Questioning*, *experimenting*, *observing the environment* and *networking* were found to be common behaviors characterizing the innovative sample. Innovators tend to ask *what if* questions that challenge the status quo. Instead of drawing on past repertoires, innovative people adopt a 'what could be' orientation (Crossan et al. 1999), exploring the future with possibilities. Davenport and Kirby (2016) presented the example of Lou Ferrara, who first introduced automation into content production in Associated Press (AP) between 2014 and 2015. A couple of months later, when Twitter shared institutional news well

ahead of the traditional media for the first time, Ferrara implemented a new project on the use of technology to adapt publishing to the new digital world. Aware of the constraints of traditional publishing, he stepped up with technologies such as user-generated contents, advertising tweets and automated story-writing tools that allowed him to achieve unexpected results. His main ability was to be able to challenge the current situation and look into the future.

Most times, innovative ideas are boosted by continuous *observing* and scanning of the environment. Innovative managers put their curiosity into practice by monitoring and recognizing opportunities that manifest themselves in sectors that may be cognitively very distant from their own. Indeed, nowadays, business opportunities may also reside outside the value chain of a specific industry. To be innovative, managers are required to monitor cross-industry opportunities and to start collaborations with partners with a high cognitive distance. Howard Schultz, former CEO of Starbucks, in his book (Schultz and Yang 1997), clearly described how observing the environment during one trip to Italy was the key to gaining the insight that transformed his company forever. Walking down the streets of Milan, he observed espresso bars in which customers were enjoying the moment, interacting and feeling like part of a community. This was a revelation: coffee drinking should become part of a community's social life. At the time, Starbucks was selling coffee beans; he imagined that, rather than being a simple retail store, Starbucks could become a place for a great experience. Schulz's vision was a breakthrough in the industry, promoting a new perspective on what coffee means to American people.

Both questioning and observing are behaviors that favor *opportunity recognition*, which refers to the capacity to perceive the opportunities emerging from the environment and to perceive changed conditions or potential resources (Morris et al. 2011). Opportunities that better fit the organization are more easily identified if the innovator also has the ability to understand the strategic and competitive environment of the company (*strategic thinking*) (Moon 2013; Puccio et al. 2011).

Often, to bring recognized opportunities to fruition, *experimentation* and trial and error are a necessary step. Indeed, the purpose of innovation is to achieve value creation rather than only idea invention. Ideas, such as the one of Howard Schultz, have little meaning if they are not then successfully implemented. Simply testing ideas out on a small scale is a good way to provide evidence that they will work. In 2008, Groupon's founder, Andrew Mason, released his first-ever deal to test the ability to attract people who were interested in group buying deals and built his first audience. Starting with its first 'buy two pizzas for the price of one' deal, which gained 20 subscribers, Groupon experienced exponential growth that culminated in the biggest initial public offering by an Internet company in 2011. Transforming an idea into reality may hide multiple unexpected variables and problems. Experimentation is considered to be a fundamental pattern of behaviors because it allows people to learn and to save money. Companies such as Procter & Gamble and Google exploit these benefits as part of their organizational culture, running on average more than 7000 experiments a year.

Besides questioning and observing, engaging in constant contact and conversations with people who have different perspectives is a way to fertilize thinking.

Social capital and *networking* have frequently been considered to be the ace in the hand of innovative entrepreneurs. Social networks accustomed people to networking mainly for networking's sake. However, effective innovative managers are those who are able to distinguish nodes in the network that can provide beneficial information, feedback and resources. Competencies related to social management are also necessary to lead employees toward organizational changes that enable the company to implement new technologies and managerial practices. Indeed, innovation always entails some change in the organizational life, which needs to be communicated well to the various stakeholders to maintain their support and commitment. The enhancement of innovation processes is thus dependent on the ability to persuade, to communicate the benefits of the innovation effectively and to motivate and manage conflict. Regardless of its intent, change is always frightening. Thus, the ability to manage conflict is central to both the process and the outcome of innovations (Hess 2014). Traditional models have already considered a purposeful set of behavioral competencies related to relationship management that characterize effective performers. *Conflict management*, the ability to negotiate and resolve disagreements, is one of those (Boyatzis 2009). *Influence* (Boyatzis 2009) is the ability to convince other people of the value of your point of view. Innovators often face the challenge of convincing CEOs and investors to sustain their ideas. Start-uppers are an exemplary case of new business ideas willing to become repeatable and scalable business models. However, sometimes start-uppers' passion about their business idea overcomes their ability to formulate the idea such that it will be appealing to the targeted audience. The focus should be not only on how good the idea is but also on persuading others to see your idea as you see it. *Empathy* is the competency that enables individuals to understand the point of view of other people (Boyatzis 1982). According to IDEO's CEO Tim Brown, empathy is one of the main skills that should be incorporated into traditional R&D, because it allows things to be seen from the perspective of different kinds of people, which facilitates the creation of consumer products and people-driven processes. Whereas empathy may enhance the understanding of different clients' views and needs, *customer focus* is the competency that implies action toward satisfying the customers' needs (Spencer and Spencer 1993). This includes sharing information with clients, managing their expectations and solving problems related to customer service.

Boyatzis (2009) included in his model three other competencies that are relevant to relationship management: inspirational leadership, teamwork, and coach and mentor (defined in this book as *developing others*), which are the capability to encourage, support and provide resources for the improvement and growth of other people. People who are able to inspire others, guide them and obtain results from them, taking care of the climate of the team, show resonant *leadership* (Boyatzis and McKee 2005) in the sense that they are in tune with those around them and demonstrate passion for, commitment to and concern for the people working with them. The increased speed in working activities and the demand to keep pace with fast-changing environments often result in personal burnout, which is toxic to the group's mood and performance. Emotions are easily spread across a team and beyond; thus, the ability to manage one's emotions in stressful situations

(*self-control*) is paramount. We cannot forget that pursuing innovation depends on our ability to guide others to focus on possibilities and create a collaborative environment. *Teamwork* enhances the cross-fertilization of ideas and more comprehensive processing of information that leverage each member's knowledge and allow the creation of new knowledge (Fay et al. 2015). Indeed, teamwork is based on the assumption that everyone should contribute to the achievement of the team's common goal. Imagine a challenging goal, such as building an eight-story human tower. It is a physically and emotionally demanding task, in which gravity represents an inevitable and dangerous opponent. If you ask a *casteller* in Catalonia, he will tell you that the only way to beat it is through speed and teamwork. This human tower traditional competition started in the tenth century and still counts more than 100 associations around Catalonia. Every member of the human castle is a unique piece who contributes to building something that it would be impossible to create alone. Similarly, a successful innovative process is usually not an individual spark; rather, it is the result of the effort of multiple people together. However, to group people together, it is first important to engage others, make them part of the process, share information and make them feel that you are counting on them.

Sometimes the engagement is achieved through the capacity to inspire and arouse enthusiasm in others, creating a *vision* of the potential of an innovation (Maidique 1980). Vision statements are considered to be empty sentences that are beautifully painted on offices' walls. However, here we refer to the individual ability to create and communicate a compelling vision that enhances the motivation, the trust and the willingness to achieve it. Steve Jobs, instead of creating a computer, built a new vision of the world in which computers are part of our daily life. Luisa Spagnoli, in 1928, instead of making a twin set, had the idea that every woman should have the possibility to wear clothes that are as soft as cashmere. Implementing the idea of improving the quality of angora wool to create elegant and refined clothes, she founded the fashion company Angora Spagnoli, which celebrated 90 years of activity under the name Luisa Spagnoli in 2018. A desirable, challenging and believable vision is the way to provide direction, especially in situations in which new territory is being explored. To create a valuable and truthful vision, managers should consider not only the content of the vision but also its consistency with their identity and with the organizational values. This understanding can be pursued through two main competencies: organizational awareness and self-awareness. *Organizational awareness* (Boyatzis 2009) describes the ability to understand the organizational culture, the main values and the power relationships. *Self-awareness* is the ability to reflect on and acquire awareness of one's own feelings, resources and fundamental values (Goleman 1995). The training course 'Search Inside Yourself' was first implemented at Google in 2007, promoting the improvement of a balanced awareness of the self and of the context in which we live, and soon it became one of the most popular activities at the organizational level, with more than 1000 employees attending it. This is only one of the examples of the association between mindful awareness and creativity. Mindfulness is a way to enhance a person's positive emotional state that activates a neural network called the default mode network (DMN) (Boyatzis et al. 2015), which has been found to be associated with

higher creativity and openness to new ideas (Andrews-Hanna et al. 2010; Mars et al. 2012; Raichle et al. 2001).

Traditional models recognize the importance of competencies related to managing oneself and one's own activity, such as *change orientation* (Boyatzis 1982), *initiative* (Boyatzis 2009) and *adaptability* (Boyatzis 2009). The first is defined as the ability to recognize the need for change, removing the barriers to its implementation. This competency appears to be fundamental in recognizing problems and pushing toward the definition of a new solution. When the novel solution is implemented, not to solve the current unsatisfactory situation but to anticipate it, *initiative*, which is the ability to take action prior to being asked to or forced into it, is in place. In the face of changes or unexpected circumstances, *adaptability* allows individuals to adapt their behavior to the different situation.

To face the challenges and possible failures of undertaking something new, individuals also need great *achievement orientation* (Spencer and Spencer 1993) and *resilience* (Dulewicz and Higgs 2005). When he received his first kart from his father at the age of 14, Alex Zanardi could barely imagine how his life would turn out at the age of 50. Over the years, he competed in Formula 3000, Formula 1 and Formula Cart, in which he achieved his best results. In 2001, after a tremendous accident at the circuit of Lausitzring, doctors tried desperately to save his life by amputating both his legs. 'When I woke up without legs I looked at the half that was left, not the half that was lost.' His ability to bounce back from such a terrible event brought him back to competition, setting new challenges to achieve. He started to ride a handbike, and, after only three weeks of training in his hometown, he decided to participate in the New York marathon and finished in fourth place. In a recent interview, he said, 'from the outside it could seem that I am obsessed by my goals, but it is actually the contrary. I enjoy the moment in which I cut the finish line and I get a medal, but together with the joy, there is also the nostalgia for what you have done to get there. If you loved that path, you will inevitably miss it. You need curiosity towards new horizons. Curiosity pushed me to look around me also in the most difficult times of my life and helped me transform what happened in an opportunity.' He won three individual Paralympic gold medals and one silver medal at the Paralympic Games in London 2012 and in Rio in 2016, at the age of 50. Zanardi not only represents the ability to recover and respond positively to adversity but is also an example of how achieving challenging goals requires hard work, measuring progress and the willingness to improve one's results constantly. Innovators, to a lesser degree, are also confronted with a challenge, they will certainly face difficulties and failures and they will be able to overcome them only with resilience and achievement orientation.

When committing significant effort and resources to new projects, a certain degree of risk is always involved. The literature has often associated risk-related behaviors with entrepreneurial activity (Morris et al. 2011; Zhao et al. 2010). However, proactively developing new products and services before competitors and implementing innovative processes of which the outcomes may be partially unknown also entail *risk-taking* and *risk management* abilities. Risk taking is the ability to take a risk or to carry out an activity with an uncertain outcome, while risk management is the ability to identify in advance possible negative impacts of uncertain activities and contain losses.

Between the competencies related to managing one's behavior, this framework also includes *accuracy* (Spencer and Spencer 1993), which refers to the ability to pay attention to details, pursue order, check information and regularly control the advancement of activities. Moreover, we include *efficiency orientation* (Boyatzis 1982), which relates to promoting a concern for increasing the efficiency of action and to perceiving input and output relationships.

Lastly, the scientific literature has identified significant relationships between innovation creation and cognitive competencies. In particular, *pattern recognition*, which was introduced in Boyatzis's (1982) codebook, has been represented as a relevant competency for promoting innovation, since it helps to make connections across seemingly unrelated questions, problems, disciplines, fields or ideas and therefore facilitates opportunity recognition (Dyer et al. 2008). Sometimes pattern recognition has also been defined as analogical thinking, which allows the combination of previous experiences with current problems to solve and the identification of potential solutions and enables people to understand analogies between distant contexts (Baron 2006; Baron and Ensley 2006). This competency allows people to identify more easily past best practices that can be adopted to solve the current situation and to find solutions that have previously been implemented in other sectors that can be applied to satisfy the current needs. For instance, in 2001, the BMW Group introduced a new man–machine interface called iDrive that substituted about 200 different knobs and switches to control car functions with a solution from the video game industry: the joystick (Gassman and Zeschky 2008).

*System thinking* (Boyatzis 1982) is the ability to recognize cause–effect relationships among different elements or events that constitute a complex situation. Complex problems can also be analyzed through *diagnostic thinking*, which is used to undertake a careful examination of the nature of the problem, considering why the problem exists and why it is necessary to solve it, who is involved and what the necessary time frame is (Puccio et al. 2011). Creativity in innovation processes also benefits from a cognitive approach that involves approaching problems from the side rather than from the front. This ability, defined as *lateral thinking* (De Bono 1970), relates to generating as many alternative approaches as possible, restructuring patterns of information by putting things together in a different way and exploring the least likely solutions. Lateral thinking enables individuals to overcome their psychological inertia and to search for possible solutions divergently.

