



CIRCULAR ECONOMY: DIFFERENT APPROACH DIFFERENT BEHAVIOR

A DISTINCTIVE CIRCULAR
COMPETENCY PROFILE FOR
PROFESSIONALS

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SUMMARY

Accelerating the transition towards a circular economy requires a different approach and behavior from professionals

Companies play an important role in advancing and realizing the circular economy (CE). This is especially true for larger companies. By changing their business activities and processes from linear to circular, large companies can speed up the transition to a fully circular economy. However, research among sustainability professionals¹ indicates that the implementation of CE in companies lags behind other sustainable strategies, such as incorporating energy transition and social responsibility. The primary reason is that the implementation of CE is more complicated and impacts the supply chain and all the business processes within a company. In order to become a circular company, work processes across the company have to change. Employees in different departments will need to be able to apply knowledge about the circular economy, such as its underlying principles, tools and skills such as new methods of collaboration and circular work processes. In summary: the transition to a circular economy requires a new approach and, therefore, different behavior.

Which skills and competencies are required for the transition to a circular economy?

In order to support the development of circular economy knowledge and skills, the Sustainability University Foundation studied the implementation of CE in Dutch companies. This study was completed in collaboration with the competency experts at GITP/PiCompany, among others, and supported by the Goldschmeding Foundation.

In order to find out which competencies are necessary to successfully accelerate the transition to a circular economy, the research primarily utilizes the day-to-day experiences of sustainability professionals in companies aiming to accelerate the transition to the circular economy. These experienced experts will henceforth be referred to as CE professionals. CE professionals at companies such as Philips, KPN, NS, Tommy Hilfiger, Interface, Meerlanden, and many other frontrunners were queried through surveys, peer-to-peer coaching and peer-to-peer learning to determine successful and unsuccessful behavior in their work.

The circular economy competency profile provides businesses with practical tools

A CE professional distinguishes him- or herself by combining the abilities to think, do and engage. In order to achieve successful circular change, the professional excels at combining the cognitive competencies (1) systems thinking and (2) foresight thinking, the functional competency (3) management & entrepreneurship, and the social competency (4) interpersonal skills. In addition, the CE professional is flexible, inquisitive, pragmatic, systematic, empathetic, driven, ambitious, tenacious, persistent and takes initiative. The determined circular economy competency profile is especially relevant for HR and sustainability professionals, directors, regulators, educational and training institutions. By utilizing the profile, they can develop job descriptions, personal development plans, assessments and selection criteria that will help stimulate the circular economy.

¹ State of the Sustainability Profession (2019) (2020), Sustainability University Foundation