The 30 competencies presented above have been grouped into 6 thematic areas (Fig. 2.2):

- *Awareness*. Competencies that allow people to understand themselves, other people and the organizational relationships;
- *Action*. Competencies that allow people to realize ideas, plans and solutions, working methodically and with initiative;
- *Social*. Competencies that allow people to interact positively with other people and help them to work effectively with others;
- *Cognitive*. Competencies that allow people to analyze and use information effectively to interpret phenomena or situations;

– *Exploratory*. Competencies related to the activation of processes of innovation generation;
– *Organizational action*. Competencies related to the interpretation of the competitive environment, the identification of business opportunities and the alignment of the individual behaviors with the organizational goals and priorities.

The Competency Hexagon—as we labeled the framework—is graphically represented in Fig. 2.2, while Table 2.1 reports in detail the behavioral competencies that contribute to each of the six areas of the hexagon with the related definition.

**Table 2.1** Competency Hexagon: The 30 competencies and related definitions

| Area | Competency | Definition |
|---|---|---|
| Awareness | Self-awareness | Capacity to be in tune with your inner self and being able to evaluate the impact of emotions on your actions and work performance, always keeping in mind the guiding values. It is also the capacity to evaluate your inner abilities and limits. It is based on the desire to receive feedback and new perspectives about yourself and to be motivated by continuous learning and self-development |
| | Empathy | Capacity to sense and accurately understand others' feelings and perspectives and take an active interest in their concerns |
| | Organizational awareness | Capacity to locate and decipher social networks and power relations and the ability to understand the "political" balance in any organization and the guiding values and unspoken rules that govern the behavior of its members |
| Action | Efficiency orientation | Capacity to perceive input and output relationships and include the concern for increasing the efficiency of actions |
| | Achievement orientation | Capacity to require high quality standards to try to constantly improve your results, setting challenging and measurable goals, and measuring the progress made |
| | Resilience | Capacity to recover from adversity and respond to it positively by using personal resources |
| | Initiative | Capacity to act to accomplish something and to take this action prior to being asked or forced or provoked into it |
| | Change agent | Capacity to recognize the need for change, to promote and manage it |
| | Flexibility | Capacity to adapt oneself by modifying one's behavior in the face of changes, unexpected circumstances or different situations |
| | Self-control | Capacity to dominate emotions and impulses even in situations of stress or difficulty |
| | Accuracy | Capacity to develop the activities with precision and to check several times |
| | Risk taking | Capacity to take a risk or to carry out an activity with an uncertain outcome |
| | Risk management | Capacity to identify in advance possible negative impacts of uncertain activities and contain losses |

(continued)

**Table 2.1** (continued)

| Area | Competency | Definition |
|---|---|---|
| Social | Persuasion | Capacity to convince other people of the value of your point of view and to get their support |
| | Conflict management | Capacity to induce the parties in conflict to have a dialogue and identify solutions in which everyone can recognize themselves |
| | Teamwork | Capacity to be collaborative and available to the group, to induce others to engage actively and enthusiastically in the common cause, to reinforce the team spirit and encourage the participation of all members |
| | Developing others | Capacity to stimulate, support and provide resources for the improvement and growth of other people |
| | Networking | Capacity to create, maintain, and use personal relationships to achieve goals |
| | Leadership | Capacity to lead others and trigger phenomena involving emotional resonance, to instill a sense of pride and inspire people through a compelling vision, and to bring out their best aspects |
| | Customer focus | Capacity to understand other people's needs and pay attention to their satisfaction |
| Cognitive | Systems thinking | Capacity to break down complex problems and understand cause-and-effect relationships between the parties |
| | Diagnostic thinking | Capacity to conduct an accurate examination of the situation and describe the nature of the problem |
| | Pattern recognition | Capacity to recognize similarities among issues and make logical connections between concepts of different domains |
| | Lateral thinking | Capacity to try new ways of looking at problems and adopt unconventional perspectives |
| Exploratory | Questioning | Capacity to formulate questions in order to gather information and challenge the current situation |
| | Observing | Capacity to observe the environment around you in different contexts with the aim of finding new ideas |
| | Experimenting | Capacity to explore new ideas through experiments and trials |
| Organizational action | Visionary thinking | Capacity to create and articulate a vivid future image of your group and/or organization and to define the actions and objectives necessary to achieve it |
| | Strategic thinking | Capacity to understand the strategic and competitive environment of the company |
| | Opportunity recognition | Capacity to perceive the opportunities emerging from the environment |

In the following chapters (Chaps. 3 and 4), we adopt this framework to explore the behavioral competencies that contribute to the pursuit of innovation processes in different settings. Indeed, research has not explored this relationship in detail yet, focusing more on tangible elements of human capital (Kato et al. 2015; Marvel and Lumpkin 2007; Tang and Murphy 2012) rather than on the behavioral competencies facilitating innovation. Although influential people in business and in other contexts have acknowledged the relevance of these behavioral abilities, limited attention has been devoted to carrying out empirical studies on the topic. Often research has focused on samples of R&D employees (e.g. Tang et al. 2017), neglecting the other professional roles that are involved in innovation processes. The following chapters contribute to filling this gap and add to the understanding of the role of the individual competencies of different professional roles in the creation and implementation of innovations.

Chapter 3 focuses on the entrepreneurial role as a driving force for innovation. Few studies have analyzed the figure of an entrepreneur and the competencies that he/she requires to promote and introduce innovation into an organization (Baron 2006; Baron and Ensley 2006; Christensen et al. 2011; Dyer et al. 2008; Santandreu-Mascarell et al. 2013). In Europe, small and medium-sized companies represent the majority of the business activities. In this context, it is in the founder's remit to promote and implement change in the organization.

Chapter 4 explores other professional roles that contribute to the innovation processes within a company. Besides R&D employees, in fact, new product development activities involve many other functions that are engaged in the achievement of a successful outcome. The chapter describes the empirical investigation of the competency portfolio of the profiles that co-operate in the NPD process.

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# Chapter 3
# Entrepreneurs and Innovation: Mobilizing Behavioral Competencies in Different Types of Innovation Processes


> *And it is change that always provides the opportunity for the new and different. Systematic innovation therefore consists in the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation.*
>
> *(Drucker 2007: 31)*

## 3.1 Entrepreneurs Pursuing Innovation

'I remember how the idea of a new carousel with trucks came out. I gave my son a small truck with gum wheels, and he was playing with it all the time, on the white leather sofa, on the lacquered furniture. I think my wife gave him a couple of slaps, but, undaunted, he was still playing with it. I brought it to my team and said, "We have to create a carousel out of it." We did it; it was just like a truck, with two nice chrome mufflers behind, that made the children feel like macho men. We also created seats inside that allowed 3–4-year-old children to get in safely, and the parents could accompany the child in a bigger back seat. In my generation, even at lunch or dinner, at one point parents were saying "children, out." A parent would never have gone with his child on a carousel. Now it is different, the fathers and the mothers go up. We invented the family carousel where the father can sit safely with his son. It was a success.'

'We started to favor those clients who were proposing events related to our products. In Nantes, in the North-West of France, one of our customers eight years ago opened an *epicerie italienne* that sells Italian products. Together with his wife, he called a smart and talented guy, who had already collaborated with high-level restaurants, who has a truck with a restaurant inside. If someone calls him somewhere, he takes the whole restaurant with him. He took inspiration from our recipes and created lovely courses that added value to both our products and the ones of the *epicerie italienne*, explaining how versatile the panettone can be when combined with other ingredients that people can easily find in the shop. He created a *pain*



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*perdu* with raspberry sorbet, a bruschetta with speck, a tiramisu with mascarpone emulsion. It was an incredible success. The nice thing is that he wrote down the recipes, so what we did is that we included them in our website and started to create short pages, in TripAdvisor style, for our customers. So we gave space to them, also providing information about their events, and now they are proud to be there, they want to be there. We are a small company, but we clearly believed in this idea.'

'In this company, we only have high-quality machinery, not only of high economic value but also of high productive value. However, any machinery acquires its value only within the productive process. We mainly produce portioned coffee, and we need high production speed. The way in which I position my machinery, and its consistency with people's organization at work and with the production process, is fundamental. The machine placed in a specific place or in a certain position, rather than another, can cause time losses in production and consequently economic losses of around 20–30%. I proposed this idea to my technicians and engineers, and, together with my suppliers, we studied the best layout for our plant, tailor-made like a dress.'

'Normally, in a manufacturing company, the entrepreneur spends 99% of his time buffering messes, especially in a small–medium-sized company with very high manufacturing complexity. We produce strollers; our sector is fairly complicated in terms of regulations, materials, flows, fabric, design, springs, hand users, advertising, marketing, blogs and mothers' sites, and it does not have the dimensions of the automotive industry. The dimensions are the ones that allow us to create family artisan models, and this means total dedication and highly operational activities of the entrepreneur. Some years ago, I had the idea of creating an internal lab division. It is something many companies have, also some of my big competitors. I saw it among websites, friends, entrepreneurs, the stories of my suppliers and my clients. The idea came from the awareness that there are two different speeds, two different directions: the concept and product development on one side and the phase of industrialization, which is very long and very thorny, on the other side. The objective was to separate the two, creating a physical and mental space in which we could concentrate on developing and experimenting with multiple concepts and in which, after trying, prototyping, hearing from mothers and customers and modifying the concepts forty times, we could acquire a different type of awareness for our choices. Young people now work in the lab, it is a staff that communicates directly to me. We are already working on some projects, not incremental innovations but radical ones. It is clear that the lab does market research and studies and helps a lot in the analytical phase in the briefings, but it is not here for the design; it is here to create innovations that are related to the meaning of the product and of the brand.'

'I believe that a winning approach today should not only and exclusively concern the product but should start from understanding the needs of the market and then transforming the product proposal into what the customer really asks for. Before the early 2000s, people were trying to bring innovation to production; today I believe that the most important innovation regards having a direct approach to market analysis and responding to market needs. I produce synthetic caps that replaced corks, so in reality they satisfy a technical problem. However, in order to succeed with the

company, I transformed this functional identity into the company's ability to innovate, to be flexible and to be fast in understanding and responding to market needs. I transformed the company, which is a manufacturing company, into a service company. I no longer make a functional description of the product; I no longer describe the product quality with technical details. I took that for granted. I transformed the company's identity based on selling something exclusive that creates added value. Clearly, as I produce an accessory, it was much more difficult to make it indispensable, original, unique. It was even much more complicated than for other products of the same industry that have a much stronger image, such as the bottle or the label. Therefore, I exalted the idea of the image and completeness of the packaging, and I explored whether the customer had the same perception, whether appearance was actually conditioning consumption. This changed our design rules, because the caps that I produce must necessarily be beautiful, and they must work. Perhaps the greatest achievement is that this idea permeated the entire corporate structure. When the whole company works in the same direction, innovation is truly exploited and becomes a collective idea. Customers who buy from this company are more interested in buying from this company rather than buying the product itself, because the company is the expression of the product and not the other way around.'

The five stories that we presented above highlight the entrepreneurs' role not only in innovating the company strategy, by developing business models, but also in handling different types of innovation that concern products, processes, the organization and marketing (Armbruster et al. 2008; OECD 2005). In small–medium-sized firms, like the ones in this study, the human capital, especially the entrepreneur, has been found to account for much of the variability in terms of innovation outcomes and performance among firms (McGuirk et al. 2015).

Research has primarily devoted attention to the main behavioral skills that help entrepreneurs to initiate a new venture and achieve a superior firm performance (Baron and Markman 2003; Baron and Tang 2009) or to influence stakeholders' actions within the business environment (Humphrey 2013). Evidence has also been provided on the positive relationship between the tangible elements of the entrepreneurs' human capital, in terms of their educational background and prior technology knowledge, and their ability to pursue innovation (Kato et al. 2015; Marvel and Lumpkin 2007; Tang and Murphy 2012), while limited studies have been conducted to explore the competencies that entrepreneurs require to promote and introduce innovation in their organizations. Previous studies addressing this issue have considered only a few competencies, such as associational thinking, experimenting, questioning and observing the environment (Baron 2006; Baron and Ensley 2006; Dyer et al. 2008; Santandreu-Mascarell et al. 2013), neglecting the relevance of other self-management and relational competencies that entrepreneurs need to activate to manage the innovation process effectively. In the five stories above, entrepreneurs have adopted various behavioral competencies to achieve their innovation outcome. In the first story, observing his son's preference for and emotional attachment to the small truck allowed the entrepreneur to conceptualize and develop a successful new product. A strong customer focus and the initiative to create a new space to present customers' profiles and activities on his website assured the second

entrepreneur stronger satisfaction and engagement of his clients by introducing a marketing innovation. Orientation toward efficiency clearly influenced the possibility for the third entrepreneur to increase efficiency through the introduction of a process innovation. The willingness to obtain greater efficiency was also at the base of the lab creation in the fourth story, in which the entrepreneur showed strong abilities related to experimenting in implementing an organizational innovation. The fifth entrepreneur challenged the status quo and thought strategically, acting as a true change catalyst, bringing the change to the entire organization and providing a clear direction and vision of the company's identity (strategy innovation).

While the connection between entrepreneurship and technological (product and process) and non-technological (organizational, marketing and strategy) innovation has been widely acknowledged, limited attention has been devoted to those competencies that entrepreneurs require to promote and introduce different types of innovation in their organizations. The exploration of the behaviors activated by entrepreneurs to enhance product, process, marketing, organizational and strategy innovation is the main aim of this chapter. To pursue it, we present an empirical study conducted on a sample of 41 entrepreneurs operating in northern Italy. This territory is characterized by a high presence of family businesses and a strong entrepreneurial tradition. The industrial structure is mainly represented by small and medium-sized companies, the entrepreneurs of which are personally involved in the firm's activities and in promoting and implementing a wide spectrum of innovations. The majority of the companies in the sample belong to the manufacturing sector, followed by retail, information and communication, and transporting and storage. We adopted the behavioral events interview technique (Boyatzis 1998; McClelland 1998), presented in Chap. 2, to conduct the interviews. We asked the entrepreneurs to recall recent critical situations in which they had played an active role in pursuing an innovation, collecting in total 197 episodes of innovation. Each episode was coded according to the behavioral competencies shown by the entrepreneur and the type of innovation.

## 3.2 There Is Not One Single Innovation

Scholars have recently started to address the complexity of the innovation process by disentangling and classifying different types of innovation. It has been argued that each type of innovation is characterized by different goals and requires different resources and processes when it is being developed (OECD 2005; Tavassoli and Karlsson 2015). The literature has classified innovation into different forms, distinguishing between technological (product and process innovation) and non-technological (organizational, marketing and strategy innovation) changes (Battisti et al. 2015; Gault 2018; Geldes et al. 2017).

Product innovation is usually the most persistent type of innovation (Tavassoli and Karlsson 2015). About 30 percent of the episodes that we analyzed are of this type. Product innovation is characterized by significant improvements in the

capabilities of existing goods or services or by the creation of entirely new goods or services (OECD 2005), such as a lamp that defies technology. 'I said "let's try to reverse the logic. Instead of having a metal structure that supports the diffuser, by exploiting the characteristics of these materials, we could try to make a diffuser that is able to do the diffuser job but also to support its parts. The result had those characteristics that we were looking for: it was extremely light, it was extremely effective in spreading the light, but it was also solid enough to sustain its technical parts, and it was very beautiful.'

Process innovations entail significant changes in production and delivery methods (OECD 2005), for instance the company's management of raw materials. 'The way we managed the raw materials up to that point involved significant risks of human errors and long-term health problems for the operators who were manually handling relevant loads. Moreover, given the way in which the complexity of managing and documenting activities on raw materials was managed, it seemed very complicated to be able to expand the production capacity of the company in an effective and efficient way. What I did was to introduce a completely computerized system for the management of raw materials. Today we manage 150 tons of raw materials a day with 1 person per shift, and the company works 24 hours a day.' Organizational innovations regard the implementation of new organizational methods, which can include changes in business practices, in the organization of the workplace and in the development of firm's external relations (OECD 2005). Recent contributions have acknowledged the importance for entrepreneurs to pursue organizational innovations, because, despite their complexity, they fertilize the ground for more innovation processes (Volberda et al. 2013). One of the entrepreneurs whom we interviewed told us how his entrepreneurial activity began and evolved. Everything started with a small company that his father built for waterproofing and roof insulation. From the competencies that he developed in the industry, he started a new activity concerning accessories for industrial electronics and home automation. To facilitate the management and quality of production activities, which were previously carried out by third parties, he created another company for the molding of plastic materials. Although each company had its own specificities, there was room for creating synergies between the three. At one point, the entrepreneur decided to bring the three companies together in a network. He identified figures that were transversal to the three companies (quality, administration, technical management and IT) and made them operate at the group level, while each company kept its specific sales, production, logistics and purchase departments.

Changes in packaging, in product promotion and placement and in methods for pricing goods and services are related to marketing innovations (OECD 2005). An interesting story from an entrepreneur devoted to production and design explains how the principle 'less is more' may also be applied to marketing. He was producing a company magazine, of which each issue was dedicated to a certain topic that, in a non-invasive way, was associated with some of his products. He realized that it was limitative and wanted to make it more authoritative. 'To give the magazine the dignity I thought it deserved, we decided to take off.' Now the company is present only on the first two pages, on which the work of forefront photographers who are

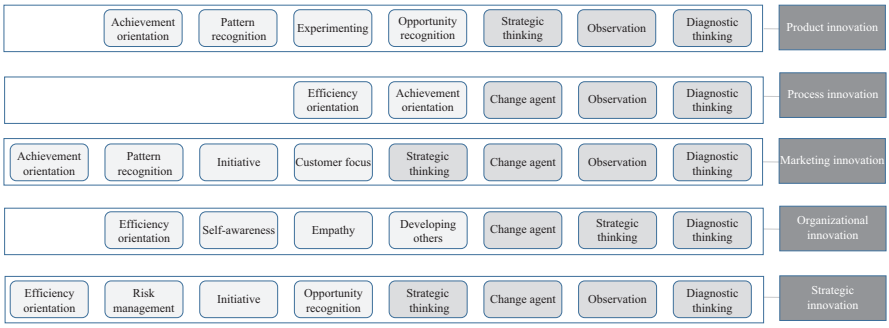


**Fig. 3.1** Entrepreneurs' behavioral competencies fostering innovation processes

invited to collaborate is presented. 'Now the project is strong and coherent. It would not have had the same strength, and probably it would not have won the awards it had, if we had placed the company's name and products all over it.'

Strategy innovation refers to the practices that allow companies to reposition themselves in the competitive environment (Berghman 2012). Examples from the interviews embrace the exploitation of opportunities internationally, creating new niches based on market analysis and complementing different forms of expertise to create a new business. An entrepreneur who runs a 60-year-old company for household items told us that a couple of years ago he started to produce household items licensing big brands. With the support of one of these big brands, he decided to start a new branch of business that deals with childcare. 'These products have almost nothing to do with our core business, except that they share the license.' This was an opportunity not only to modify the products but also to develop his own business model. Thus, he accepted, invested in and set up a company and today is among the first suppliers of the largest retailer in childcare.

In the next sections, we take into account the specificities of these five types of innovation to analyze the behavioral competencies that were most frequently adopted in the episodes of innovation. Firstly, competencies that have been widely adopted by entrepreneurs across the different types of innovation processes are presented. Secondly, we describe in detail the behavioral competencies that are more frequently associated with specific types of innovations. Figure 3.1 summarizes the findings of our empirical analysis, showing the competencies for each innovation type that were activated in more than 30 percent of the episodes.

## 3.3 Entrepreneurs' Behavioral Competencies Fostering Innovation Processes

A set of the behavioral competencies included in the framework presented in Chap. 2 was found to be consistently related to the majority of innovation episodes, regardless of the type of innovation involved. These competencies pertain to four different thematic groups (action, cognitive, exploratory and organizational action), reinforcing the idea that a broad repertoire of competencies is needed to unlock innovation capacity effectively in organizations. Moreover, this result corroborates the idea that the competencies that we included in the framework, in addition to traditional emotional and social intelligence competencies, are actually relevant to the entrepreneurial ability to innovate.

The competency that was most frequently adopted by entrepreneurs is *strategic thinking*, which allows the entrepreneur to understand the competitive environment and then, for instance, to carry out activities to differentiate him- or herself from the competitors. 'At one point we ended up with two products that were very similar, one a little newer, one a little older,' said one entrepreneur, 'how do we justify it?' He wanted to solve the problem, but, at the same time, he wanted to create a stronger bond with his consumers and provide something new. 'I decided to change the philosophy of one of the products. That stroller had to be elegant, romantic; we added some details, a bow, and we provided personalized embroidery with the name of the baby. More than 50% of people personalized the product. Personalization is not something new in other sectors, but, in our sector, it was crazy. Our brand is popular, and this helped us strengthen the engagement with our customers and mark a detachment from our competitors.'

*Strategic thinking* was applied in studying competitors, in creating a sort of intelligence task force with the task of trying, observing and understanding competitors' products as well as understanding the industry trends. 'If the market decreases at this rate, we need to double our market share, so I thought about how to do it and what the customer would buy more easily. Customers will not make big investments because they are afraid, but they will want new things because they need to renovate their offer.'

In more than 60 percent of episodes of the strategy, marketing and product types of innovation, entrepreneurs showed *strategic thinking*. This suggests, not surprisingly, that the effectiveness of their innovation attempts seems to be strongly rooted in the entrepreneurs' ability to understand the competitive environment.

Another competency that was transversally related to the innovation types is *observing*, which confirms the proposition of Dyer et al. (2008) about the relationship between this specific behavior and innovative entrepreneurs. *Observing* entails the observation of the environment, both in novel situations and in ordinary encounters, with the aim of finding new ideas. Often new product ideas come from watching other people work and live their normal life. It is the case, for instance, of an entrepreneur who started to produce ovens that provide greater uniformity of cooking thanks to their airflow. How did this idea come about? 'I was having breakfast

in a bar and I saw that there was a small oven with a remarkable air flow. I asked to have a look at it, and I checked who made that oven and how it was built, I found the components and who was producing those components, we asked them to collaborate and we started from that idea there.'

Other observing behaviors are related to participating in fairs and observing competitors and other sectors. For example, the idea of a new bag was derived from transport packaging, and a new way to wash the production tanks of kneading machines came from the tile industry. An entrepreneur observed the role of a wine ambassador across several countries before defining the job description for a similar role in his food company.

The third competency that entrepreneurs demonstrated strongly in all types of innovation processes is *diagnostic thinking*, through which they understand and interpret the nature of problems. *Diagnostic thinking* entails scrutinizing a situation to find the best possible solution. Often complex situations require due consideration of what is causing the problem, where, how and who is involved. A comprehensive review allows entrepreneurs to identify more easily the right elements in which to intervene. One example concerns the ability to understand the nature of a problem of low quality and speed of planning activities. 'Our previous ERP was stealing valuable resources. Moreover, the whole planning and procurement process was highly dependent on the ability of the single operator who was using it. We have created some automatisms that now give us the guarantee that the work will be ok and at the same time the operator gained lots of hours he can use to do other things.'

Similarly, another entrepreneur introduced new organizational approaches to manage software project development better by firstly scrutinizing the nature of the problem. 'In the industrial production world, I have a machine that makes the items. So, roughly, I know what is the Takt Time. To make one item, I consider upstream logistics, downstream logistics and the assembly and I know roughly how to estimate these things. In the world of software, Takt Time becomes almost random. This is because of two mechanisms. The first is that a person who writes software never actually finishes; if you give him more time, he will always find a way to improve what he has done, starting with adding comments, making the code more efficient and making it more readable. Time is never enough to create a perfect piece of software. The second is that creating software is like artisan work. Thus, revising the software is very difficult, because you need to get into the mind of the person who wrote it and understand why he did certain things.'

*Diagnostic thinking* also turned out to be associated with strategy innovations. For instance, an entrepreneur examined the nature of his flexibility issues, realizing that he could be flexible and innovate the subsystems and components only by taking over the technology with which they were made. Thus, he decided strategically to integrate all the processes that it was possible to integrate.

Lastly, innovative entrepreneurs frequently assumed the role of *change agents*. In all the types of innovation in our sample except product innovation, the ability to recognize the need for change and to act to implement it resulted as a core competency. This can be explained by the fact that the development of new and modified products is something that firms almost take for granted to keep pace with the

changes in customers' expectations. Meanwhile, changes related to the positioning of the firm and how tasks are undertaken may be much more invasive and need to be promoted and sustained by the principal role of the company. One example concerns the change of working spaces. Tommaso showed us around his company, an incredible modern building with a lot of space. 'It was not like this before. On this floor, there were both offices and the modeling groups, but the space was no longer sufficient. If you work in narrow spaces, it is easier to make mistakes. So we bought the two offices above, 300 square meters; we have dedicated a part of it to the commercial function and another part of it to the people who perform modeling. We used the empty space left to change the company layout; we revolutionized it, to give more space to those working here, to reduce the time to move from one department to the other and thus also to reduce the risk of making mistakes. Now everything is more organized and under control.'

However, proposed changes are not always easily accepted by everyone. In revising the organizational structure of the company, Roberto decided to introduce an evaluation system with the use of questionnaires that aimed to investigate the elements that he thought were the most critical for the company's success. This was not immediately welcomed by his employees. However, being a *change agent* also implies the ability to overcome resistance to change. 'I remember I had to motivate this choice strongly. To me, this was a way to promote continuous improvement in the company. Evaluations have always been followed by one-to-one meetings. This was an important moment to exchange thoughts, clarify expectations, explaining from my point of view what was going on and why we were doing some things instead of others. In the end, they realized that it was intended to create consistency between their activities and expectations and the direction that the company was pursuing.'

The attitude toward creating an innovative environment was depicted well by one of the entrepreneurs whom we interviewed, who said: 'my action and words are aimed at instilling in the company the idea that we do not change because we need to but because we want to. Things are not going badly, absolutely not, but we need to create our own opportunities for the future. If we are not able to innovate constantly, we may find ourselves in trouble in the future, maybe even without realizing it. To be or have been riding high does not guarantee always being there, so we have to keep moving.'

These entrepreneurs showed that 'moving' is more frequently achieved when current situations are analyzed in detail, understanding the nature of problems, and when constant observation of close and distant environments is carried out, taking strongly into account the competitive and industry contexts in which the company operates. Although, on one side, our analysis showed that *strategic thinking*, *observing*, *diagnostic thinking* and *change agent* are competencies that seem to be essential for any type of innovative process, on the other side, it indicated that other behavioral competencies are associated with some specific types of innovation more than others. These results will be discussed in the next sections.

## 3.4 Product Innovation: Which Competencies to Use?

Product innovation refers to the introduction into the market of a new or significantly improved good or service. The modifications may regard changes in technical specifications, as well as in materials, or changes in components or sub-systems or in the user friendliness of the product (OECD 2005). In addition, when a change in the design of the product alters its characteristics, style or meaning, it is considered to be a product innovation (Verganti 2008). Entrepreneurs undertaking product innovation mainly showed behaviors connected to *opportunity recognition*, which is the ability to perceive the opportunities emerging from the environment. Clearly, new products are usually produced to satisfy, or better anticipate, customers' needs and expectations. Thus, the ability to understand these needs and possibilities from the market is fundamental to creating successful products.

Waste pollution is an incredibly hot topic worldwide. Recently, multinational companies from the food and coffee industry have promised to undertake concrete actions to reduce the negative environmental side effects of their activities. McDonald's Chief Sustainability Officer has sustained the company's decision to ensure that 100 percent of its packaging comes from renewable, recycled or certified sustainable sources within the next eight years. Costa Coffee has assured that the company will take actions to improve its environmental sustainability policy, including offering discounts for the use of reusable cups. Just imagine the number of foamed plastic cups used every day in the world. According to American Marine Conservancy, each cup takes 50 years to decompose. Now multiply it by 8 and you will find the number of years that a plastic beverage holder needs to decompose. In 2015, an estimated 55 percent of global plastic waste was discarded, 25 percent was incinerated and 20 percent was recycled (Geyer et al. 2017). 'We thought about it about ten years ago. We were concerned with the fact that the coffee capsules that we produce were not recyclable, and our customers started to be sensible to this too. We had to do something,' Matteo said. 'We studied for almost two years to reach the total environmental compatibility that, however, could not be implemented because, inside our espresso machine, the capsule is pressed at about 18 bar, and the capsule did not endure this pressure. We could, however, dispose of 60–70% of it, which was better than nothing. Then we developed a new instrument through which the consumer could be 100% ecological in disposing of the capsules.'

Matteo had the chance of increasing the awareness of environmental issues to introduce a technological innovation into his product and satisfy the need for stronger attention to environmental sustainability. However, product innovation is not only led by technology. Lucia just changed the size of the product to satisfy a need that her competitors were not taking into account. Lucia has been producing spumante for many years; at one point, she realized that there was an opportunity to produce bottles of wine of 0.2 l in addition to the traditional 0.75 l. 'We really paid attention to what the market wanted. Hotels, airports, flying companies, they needed a smaller bottle of high-quality wine to offer to customers, and this is what we did.'

Most of the time, product innovation requires prototyping and testing activities to evaluate the new characteristics of the product. In big companies, this is usually performed by the R&D and quality departments, but in small businesses entrepreneurs are frequently involved directly in experimenting processes. *Experimenting* is one of the most frequently adopted behaviors in product innovation episodes, including the testing of technological solutions to determine whether they are appropriate, testing different materials and testing the perception of target clients. Although other types of innovation may also benefit from experimenting to avoid incurring big investments that may not lead to the expected outcome, this behavior was not frequently adopted in other types of innovation.

Product innovation episodes are also characterized by a high frequency of activation of *pattern recognition*. In the service industry, Pietro used this ability to understand the factors of success but also the factors of failure of his activity to offer a renewed and better service. In other cases, the idea of a new product was developed through analogies or associations. Carla told us that she started to produce fins from ski boots, because 'anyway it is a show.'

*Achievement orientation* was particularly apparent in product, process and marketing innovations. These three types of innovation may be more easily associated with setting specific, measurable goals that are limited in time. Entrepreneurs showed that they put effort into the achievement of challenging objectives and high-quality standards and to act for continuous improvement of the product. For instance, they promoted activities to enhance organizational learning about new components to improve the technology of products.

## 3.5 Process Innovation: Efficient Achievers

'One of the biggest changes in terms of processes regards the change from our previous software to the new ERP. We submitted the order in March, we started working hard on the gap analysis, that is, the analysis of the differences between what we wanted and what the software in house proposed, and in eight months we switched everything to the new ERP. Everything.' As this example shows, *achievement orientation* is one of the competencies that mostly occur in process innovation episodes. Changes in business processes often entail strong efforts from different parties that need to be focused on the achievement of the final objectives. To be effective but also efficient in this process, e*fficiency orientation* also acquires an important role. For instance, this entrepreneur confided to us that, 'to get to successful results, in the final part of the process, it was very important to force our partner to configure the ERP with operating procedures that were as close as possible to what we already used. This allowed us to accelerate the learning curve and save time in its implementation.' Most process innovations in our sample were driven by the ability to perceive the input/output relationships and to make the best use of resources (*efficiency orientation*). Episodes concern the improvement of equipment layout, maintenance systems or computing, in which entrepreneurs display the willingness and

the ability to achieve a high standard of quality on schedule. The same entrepreneur said, 'For us, time is a very important resource. Thus, achieving this goal quickly, in the time that we estimated, was a crucial element.'

## 3.6 Marketing Innovation: Being Ready to Satisfy Customers

The strong relationship with the customers explains the relevance of one social competency that was frequently used in marketing innovation episodes, which implied changes to the placement, promotion or pricing of the product. *Customer focus* has been recognized as one of the main attributes of entrepreneurs pursuing this type of innovation. Indeed, *customer focus* entails the ability to understand other people's needs, paying attention to their satisfaction. Do you remember the first time you went to the dentist? Often it is not a pleasant memory. I was probably around six, and there was nothing more terrifying than the dental impression. Tiziano revealed that, 'as for the materials you use to make dental impressions, companies tend to standardize and sell big quantities. I thought there was space to specialize instead. I thought that the final audience of this product is not the dentist, it is the final customer, such as a kid. Everyone was targeting the dentist, while we wanted to improve the communication between the company, the dentist and the patient, trying to offer something more to the patient. We studied special products for children, flavoring them to suit children's taste and trying to diminish the discomfort. Not only that, we associated the product with small gadgets, such as little puppets, and this pleased both the dentist and the child.' Besides *customer focus*, this episode underlines Tiziano's *initiative* in undertaking something completely new in the industry, which was not previously required but which changed his relationship with his customers. Entrepreneurs dealing with marketing changes also frequently showed *pattern recognition*, which allowed them to understand logical connections between concepts of different domains. 'Do you want to know where I found this gadget idea?' Tiziano continued, 'In motor shows, where similar gadgets were given to customers.' This shows the ability to drive ideas from different contexts and sectors, creating associations or analogies. Lastly, *achievement orientation* characterizes entrepreneurs who successfully implemented marketing innovations. Luca, for example, introduced a new commercial policy in which, according to various parameters, such as following the suggested price and the in-store display quality, distributors could receive a reward. Despite initial doubts, he kept up with this idea and succeeded in making it work, with the help of an employee who was in charge of the reward system.

## 3.7 Organizational Innovation: Managing People and Emotions

Organizational innovation refers to a change in business practices, workplace organization or external relations (Armbruster et al. 2008; Gault 2018; Lam 2005; OECD 2005). More than other types of innovation, organizational innovation directly concerns people's relationships; thus, emotional and social competencies play a relevant role in its implementation. Indeed a big majority of entrepreneurs exploited their *self-awareness* and *empathy* abilities to pursue changes in responsibilities, accountabilities and routines within the organization. Barbara experienced some problems with her first-level managers last year. One head of department in particular often contradicted her and criticized her business approach. First, she started to gain awareness of her own behaviors and values, acknowledging that she likes to delegate a lot, but she also likes people who give her alternatives if they disagree with her ideas. 'Through self-reflection and through feedback from the other line managers, I learnt a lot about myself and my limits. I always go at full speed, but I realized I have to give people time and attention, and I have to allow them to talk and feel appreciated.' Second, she tried to put herself in his shoes, realizing that he had always been constructive but he had lost his positivity, he was very authoritative and he had started to create his own rules that were not consistent with the company's behavior. 'He was not feeling appreciated. I talked to him and underlined his positive and negative sides. He is very good at his job, and I told him that he is a reference point for me and for the company, but I also told him that I did not like his behavior. I do not need people who say "no"; I need people who solve problems and work as team players. After that discussion, we renewed our relationship. Whereas I needed three phone calls and some screaming to get something done before, now I need half a call and he already knows what to do.'

In comparison with technological innovation, a stronger incidence of social competencies was also shown by the high adoption of behaviors concerning the *development of others* in terms of the resources provided to employees for their development, such as training, knowledge or advice. Diana had been working with licensed brands for years, and, at one point, her company became the production partner of a very big name in the fashion industry. This was a great opportunity but also implied major changes in the organization. 'This business was following completely different mechanisms. We had to dedicate many people only to this production activity, the schedules and production times were different, we had a completely separate warehouse and the controls were much more severe. One of the biggest challenges was to prepare the employees to face these changes in the best way possible.' Therefore, she introduced both structural and procedural changes, providing training to the people involved but also making sure to create a common method of interaction and communication with the fashion company.

As discussed in the literature that has focused on the behaviors necessary for implementing lean production systems (Emiliani 1998), organizational innovations were found to be associated with behaviors aiming at efficiency and waste

elimination. One of the key elements emerging from organizational episodes regards the minimization of time. This includes, for example, accelerating the time to market by setting up an internal laboratory, reorganizing functions and offices to reduce the time needed for design and minimizing the response time even between the entrepreneur and the employers. An *efficiency orientation* was also adopted with the aim of simplifying processes and internal communication and minimizing costs.

## 3.8 Strategy Innovation: Looking for Opportunities and Minimizing Risk

A strategy innovation represents a fundamental shift in the firm's value proposition (Turner 2003) and has a relevant impact on the direction of a business and of the entire organization. Making strategic decisions about the long-term direction of the firm may take place under great uncertainty. One of the main characteristics that entrepreneurs showed in strategy innovation episodes is the ability to be aware of the risks and to manage this uncertainty (*risk management*). Moreover, entrepreneurs showed a strong ability for *opportunity recognition* in the competitive environment, for instance by exploiting their core abilities in sectors or countries that were outside their home market. Some months ago, a big player from the Chinese market contacted Lorenzo about a project. He already had some experience working in North Africa, but the conditions this time were very different. He recognized that he was not sure how to answer at the beginning. However, the need to verify opportunities is part of his behavioral portfolio. He did not want conclusions to forerun his analysis; thus, he prepared his luggage and went to China. In the meantime, he collected information from his network that was operating in the territory. 'I could have decided to undertake a sort of adventure, but this would imply running a series of risks. I wanted to be able to manage those risks by collecting all the information that I needed to make an informed decision.' In a fair amount of cases, strategy innovation was driven by the personal *initiative* of entrepreneurs, who were the ones contacting possible partners and clients and proposing themselves in new markets. 'Although we were mainly working for engineering companies, I realized that we could expand our activities to other niches and started to present our company to new possible customers.' Lastly, also in the case of strategy innovations, we found *efficiency orientation* to be an ability that was often shown by entrepreneurs. This is true especially for manufacturing companies, which, for example, repositioned their products and aims in the competitive environment to exploit economies of scale.

## 3.9 Concluding Remarks

According to Drucker (2014), innovation is the specific tool of entrepreneurs, the means by which they hold the key to organizational sustainability (Zhao 2005). In this period of rapid change, the ability to perceive and capture an opportunity and innovate adds value both to the individual and to the community (Johnson 2001). In carrying out innovation processes, entrepreneurs mobilize a series of behavioral competencies pertaining to different thematic areas. *Strategic thinking*, *observation*, *diagnostic thinking* and *change agent* emerged as fundamental characteristics of innovative entrepreneurs, regardless of the type of innovative process. Product, process, organizational, marketing and strategy innovations were analyzed, identifying those competencies that entrepreneurs adopted more frequently to be effective in their creation and implementation. The first takeaway is that, depending on the type of innovation pursued, the entrepreneur may need to mobilize some behavioral competencies more than others. For instance, while strategy innovations are based on the strong initiative of the entrepreneur and are driven by his or her ability to recognize business opportunities and manage risks in entering new markets, organizational innovations deal much more with people inside and outside the organization, thus requiring competencies related to understanding the self and others. The second takeaway regards the fact that, to be effective in pursuing innovation processes, entrepreneurs need to mobilize a *combination* of behavioral competencies, mostly using them within the same situation, and for this reason they need to master at least some of them. Indeed, innovation is a complex phenomenon to which a complex set of abilities contributes. Entrepreneurs should be aware of the set of competencies that mostly participate in making an innovation process successful and adopt them according to the type of innovation to be pursued.

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# Chapter 4
# Behavioral Competencies in New Product Development Teams


*Many emotions grow out of social interactions; thus, emotion is a pervasive influence in teams and is fundamental to how team members interact and work together.*

*—Barczak et al. (2010: 333)*

## 4.1 Three Professional Profiles That Make NPD Successful

During a meeting of one of the initial stage-and-gate phases, the project was at risk of being killed. As Lorenzo explained, 'the solution found for implementing the stylistic requirements keeping the desired technical functionalities led to an increase of the estimated costs. With this new collection we aimed at increasing the positioning of our products. However, the board of directors in that meeting expressed its concern that the project was too risky and suggested stopping it. I strongly believed in that project because we had only two collections in this market segment, the demand was increasing and the last product was launched two years earlier. Thus, the curve of the product life cycle was approaching the declining stage and we would lose market share. I believed that we needed something new at that moment. For this reason, I suggested approaching the problem differently. I asked for more time to conduct market research and to find evidence supporting the project. In the next meeting, I made the stakeholders aware that our main competitor was positioned much higher than the final price at which our product would be sold. Moreover, I provided them with evidence of the continuous requests for new products advanced by the foreign markets in which we are a leader. They changed their mind and the project went ahead.'

Sandra was leafing through a book by Boccioni, one among the most influential painters and sculptors of the Italian Futurist movement, which she used to search for inspiring ideas on the materials, shapes and colors she had to propose to the marketing department for the development of a new product. As she narrated, 'That product was peculiar because it was made of two overlapping materials: a layer in metal and another transparent layer. My task was to define the product in its esthetic



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elements, and specifically I was in charge of choosing four colors to make it successful. I did a lot of research on the emerging stylistic trends, looking at historical movements, since our company's identity emphasizes the importance of the tradition. Finally, I identified retro-futurism as a promising trend for this product. I used several images and objects related to the retro-futurist movement, such as a painting, a vehicle, a lamp and a landscape, to inspire the definition of the colors. Once identified, I had to associate the colors with the materials. We usually work a lot with varnishers; we share with them these inspirational images and we ask them to create the colors. Indeed, very often the colors that we want for our products are not present in the standard color chart. For this specific product, I went to the varnisher and I physically stayed next to him during the several tests that we conducted. At every trial, we evaluated the result obtained until we attained the color shade desired. To present the stylistic decisions to the marketing department, I developed a mood board that illustrated the colors, the materials and the story of the product; in so doing, the images and objectives materialized what I narrated.'

When Leonardo was involved in the project, he had just attended a course on project management. One of the main recommendations that he wrote down in his notes during that course was that, in the initial stage of the project, when you cannot forecast all the criticalities, you have to keep the project flexible. As he explained, 'This note came in handy for this specific project. From the marketing department, we received a request of variation—for esthetic reasons—of the finishing of a product's component, when we had already conducted all the tests with the finishing identified at the early stage of the project. If we had adopted the new suggested finishing, we would also have changed the material. At this point, a question was raised: "Can the new material be assembled like the previous one?" The material defined at the beginning of the project had already passed all the tests successfully; instead the new material had never been adopted in our products. To proceed with this request, I had to be confident about adopting a solution that enabled me to deliver the project on time and on budget. Thus, I insisted on keeping the previous finishing, but, at the same time, I started to evaluate the feasibility of the new material for that specific component. With the previous material, I continued to test all the remaining parts of the product—apart the specific component—without hampering the time delivery of the project. In so doing, once tested, the new material would arrive ready for the production.'

What do the characters of these three stories have in common? They were all members of the same new product development (NPD) cross-functional team, and their behaviors contributed to making the product successful in the marketplace. What differentiates Lorenzo, Sandra and Leonardo is their job titles as well as the type of behavioral competencies that they mobilized in the effective situations that they narrated. Lorenzo, a product marketing manager, demonstrated the capability to read and interpret the strategic and competitive environment in which the new product would have been positioned but also to convince the stakeholders by providing them with facts and evidence to support his perspective. Sandra, an industrial designer, manifested her capability to observe the environment and different contexts with the aim of finding new ideas and exploring them through experiments and

trials but also to work cooperatively with external partners. Finally, Leonardo, an R&D manager, showed his capacity to conduct an accurate examination of the implications of the requested change to the project, to identify in advance some possible negative impacts of the uncertainties derived from the adoption of the new material and demonstrated concern for pursuing efficiency in his action.

That the company's ability to develop and introduce new products successfully largely depends on the characteristics and the dynamics of the NPD teams has been well acknowledged among scholars and practitioners. Empirical evidence in different organizational settings has contributed to clarifying the impact of specific team-level factors (such as team tenure or team experience) and dynamics (like the frequency and openness of information exchange among team members or the group cohesiveness) in NPD outcomes (Sivasubramaniam et al. 2012). Moreover, at the individual level, much of the past research on NPD teams has primarily focused the attention on the team leaders and specifically on how their behaviors can influence not only the project performance but also the internal dynamics of the team, for instance in terms of conflict resolution, communication and collaboration (Keller 2017; Sarin and Colarelli O'Connor 2009). Notwithstanding the knowledge provided by these studies, the role of the different members of the NPD team and their related behaviors has been scantly investigated.

A micro level of analysis may offer a complementary perspective, shedding new light on the personal characteristics of those functional specialists who are responsible for taking a product from conceptualization to commercialization. Meta analyses conducted in prior studies have shown that functional diversity, defined as the number of different functional areas represented in the team, seem not to have an impact on NPD performance. This can be explained by the fact that if, on the one hand, functional professionals may contribute to spurring creativity and innovation, on the other hand, they have very different backgrounds, languages and objectives; thus, tensions and conflicts can arise with a decrease in team efficiency (Sivasubramaniam et al. 2012; Webber and Donahue 2001). However, what these studies did not consider is the focus on those functional areas that affect mostly the product innovation process and on the behaviors activated by the different experts involved in the NPD team.

Traditionally, two functions have been conceived as determinants of a typical NPD process, namely marketing and R&D (Gupta et al. 1986; Jin 2001). A long tradition of studies has addressed the issue of marketing and R&D professionals' integration during the different stages of the NPD process, demonstrating that the more the two functions cooperate, the more the NPD project attains positive outcomes (Atuahene-Gima and Evangelista 2000; Lu and Yan 2004). Recently, with the progressive inclusion of the design thinking methodology in the product innovation process, another function has assumed increasing relevance in the NPD process, namely the industrial design (Micheli et al. 2012). Industrial designers contribute not only to the definition of the product shape, also known as esthetics and style, but also to its functional utility as well as to its emotional and symbolic content (Verganti 2008, 2009). If the integration of these functional experts seems to be vital for the product success, what are the specific behaviors that they should

demonstrate during an NPD process to achieve outstanding outcomes? Which behavioral competencies do they have in common and which competencies differentiate each profile?

This chapter offers insights into this issue, presenting the results of an empirical study that analyzes the behavioral competencies mobilized by the members of cross-functional teams involved in successful NPD projects in leading Italian innovative companies. The following section briefly explains the research conducted and offers a summary of the main findings. Then, the next sections will provide an in-depth analysis of the bundle of competencies manifested by all professionals in NPD situations in which they attained positive outcomes as well as the behavioral competencies that emerged as distinctive characteristics for each role.

## 4.2 NPD Projects in the Italian Context: Which Behavioral Competencies Matter?

The most frequent characteristics usually associated with an Italian product concern the tradition of top-quality craftsmanship and materials, the creativity of the concept and the sophisticated design. The companies involved in our study, which operate in different business-to-consumer industries in northern Italy, represent this image of the Italian product worldwide through their offerings. For each company, we identified the most relevant products for its business and, among them, we selected those launched onto the market within the last 36 months. Indeed, we estimated this period as the minimum time required for a company to deliver a project to the market and to evaluate its performance. More than 30 NPD projects were analyzed and their story reconstructed, considering when and why the project started, the product launch, the performance achieved and the composition of the NPD team. The members of the NPD team belonging to the marketing, R&D and industrial designer functional department were asked to participate in the research. Data on the behaviors that they manifested in critical episodes that occurred during the different stages of the NPD process were collected through the administration of the behavioral event interview technique (Boyatzis 1998; McClelland 1998; Spencer and Spencer 1993). This technique, which was illustrated in Chap. 2, led the respondents to recall five situations that occurred in the NPD process in which they felt effective, describing the context, the problems encountered, the people involved, what they thought, said and actually did and the outcomes achieved. Each interview—which lasted on average 1.5 hours—was recorded and transcribed verbatim for the subsequent coding phase. We adopted the competency framework proposed in Chap. 2 to associate the interviewees' actions and related intent with the corresponding behavioral competencies.

For each respondent, we computed the number of times a competency was expressed during the interview. If a competency appeared more than once in one episode, we considered it once. Then, we calculated for each respondent the

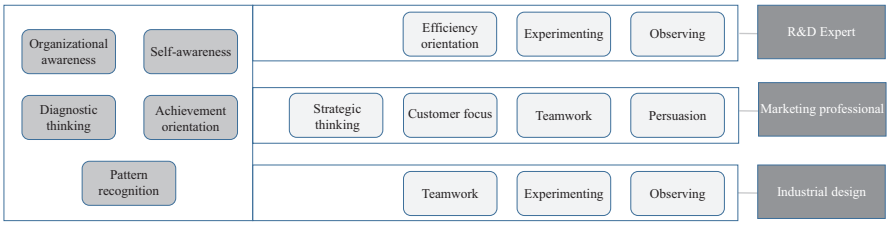


**Fig. 4.1** The most frequent behavioral competencies manifested by three professionals during the NPD process based on the Competency Hexagon

frequency percentage as the number of times that a competency appears out of the maximum number of times that it could have appeared (Camuffo and Gerli 2004), and for each of the three sub-samples we computed the frequency mean value. The outcome of the analysis was the frequency distribution of each of the thirty behavioral competencies of the Competency Hexagon for each of three professional profiles. The frequency distribution offers a representation of the behaviors that were most frequently activated to achieve effective results during the NPD. Considering a threshold of 30 percent—which means that a competency appeared in three behavioral events out of ten—Fig. 4.1 reports for each role the competencies that were most frequently manifested with the corresponding mean value.

What emerges from this analysis is a bundle of competencies that are activated most frequently by all the roles (self-awareness, organizational awareness, achievement orientation, diagnostic thinking and pattern recognition). This supports the idea that, to achieve successful outcomes, the members of the team should be aligned in some specific behaviors, which are required to face the situations encountered during the NPD process independently from the functional areas. On the other hand, their competency profile seems to differ for some specific competencies that distinguish the contribution of the functional experts to the NPD process. The following sections offer a vivid description of how the aforementioned competencies are used to deliver innovation.

## 4.3 Cross-Functional Behavioral Competencies in NPD Teams

The profiles of marketing professionals, R&D experts and industrial designers share a combination of common behaviors that refers to the areas of awareness, action and cognitive competencies.

*Diagnostic thinking* is the competency that showed the highest frequency of activation in the NPD episodes analyzed. It refers to the cognitive capacity ‘to make a careful examination of a situation, describing the nature of a problem, and to make decisions about appropriate process steps to be taken’ (Puccio et al. 2011: 115). As the word ‘diagnostic’ means, innovators have to identify the situation for which they

need to develop a better understanding and apply the so-called '5 Ws and a H diagnostic tool': Who is involved? What is the history behind this situation and what is the ideal outcome? When would you like to take action? Where is this taking place? Why is this important? How should it be done? An R&D expert explained the discrepancies between the actual and the ideal situation and the importance of finding a solution in that project: 'We faced a criticality on the assembling phase. We had to create an alignment among the battery, the two shelters and the covering grille. If the assembling of these components were not performed accurately the product would have been perceived lower than it actually is.' In another project, a marketing professional narrated that they introduced a revolution in the product concept after an in-depth examination of the problem. He analyzed the characteristics of the previous product and explained why innovation was necessary and how he intervened: 'From the technical point of view, in its previous version, the product's heart, namely the fuser, was removable from the frontal side, whereas, in the new version, we positioned the fuser in the lateral side, earning much more room for the worktop.' Calling to mind the history of an NPD project, an industrial designer narrated how she carried out the diagnosis of a specific situation: 'Only in Italy we drink coffee in small cups. Since the market required milk-based-drinks, we had to add a taller glass to the machine. With the previous technical scheme, we were not able to position this glass. Thus, the first thing that we did was to increase the height of the product, keeping the previous frame and adding a further piece.'

*Self-awareness* is the first component and the cornerstone of the emotional and social intelligence framework (see Chap. 2) (Boyatzis et al. 2000; Goleman 1998) and refers to the capacity to monitor our inner world or identity and our thoughts and emotions as they arise. It is not only a matter of knowledge accumulation about ourselves but is also about paying attention to our inner state with a beginner's mind, namely having an open and curious attitude. This represents a critical skill during the innovation process, since it has been demonstrated to increase the originality of ideas: being present in the moment brings fresh eyes to a problem and engages new perspectives on how to solve it (Rieken et al. 2019). *Self-awareness* helped the three professional roles to be attuned to the present moment, namely being mindful of their thoughts, feelings and sensations as they unfolded in light of the situation. In so doing, they were better able to understand and explain the mental processes that they usually used to generate creative solutions. As described by Puccio et al. (2011: 117), mindfulness is about using feelings as a source of data for the innovation process: 'having a gut feeling about the problem, feeling that someone is involved in a way you can't quite explain, having your intuition tell you something, and being suspicious about what might be happening are all affective ways of knowing.' As explained by an industrial designer: 'I have a strong vocation toward innovation, it's my personal cognitive and affective process to approach the creative process. I usually sense that something is missing, as occurred in that project where I felt the need to do something new.'

*Self-awareness* also enables us to describe our own emotions, why we are feeling them and how they affect our performance. In the different stages of the NPD process, the understanding of their own emotions enabled the three professional roles

to self-regulate their behaviors and orient the decision-making process. 'I am always emotionally involved during the generation of a new product; I consider it like my son. In this case, if they had killed it, I would be disappointed, so I started to collect evidence to support its potential value for the company.'

Through self-reflection, individuals identify their own strengths, nurturing self-confidence, but also become aware of their own limitations, understanding when they have to rely on others' capabilities to pursue the objectives. As a marketing professional explained, 'I have a technical background, since I have a master's degree in physics, and for this reason I possess a high ability to persuade the colleagues in the R&D department, because they know that I have the expertise for the solutions proposed.' In another interview, an R&D expert said: 'I have been in this company for fourteen years and I have a wealth of experience with the product that allows me to generate rapid connections and to understand the problems immediately.' Indeed, prior evidence has suggested that being mindful facilitates the careful examination of the situation during the innovation process and in so doing it fosters the activation of *diagnostic thinking* (Puccio et al. 2011), which emerged, as discussed above, as the most frequent competency manifested by the three professional roles.

Moreover, being self-aware gives clarity to our values, passions and sense of purpose. Studies have demonstrated that individuals who pursue their values and passions in the workplace experience psychological well-being and feel more motivated to continue pursuing goals when confronted with difficulties (Cardon et al. 2013; Carton et al. 2014; Hitlin and Piliavin 2004). With specific regard to innovation, research has demonstrated that people are most creative when they are motivated by passion and interest in their work (Amabile and Fisher 2009). As narrated by some interviewees: 'This is an activity that I really like. I did it before in the previous company and I found it in my present job.' 'I like cooking, I attended the hotel management school and then I gained a master of science in food technologies. I spent many summers working in the kitchens of the hotels. This allowed me to understand better the food and the technology behind it and to implement this innovation.'

Another dimension of the awareness has been demonstrated by the three professional roles at the organizational level. *Organizational awareness* refers to the capacity to locate and decipher social networks and power relations and to be able to understand the 'political' balance in any organization and guiding values and unspoken rules that govern the behavior of its members. This competency enabled the NPD team members to pursue their innovation goals better, leveraging their knowledge of the organizational culture and capabilities. As narrated by an interviewee: 'They said that we were not ready, that we did not have the technologies. Usually, when cutting edge projects are proposed, the company reacts with a defensive approach; before a company with such structure moves toward this type of investment, it has to receive a strong commercial stimulus.' 'I understood the company's politics, you cannot push radical innovation and set too challenging a goal without having all the support you require from the key persons.' 'During these years, I learnt that you cannot provide too much technical advice directly to the

R&D department; engineers do not perceive it positively. Thus, if I have suggestions to add to the project, I share my thoughts during the meetings, in a way in which they cannot feel hurt.'

The only competency belonging to the action area that was demonstrated by all the functional roles is *achievement orientation*. It is expressed as the concern for working toward a standard of excellence (Boyatzis 1982) in terms of improving one's own performance or outperforming others. This competency drives individuals to experience new challenges and strive to perform better. Thus, *achievement orientation* affects 'how people approach a task and allocate their attention and effort to accomplish desired end states' (Miron-Spektor and Beenen 2015: 53). In the context of the NPD process, the members who demonstrate this competency are motivated by setting complex and challenging tasks and by developing new skills and outperforming competitors through the creation of superior products. Some quotes extracted from the interviewees exemplify this orientation. 'Differently from the previous product, we had to propose an evolution of the product concept that included more technological advancements. In my opinion, since we are the market leader, we not only had to add a new functionality but we had to push the product to the most extreme limits of its performance.' 'Our company had no experience in this field of particular products. After just one year, I contributed to introducing this product that was unique in the market.' 'I felt satisfied in this project because I pursued my idea and we brought to the market a higher-performing product. It would have been much easier to accept the first solution proposed, but I searched for something new. It's part of our job to identify new challenges, otherwise you get bored.'

To pursue these challenging goals, as prior studies have demonstrated, innovators are spurred to search for solutions in different fields and combine knowledge from diverse and remote domains (Miron-Spektor and Beenen 2015). In so doing, they are facilitated to activate the cognitive competency *pattern recognition*, which turned out to be one of the most frequently manifested skills in our study. This competency is also known in the innovation literature by the terms 'associational thinking' (Dyer et al. 2008, 2011) and 'analogical thinking' (Gassmann and Zeschky 2008). *Pattern recognition* enables individuals to make connections across seemingly unrelated questions, problems, disciplines, fields or ideas. As highlighted by Dyer et al. (2011: 45): 'Innovative ideas flourish at the intersection of diverse experience.' The more diverse knowledge we acquire, the more the brain can make unexpected associations and analogies. How does *pattern recognition* work in the innovation process? When facing a problem, innovators detect similarities between the source of the problem and the source of the analogy/association. The literature has distinguished between near or surface versus far or structured analogies (Dahl and Moreau 2002). The former usually entail obvious surface similarities, such as similar designs, while far analogies typically refer to similarities in the structural relationships between source and target attributes. An example of near analogy was offered by an industrial designer who associated the shape of the car change with the doorknob of the product: 'In the past my colleagues adopted some stylistic solutions in our products that are derived from the automotive sector. I started to scrutinize several images of car changes, and I selected some details that I introduced into

our product.' An example of far analogies was described by an R&D expert who narrated how he identified the solution to a problem by drawing on the functionality of a coat rack: 'We were assessing different options provided by the industrial design on how to open this drawer of the machine. The real problem was not just how to open the drawer but how to keep it closed when the customer is not using it. The solutions proposed were too complex and implied adding pieces and springs. I had an insight, thinking about the use of a coat rack: it raises the coat, then it hangs it and then it raises it again to remove the coat. Using a similar logic, I proposed a flexible hook. It did not require any movement; you had only to pull up the drawer and the hook kept it closed.' As in the aforementioned episodes, in the different stages of the NPD process, the three professional profiles explained how their past professional and personal experience sparked original associations that nurtured the NPD project analyzed.

## 4.4 Marketing Professionals: Managing Relationships with a Focus on the Strategy

During the different stages of the NPD process, the members of the marketing unit demonstrated social competencies with a higher frequency of manifestation than the other two professional profiles in combination with the competency *strategic thinking*, which belong to the 'organizational action' area of the Competency Hexagon.

The most frequently activated social competency was *persuasion*, followed by *teamwork* and *customer focus*. In the episodes narrated, through a process of social influence, marketing professionals built consensus for product ideas, induced stakeholders to support the project and convinced other team members about the changes that the project needed by engaging them in discussion. As explained by Marco: 'During the NPD meeting, our role is to motivate the "why" for every choice. You have to explain that it derives from an in-depth market investigation and a consequent quantitative analysis. Before proposing something officially to the team and the company, we usually discuss all the aspects of the proposals internally to be prepared for any possible objection.' In a specific project, Marta explained how, through evidence-based tactics, she convinced the other NPD members that the new application recommended by the marketing department would have kept the other functionalities of the product unchanged: 'I made a simulation of how the new application would have been working. You have to adopt a quantitative approach to avoid people adopting different perspectives in interpreting the solution proposed. Thus, I simulated each configuration, demonstrating that, with four–five operations, you can get access to all functionalities in a more intuitive way.' If the marketing unit required changes to the product's features that implied the intervention of the other functional departments, these marketing professionals approached the other colleagues not with a problem but with the proposal of a solution, as in the episode narrated by Davide. 'As a marketing department, we carried out a study on the

user's interface, and it turned out that the digital product does not always simplify the user experience for some products. The other colleagues shared with us a product brief that included a touch display. They thought that a digital interface would have increased the value of our product. I explained to them that we do not necessarily need a sophisticated technology to reach our target. I elaborated some alternative solutions that were cheaper but better performing in terms of the interface and I gained their support.'

The first thing that Alessia did when she joined the NDP team was to establish contact with the technical department: 'I noticed that there was room for improving the communication between these two functional areas. The information exchange was primarily via email, and the technical department suffered from the fact that it was not consulted by the marketing department in the decision-making process. Thus, when some doubts were raised during the NPD process, instead of sending an email or making a phone call, I went to the colleagues with the documentation, asking for clarification. This direct approach empowered them and the cooperation improved. They become more willing to make suggestions, to ask for explanations and to provide answers with better timing.' The competency *teamwork* enables marketing professionals to foster the integration among the functional areas and, in so doing, anticipates possible conflicts and improves the quality and the time of the communication.

*Customer focus* is a competency that is traditionally ascribed to marketing professionals, conceived as market-oriented employees whose role is to identify and meet customers' needs (Schweitzer et al. 2016). Even though, according to the literature, customer orientation represents a consolidated business philosophy that has been demonstrated to lead to superior performance, it has primarily been analyzed at the organizational level as the 'firm's ability to create and deliver superior customer value through the processing of market intelligence' (Racela 2014: 18), which encompasses activities like marketing sensing, customer relations and customer response. At the individual level of analysis, studies on customer orientation are rooted in two main areas, namely the personal selling literature and the services marketing literature (Stock and Hoyer 2005), while limited attention has been devoted to this competency in the innovation literature. Indeed, innovation studies have largely concentrated the analysis of customer orientation at the firm level, highlighting the positive impact of involving customers in the innovation process as a valuable source of information, especially at its fuzzy front end, for elaborating novel product concepts and reducing uncertainties (Schweitzer et al. 2016). However, the literature has distinguished between two types of customer orientation: the proactive one, used to discover and understand latent needs, and the responsive one, which focuses on current customers' expressed needs (Narver et al. 2004). In the competency framework adopted in our research, *customer focus* is close to the concept of responsive orientation, namely a 'more demand–pull strategy focusing on economic opportunity through the detection and satisfaction of customers' immediate needs' (Schweitzer et al. 2016: 2), while proactive customer orientation is associated 'with a technology–push approach focusing on stimulating technological development of solutions for latent needs' (Schweitzer et al. 2016: 2), for

instance involving lead users as solution providers. This behavioral orientation can be better associated with the competency *observing*, which in our framework is included in the 'exploratory' competency area, as will be explained in greater detail in the next sections. The three professional roles showed complementary behaviors to the two types of customer orientation (Fig. 4.1): R&D experts and industrial designers activated *observing* more frequently than marketing professionals, who, on the other hand, showed *customer focus* at a higher level. Some examples exemplified the competency *customer focus* used by the marketing professionals involved in our study: 'For the final user, the visibility of the food during the cooking phase is perceived as very important; thus, if we continued to offer a non-transparent lid, our product would have been perceived negatively' and 'Customers could have been disturbed by the dimension of this component. Thus, I tried to make it as nice as possible through the use of specific materials and serigraphs.'

*Strategic thinking* was frequently activated by marketing professionals in the successful episodes that they narrated. This is the competency that enables people to understand the strategic and competitive environment of the company, 'identifying critical issues that must be addressed and finding the pathways to move toward a desired future' (Puccio et al. 2011: 155). This competency implies what is defined as 'sensing gaps,' namely being aware of discrepancies between what currently exists in the company offerings and what is desired or required (Puccio et al. 2011). As narrated by Valentina, 'The noise reduction is an emerging critical issue for many products in the market, and solutions that can decrease decibels represent not only a challenge but also a competitive advantage for our products. Our company was losing awareness of its strengths in this area, in which it has been a leader for years. I strongly promoted this project that ultimately overcame the competitors achieving higher performance in terms of decreasing the actual and perceived sound emitted.' Discrepancies are usually detected by 'analyzing a firm's current strategic environment, defining a perception of the firm's future and devising new ideas, which enables the company to out-think its competitors' (Benito-Ostolaza and Sanchis-Llopis 2014: 785). As Carlo explained, 'at that time, we knew that our two main competitors held an overall market share of over 60 percent of this type of product that we wanted to introduce into the marketplace. The first adopted a material that allowed the users to monitor all the technical process that occurred inside the product, whereas the second competitor adopted a different solution and kept the user in the dark about what was happening inside the product when it works. Thus, we had two options. I firmly stated that our benchmarking is the first competitor. The future is in that type of solution.'

## 4.5 R&D Experts: Combining an Efficiency with an Exploratory Orientation

In the episodes narrated, R&D experts mobilized a bundle of competencies belonging to the action and exploratory areas that enabled them to pursue two contrasting orientations: on the one hand, the capacity to pursue efficiency in their action, maximizing the relationship between input and output, and, on the other hand, the capacity to search for new ideas through *observing* and *experimenting*.

*Efficiency orientation* expresses the intent to perceive input/output relationships and is manifested by the assessment of inputs and outputs or costs and benefits (Boyatzis 1982). In the NPD teams analyzed, this competency was frequently used by R&D experts, with positive consequences in terms of cost reduction and respect of the time to market, as illustrated by the following quotes extracted from our interviews: 'The initial project considered separating the production of the side in metal and in plastic of the machine. In order to save costs, I proposed to do something easier: to use just one mound with two dies,' 'I suggested to the marketing department to include this accessory in the initial new product development project, because if we include it now, the mound costs half than if we do it later' and 'I developed an experimental prototype that presents characteristics similar to the final product. The difficulty I encountered is to do it as far as possible, because you cannot employ big molds and tools for a preliminary study that may also be aborted.'

As highlighted by Dyer et al. (2011), 'most innovators are intense observers.' This is what emerged from the competency profile of the R&D experts in our study. *Observing* is the capacity to scan the environment and different contexts with the aim of finding new ideas and sparking provocative questions about the possibility of creating new products. As defined by Dyer et al. (2008, 2011), this competency is manifested by behaviors like: (1) directly observing how people interact with and use products and services; (2) observing innovative companies; (3) observing the world; and (4) paying attention to everyday experiences. In the stories narrated by the R&D experts, *observing* is activated through the monitoring of the products offered by most innovative competitors and companies even in different industries, which provides intuitions on new functionalities and materials. Another source of observation is the customers, as explained by Giorgia: 'We decided to introduce changes into the esthetic of the handle and I had to make sure that, from the functional side, it worked perfectly. I observed how individuals used similar products, and I noticed that people tend to put the inch in the hot side, so I proposed to add a component to protect the hand.' In another project, some improvements were added to the product after collecting feedback from users: 'People pointed out to us that some components were not perfectly visible, so we decided to change the colors and to see if it improved the user experience. In doing so, we asked customers to use the product and we made a video in order to analyze their interaction with it.'

In their study on a sample of entrepreneurs, Dyer et al. (2011) found that *experimenting* was one of the best differentiators between innovators and non-innovators. They identified three ways in which this skill can be manifested: (1) trying out new experiences; (2) taking products, processes and ideas apart; and (3) testing ideas

through pilots and prototypes. These three types of experimenting enabled the R&D experts analyzed in our research to answer 'what-if' questions, generating data and insights for introducing novelty into their company's product offerings.

An example of the first method of experimentation was provided by Luca. As demonstrated by Dyer et al. (2011), trying diverse experiences, by learning new skills and working in different industries, enables people to broaden the individual knowledge that boosts creativity. 'I had past experience in the field of hospital beds for intensive care. They become like an armchair thanks to a series of electronic control actuators that move, turn and tilt the bed. I used this personal know-how to experiment with inverse kinematics that allowed me to synchronize all the movements of the machine.'

Taking products apart also represents a useful way to experiment with new ideas. Alessandro was wondering what other functionalities can be included in a machine that was initially designed only for frying. As he explained: 'The project started with the will to reproduce a machine that was already offered by one of our major competitors. By introducing a specific component, we would have differentiated our product from that present in the market. I studied the product to understand how it worked. Then, I started to think about how to introduce more new components to increase the range of its functionalities. Intuitions after intuitions and changes after changes, we completely modified the product.'

An initial intuition can become an innovative idea only if it is tested through prototypes. When Davide found a solution to stabilize the speed of the machine, he asked himself, 'what happens if we use it to do something else?' He imagined a multifunctional machine that was able to make not only chocolate but also cream. However, chocolate was prepared using blades, whereas cream can be whipped with a spiral tool. Thus, he tested his idea using a pen spring that has the shape of a spiral, and he started to undertake trials.

This competency requires the willingness to spend time on trials, accepting failures and learning from them. Indeed, experiments might not work as initially planned, and several attempts may be required to attain usable insights for the innovation process. As in the case of a machine that presented high complexity, Giulia explained that, 'due to problems related to the temperature and motors, we had to introduce air deviations. You cannot image how many prototypes for each components and subsequent testing we did.'

The composition of the competency portfolio of the R&D experts during the NPD process seems to enable them to pursue personal ambidexterity as 'the behavioral orientation toward combining exploration and exploitation related activities within a certain period of time' (Mom et al. 2009: 812). Research has provided support for the positive effect of the balance between these two learning orientations at the organizational level on new product development (Katila and Ahujia 2002), but still limited effort has been devoted to the analysis of how individuals enact exploration and exploitation through actual behaviors (Bonesso et al. 2014). The analysis conducted offers empirical evidence showing how, during an NPD process, R&D experts reconcile the intent and the related behaviors of maximizing efficiency with those of sensing the environment and trying out new experiences in search of variation.

## 4.6 Industrial Designers: Spurring Collaboration and Engaging in Active Observation and Experimentation

When Marco had an insight into the resin to apply to the new product, he immediately discussed it with the R&D office: 'This was a technical issue; it was not part of my job, but we are a team, and I believe that, when someone has an idea, it should be shared with the other members. We have to avoid a silo mentality. The more we discuss with each other, the more we learn and grow.' During a meeting, Carla heard that an NPD team was facing a technical problem that she had solved just a few months previously as a member of another project. She immediately decided to share her experience with that team, favoring cross-fertilization across different product categories. These are all situations in which the industrial designers manifested their capability to work co-operatively with others, to be part of a team and to overcome the functional barriers that usually hamper the efficiency and effectiveness of the NPD process. Moreover, as emerged from the different episodes narrated by our interviewees, during the different stages of the NPD process, the technical department frequently raises concerns about the feasibility of the stylistic solutions proposed by the industrial designers. The activation of the competency *teamwork* enabled them to approach the revision requests advanced by the R&D department cooperatively, avoiding tensions and conflicts.

If the social competency *teamwork* associates the competency profile of the designers and the profile of marketing professionals, *observation* and *experimenting* are two exploratory competencies that R&D experts and industrial designers have in common. Especially during the concept development phase, industrial designers conduct intensive research to identify future trends, meanings and languages that may represent the identity of the firm. Furthermore, to improve product styling and ergonomics, they are continually exposed to the insights coming from international fairs, exhibitions, influencers, magazines and blogs and not ultimately 'the involvement of designers in the innovation process is a channel through which a firm can gain knowledge about its customers and their needs' (Dell'Era et al. 2011: 38). Indeed, by engaging in active observation of the customer experience, designers are better able to conceptualize the product requirements. As Marta narrated, 'I came up with the new product idea after visiting shopping centers and observing what our competitors have exposed on the shelves and what was missing. Then, I combined this information with my personal experience as a consumer.' Another industrial designer explained: 'I identified how to improve our offerings in a specific product category by reading the feedback posted by the consumers on social networks in which they complained about our current product, highlighting the different problems that they encountered in its use.' However, *observing* is also the capacity to pay attention to everyday personal experiences to find new ideas (Dyer et al. 2008) or solutions to problems that emerge during the NPD process. As highlighted by one interviewee, 'I continue to accumulate background, I am curious, I keep up with the world, I travel and my brain does the rest.' In several episodes, it emerged that

*observing* often plays the role of a catalyst for *pattern recognition*—a competency that is frequently manifested by the three professional roles—as the knowledge accumulated through the observation of the world is used to make connections across seemingly unrelated domains: 'I observed the products offered in the professional segment, in which we are not present. I identified some concepts that I transferred to our domestic product, such as the interface, the idea of the switch button detached from the front of the machine and the use of chrome finishing.'

Industrial designers often engage in physical explorations to derive useful information to find solutions to problems: 'To improve the ergonomics of the handle of the product, I made many prototypes, trying different weights.' To achieve successful outcomes, *experimenting* is often activated jointly with *observing*, as narrated by Angela: 'I found the solution by looking around me, especially taking inspiration from the automobile sector, which offers a true mine of ideas for many details. For instance, some car models present an iconic shape that I wanted to reproduce in our products. I started to test the combination of the colors with materials. I tried the white with the shiny steel and the black with the brushed steel, playing around with the contrast of the back and the front.'

## 4.7 Concluding Remarks

The complex dynamics of the NPD team have been explored in this chapter, adopting an individual level of analysis and unraveling the behavioral competencies that make its functional members able to pursue successful outcomes. The analysis conducted provided insights into the combination of behavioral competencies that, on the one hand, are required by all roles independently from the functional area and, on the other hand, are specific to each of the three professional profiles. The evidence collected from different NPD teams operating in innovative Italian companies revealed that the competency portfolio deployed during the innovation process encompasses skills belonging to the different areas of the Competency Hexagon introduced in Chap. 2. Moreover, the activation of some competencies represents a catalyst for the manifestation of others, as in the case of *observing* and *pattern recognition* or *diagnostic thinking* and *self-awareness*. A further insight that emerged concerns the distinguishing competencies of the three key functional roles involved in the NPD team. Marketing professionals, R&D experts and industrial designers use behaviors that complement each other: whereas some roles are more orientated toward managing relationships, others promote a balance between exploratory and efficiency searches. The in-depth description of the competency profiles illustrated in this chapter can orient employers and practitioners toward promoting a human resource management competency-based approach in managing the members of the NPD team. In the next chapter, specific attention will be devoted to how behavioral competencies can be developed and assessed with the aim of improving the individual performance.

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# Chapter 5
# Managing Innovation Through a Competency-Based Approach


> *It appears that most, if not all, sustainable behavioral change is intentional. Self-directed change is an intentional change in an aspect of who you are (that is, your Real Self) or who you want to be (that is, your Ideal Self) or both. Self-directed learning is self-directed change in which you are aware of the change and understand the process of change.*
>
> *—Cherniss and Goleman (2001)*

## 5.1 Unleashing Innovation Through Individuals' Behavioral Competencies

How can people become more innovative? What we have learnt in the previous chapters is that entrepreneurs and professionals deploy a complex portfolio of behavioral competencies to attain innovation outcomes. In recent decades, the contribution of human capital to firm innovativeness has evolved significantly (Lenihan et al. 2019; McGuirk et al. 2015), but only recently has the behavioral dimension been taken into account. The in-depth analysis we conducted on several episodes of innovation across different organizations and roles has contributed to bringing to light how emotional and social intelligence competencies concretely enable the generation and implementation of creative ideas. It has also advanced the understanding of the behavioral skills most frequently activated to pursue different types of innovation (product, process, organizational, marketing, and strategy) and those that characterize specific roles involved in a NPD team.

Even though behavioral competencies seem to be crucial drivers of innovation and are the most in-demand skills in the labor market (LinkedIn 2019), they still continue to be perceived by employers as underrepresented in the candidates' competency profiles (QS Intelligence Unit 2019). This skills gap poses a critical challenge to companies that base their competitiveness on innovation. The OECD (2011), analyzing the importance of boosting soft skills as a key element in



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promoting innovation in the economy, encourages the implementation of those policies that focus on enabling competency acquisition and their optimal use at work.

There are many actions that can be undertaken by firms, policy makers and educational institutions to bridge this behavioral competency gap. The following sections of this chapter will address this issue. Firstly, some methodological recommendations for higher education institutions and for companies will be introduced, specifically regarding how to implement a competency-based training experience. Subsequently, the chapter will provide insights for human resource management specialists on how to revise the way they promote a culture of innovation inside the organization adopting a competency-based approach.

## 5.2 Developing Behavioral Competencies to Foster Innovation

The discrepancies between the behavioral competencies demonstrated by individuals during their innovation endeavors and those required by their job can be explained by several reasons. Firstly, formal education has not yet adequately addressed the acquisition of behavioral competencies during an individual's academic path. Undergraduate and graduate education in the field of innovation management and entrepreneurship still privilege the acquisition of only technical knowledge and skills, instead of facilitating the development of behavioral competencies. This can be ascribed to the lack of awareness among the faculty members in charge of designing the educational programs about the skills necessary for professionals and entrepreneurs to achieve innovation in the workplace. Moreover, even where faculty members acknowledge that students should learn behavioral skills as part of their academic experience, since they are faced with credit hours limits, they have difficulties at the institutional level in changing the policy such that a technical course is left out of the program in favor of a course on emotional and social competencies.

A second reason for these discrepancies refers to the lack of awareness among companies of the role of soft skills in promoting innovation. Indeed, it is interesting to note that specialized training initiatives on behavioral competencies at the company level have been limited to only a few social competencies, such as teamwork and leadership. These training programs do not consider that in order to promote different types of innovation, people should acquire a diversified set of skills, and that they should learn when they need to utilize some behaviors instead of others. Moreover, compared with technical skills, behavioral competencies are more difficult to develop and maintain over time. This occurs because developing a behavioral competency not only requires the acquisition of notions, but also entails a change in the individual's ordinary behavior. Consequently, competency development programs may be discouraged in academic and company environments.

**Table 5.1** A representation of the five discoveries in Intentional Change Theory

| **Discontinuity 1. My Ideal Self** *Who do I want to be?* | **Discontinuity 2. My Real Self** *Who am I? My Ideal and Real Self are similar/different?* | **Discontinuity 3. My personal learning agenda** *Which capabilities should I develop to attain the desired future?* | **Discontinuity 4. Experimenting and practicing the new behavior until mastery** *How and where can I experience the new behavior in actual safe settings?* |
|---|---|---|---|
| **Discontinuity 5. Trusting relationships that encourage each stage in the process** *Who can help me in my learning path?* | | | |

An effective approach to competency acquisition has been proposed by the educational programs that have espoused the intentional change theory (ICT) in skills development (Boyatzis 2006, 2018; Boyatzis and Saatcioglu 2008; Boyatzis et al. 2002), which has been proposed as a framework describing the essential components of desirable, sustainable change in one's behavior, thoughts, feelings and perceptions. This methodological approach to competency development has been successfully applied in international higher education contexts (Boyatzis et al. 2002; Boyatzis et al. 2010; Boyatzis and Saatcioglu 2008). The ICT is based on the 'whole person' pedagogical approach, which is considered necessary to support the development of behavioral competencies and the associated cognitive schemas, as well as emotional commitment (Hoover et al. 2010). Defining individual change as desired and sustainable is key to the application of ICT. Indeed, people tend to change only if they want to. Thus, it is fundamental for a successful change that the individual wants the change to occur. This willingness should not be simply an espoused desire; rather, it should be enacted in reality (Boyatzis 2018). Sustainable change refers to making a change that endures over time. One of the main difficulties that training programs face is the challenge of creating long-lasting change in the context of short-term training activities. Studies show that temporarily acquired information is easily forgotten (Specht and Sandlin 1991), and that short-term improvements are often followed by a decline within a few months (Boyatzis 2006).

The learning process embedded in the ICT consists of five phases that help the individual acquire awareness of the need to change and improve his behavioral repertoire (Boyatzis 2006). These five phases, illustrated in Table 5.1, are defined as moments of discontinuity in which the person understands something more about himself and identifies the motives that drive personal change.

The first phase concerns a reflection on one's ideal self, which is the representation of one's desired future. People are asked to define how they would like to be in the future, grounding this reflection in their core values, dreams, aspirations, and main passions. In the second phase, people are driven toward a higher awareness of their current self. They are involved in a behavioral competency assessment process that helps them understand their common behaviors and levels of mastery of each behavioral competency. By comparing their current self with their desired self, individuals are able to identify their main strengths and weaknesses. To close the gap

between the real and ideal self, the third phase comprises the creation of a learning plan in which learning goals and actions are set. This helps individuals follow a roadmap of their change process and leads them to the fourth phase: the experimentation of behaviors and competencies. This phase is dedicated to the active adoption of new behaviors that help the individual acquire and improve his behavioral competencies. The fifth phase regards the identification and creation of trusting relationships that support the individual throughout the change process. How these phases can be implemented to foster innovation will be discussed in detail in the following section.

## 5.3 Implementing the ICT to Develop Innovators' Behavioral Competencies

The process derived from ICT could be applied to the development of the roles who have responsibility for the innovation process. At the beginning of the process, during the initial discovery, individuals are asked to visualize the destination of their change journey. Self-reflection activities help them disclose their professional aspiration and dreams to answer the question: 'Who do I want to be?' A newly acquired or renewed awareness of a person's desired future allows him to foster motivation and create commitment to the change process, as the person directs the change toward a future state that is desired and personally identified. People are asked to reflect on their inner values, passions, and dreams, and to create a comprehensive vision of themselves in the future. This vision is formalized in a personal vision statement in which individuals, once they have identified a future time horizon, describe in detail the features of their desired personal and professional life (McKee et al. 2008). The narration of one's professional life requires a reflection on the ultimate purpose of their activity, as well as reflection on the tasks and relationships they would be involved in. For instance, an aspiring or actual entrepreneur/professional in charge of the innovation process can ask himself: In what way does my job help me translate my passions into innovation? What kind of changes do I want to introduce in my company? What does my team/company look like after the implementation of these innovations? What will my contribution be to the innovation outcomes of the company? This deep self-reflection helps individuals identify the elements of efficacy on which they would like to improve, as well as the relevant behavioral competencies necessary to perform the job well. The process of linking the vision of the desired profession with the behavioral skillset necessary to achieve it is often facilitated by the presence of an expert, who plays the role of learning facilitator. Having a clear and detailed image of one's future self in the working environment was also found to facilitate the engagement with proactive career behaviors, enhance career planning, and drive competency development (Strauss et al. 2012). Indeed, the definition of the individual ideal self is an important step in

the change process, and it is a way to ignite the motivation to change and create a sense of hope that the achievement of one's dreams is within reach.

The image of our desired, improved, future self is not the only driver of our change. Boyatzis (2006: 52) argues that: "To move from where we are now to where we want to be, we need to have a sense of how others see us, and how that image matches (or does not match) with how we see ourselves." In practice, in order to reach our desired self, we need to be aware of the point from which we are starting. For this reason, the second step of the change process refers to the identification of the individual's current behaviors and abilities (real self) and of his strengths and weaknesses. The analysis of the behavioral portfolio can be conducted using two main methodological approaches. The first and most common approach refers to a multisource feedback for competency assessment. This type of assessment has been recognized as "one of the most remarkable innovations in leadership development over the past 20 years" (Hezlett 2008: 703). It combines one's self-assessment and the evaluation of external raters in order to provide a comprehensive view of the individual's most and least frequently manifested behaviors. This allows us to go beyond the individual's singular perspective (Taylor 2014) and to take into account the interpersonal nature of the individual behaviors. While self-assessments are usually considered biased and inflated measures (Baumeister 2005; Taylor 2014), multisource feedback allows us to complement the individual view of the self with the multiple views of external raters, each of which provides a unique insight to the behaviors of the individual.

The second approach involves a third-party evaluation by an expert that reconstructs the most and least activated behavioral competencies of the individual by administering a behavioral event interview (Camuffo and Gerli 2004; Spencer and Spencer 1993). In the interview, the individual is asked to recall a series of past concrete situations in which he felt effective or not effective. Then, the behaviors that emerge from the narration of the episodes are coded through thematic analysis or through codebooks. The behavioral competencies hexagon, illustrated in Chap. 2, was used in the assessment process of the behavioral profiles of entrepreneurs and new product development team members, presented earlier in this book.

The results of the behavioral competency assessment are presented to the individual in order to enhance his awareness of his current behavioral competencies and in order to identify his main strengths, which can be exploited to pursue his ideal future self. It also shows his main areas of improvement, which need to be resolved to become more effective. Providing feedback is often a delicate process. However, it is a process that needs to be pursued, so as to avoid common drawbacks. Acceptance of the feedback in fact may be limited by self-protection or self-enhancement mechanisms. Previous studies have indicated that people tend to perceive less favorable feedback as less accurate and tend to react negatively to it (Brett and Atwater 2001). After a certain period of time, people also tend to recall strengths more than weaknesses (Smither et al. 2008). For this reason, help and guidance in interpreting feedback information is strongly suggested (Luthans and Peterson 2003), with the use of coaching as the most effective enabling intervention.

Once key strengths and areas of improvement are identified, in the third phase of the process people are encouraged to draft their personal learning plan, choosing behavioral competencies as learning goals and identifying concrete actions to practice. The creation of a learning plan helps individuals to focus on a few key things they would like to work on, as well as create an agenda for improvement. The sustainability of the change process is not only based on self-determined motivating learning goals, but also on the creation of a learning plan that can be applied in people's daily lives. In order to be effective and easy to implement, the learning plan has to be customized based on personal characteristics, needs, and learning styles (Kolb and Kolb 2005; Goleman et al. 2002).

The fourth stage of the process involves individuals in the experimentation of the concrete actions identified in the plan. People practice new behaviors and apply new strategies to acquire and improve their behavioral competences. In order to achieve a long-lasting change, individuals need to become familiar with the effective behaviors to apply and repeat over time and across different contexts (Boyatzis 2006). At the outset of the process, the person is required to practice the new behaviors in a safe environment, such as with colleagues with whom the individual has a good relationship or at home. Subsequently, in order to make the new behaviors consistent and part of one's competency repertoire, the individual should apply the new habits in all contexts and seek to master them. Every daily experience can be conceived of as a learning laboratory in which the individual needs to be vigilant of his behaviors and able to experiment with new approaches to become more effective in the management of the self and of others.

The fifth phase of the process regards the activation of a relationship of help and trust. Indeed, an intentional process of change can be difficult and tiresome to pursue alone. The help of close relevant relationships and of professionals and coaches can facilitate the process and support individuals through each phase. In the definition of one's ideal self, talking with other people, sharing their views of the future, and receiving feedback may help the individual see new opportunities and gain the necessary encouragement to identify their own motivations, despite others' expectations. Instructors or facilitators can provide guidance in the reflections on job opportunities, as well as on the characteristics of different roles. Facilitators may also help to identify the behavioral competencies that are more likely to distinguish effective or more innovative people in different roles. This allows individuals to compare the behavioral competencies they would need to be effective in the role with the behavioral competencies they currently demonstrate. Moreover, interactions with entrepreneurs and professionals who are in charge of the innovation process may provide further opportunities to gather insights into the job's main characteristics. Narratives of innovation successes and failures provide a form of vicarious learning through which individuals become acquainted with the competencies required for the situations in which they will be most frequently involved in their future work.

Besides activating trusting relationships with the instructor and innovators, individuals should be invited to share their desired future image with relevant people in their life, as well as with peers. Peer coaching generates reciprocity of the relationships in which peers engage in shared sense-making (Parker et al. 2008). The aim of

peer coaching sessions is to help each other achieve a deeper level of analysis and reflection on personal values, passions, and future dreams, as well as to make hidden assumptions explicit and to resolve possible inconsistencies. People are involved in mutual listening and questioning in order to clarify their desired future image. Past studies highlighted that coaching and peer coaching in educational programs have led to positive outcomes in terms of increased self-confidence, empowerment, self-understanding, success in dealing with change, and the development of behavioral competencies (Boyatzis et al. 2006; Gerli et al. 2019; Goldman et al. 2013; Parker et al. 2008).

In the phase dedicated to the definition of one's real self, trusting relationships are relevant in the acquisition of honest and detailed feedback from external raters. The perspectives of external parties enable the individual to acquire a more comprehensive view of how he is seen and perceived by others. In this phase, coaching may also be beneficial, especially in the delicate moment of feedback delivery. This would help to avoid strong feedback resistance and enhance the identification of habitual scripts of behavior, as well as their drivers. Previous studies have shown the paramount role of coaches in supporting the feedback process (Boyatzis et al. 2010), especially when this is achieved through coaching with compassion rather than coaching with compliance (Boyatzis et al. 2012).

The definition of the learning plan represents a way to move rapidly from theory to practice (Waddock and Lozano 2013). Again, peers can be an important source of information and support. Social learning is pursued by discussion in small groups about concrete actions they can implement so as to improve their behavioral competencies. The plan also requires the individual to identify trusting relationships that can support the practice of the newly identified behaviors. The instructor can also be involved in the revision of the learning plan to make it more concrete and actionable. Moreover, during the experimentation discovery, the instructor can further support students by monitoring their progression along their learning path. For instance, the instructor can organize a follow-up session with all participants a number of months after the end of the training course. The follow-up session may represent an opportunity to compare the individual's experience, helping everyone involved to develop an understanding of how to remove the obstacles encountered during the experimentation of new behaviors and learn new techniques to practice the competency.

Through the theoretical lens of ICT, this section has provided some methodological insights into how to design a learning experience within academic and company training programs through which individuals may increase their awareness of the importance of behavioral competencies for the professional roles involved in the innovation process and undertake a path toward their development. In prior studies, the effective impact of the aforementioned discoveries on competency development has been shown in graduate management education (Boyatzis and Cavanagh 2018). However, the insights offered in this section may help company trainers and academic educators to tailor the ICT's discoveries to different settings, with a specific focus on the professional roles that directly contribute to sparking innovation in the workplace.

## 5.4 Nurturing an Innovative Environment Through a Competency-Based Approach

In an interview conducted by Knowledge@Wharton (2018) of Satya Nadella (CEO of Microsoft), he said that although many regard soft skills as not especially important to the "hard work of business," they represent a wellspring for innovation. He described how social competencies became crucial to grasping customers' unmet, unarticulated needs and translating them into Microsoft's innovations. Nadella was aware of the positive impact of behavioral competencies on innovation, and this allowed him to promote a growth mindset in his working environment. Awareness is the first step that enables companies to fill the skill shortage gaps and, in so doing, to foster innovation. Entrepreneurs and managers can promote initiatives for increasing employees' awareness of the behavioral competencies most frequently associated with specific types of innovation and particular professional roles.

Companies should also take into consideration the compatibility or fit between the firm's innovation strategy and the competency profile of the candidates who aspire to be in charge of the firm's innovation activities. Depending on the type of innovation companies aim to develop (product, process, organizational, marketing, or strategy), executives and Human Resource Management departments can orient the hiring process. Moreover, the different competency profiles of the professional roles that contribute to the NPD process should be considered during the assessment of candidates' applications. Recruiters can be trained in administering and codifying behavioral event interviews in order to assess candidates' levels of mastery of the key competencies for the specific positions, addressing general questions, such as: "Tell me about a time when you introduced a product innovation in the workplace." Alternatively, they can pose question that specifically aim to assess the intent and the behaviors related to a well-defined competency, such as: "Have you ever been in a situation in which you recognize similarities among technologies from different domains?" or "Tell me about an episode in which you were able to introduce an innovation relying on your capacity to create and use personal relationships." Even in the case of the assessment of startup ideas and the related aspiring entrepreneur's profile, the competency-based approach may represent an effective approach. Indeed, although studies have emphasized the relevance of behavioral competencies for entrepreneurial success (Kyndt and Baert 2015; Morris et al. 2013), the competency framework has not yet been adopted in the process of new venture assessment, which primarily focuses on the business idea or on tangible elements of individual entrepreneur's human capital (such as education and professional experience), and the process thereby neglects their behavioral competencies.

Similarly, the same behavioral indicators related to behavioral competencies may be used in the performance appraisal process, in which the individual in charge of the innovation process is assessed by his supervisor and/or other members of the organization, such as colleagues, subordinates, and internal customers, or by people outside the organization, such as external customers. In this case, the use of these

behaviors as items to be periodically assessed increases their adoption by the individual and by the overall organization. This creates a virtuous circle, wherein all the members of the organization know which specific behaviors are requested to promote innovation, and in which the members are induced to pursue such behaviors.

All the aforementioned practices aim to introduce into the organizational context the competency-based approach, which enables a more fine-grained approach to the analysis of behavioral skills in order to make the recruitment and assessment of the innovators' profiles more effective.

This necessitates a change in the perspective adopted to manage human resource management processes toward a greater internal coherence, because the entirety of HRM processes are united by the common set of competencies and related behaviors that have been identified as relevant for innovation effectiveness. Of course, this alone is not sufficient, but it is surely a strong foundation on which to build the premises for better innovation capabilities.

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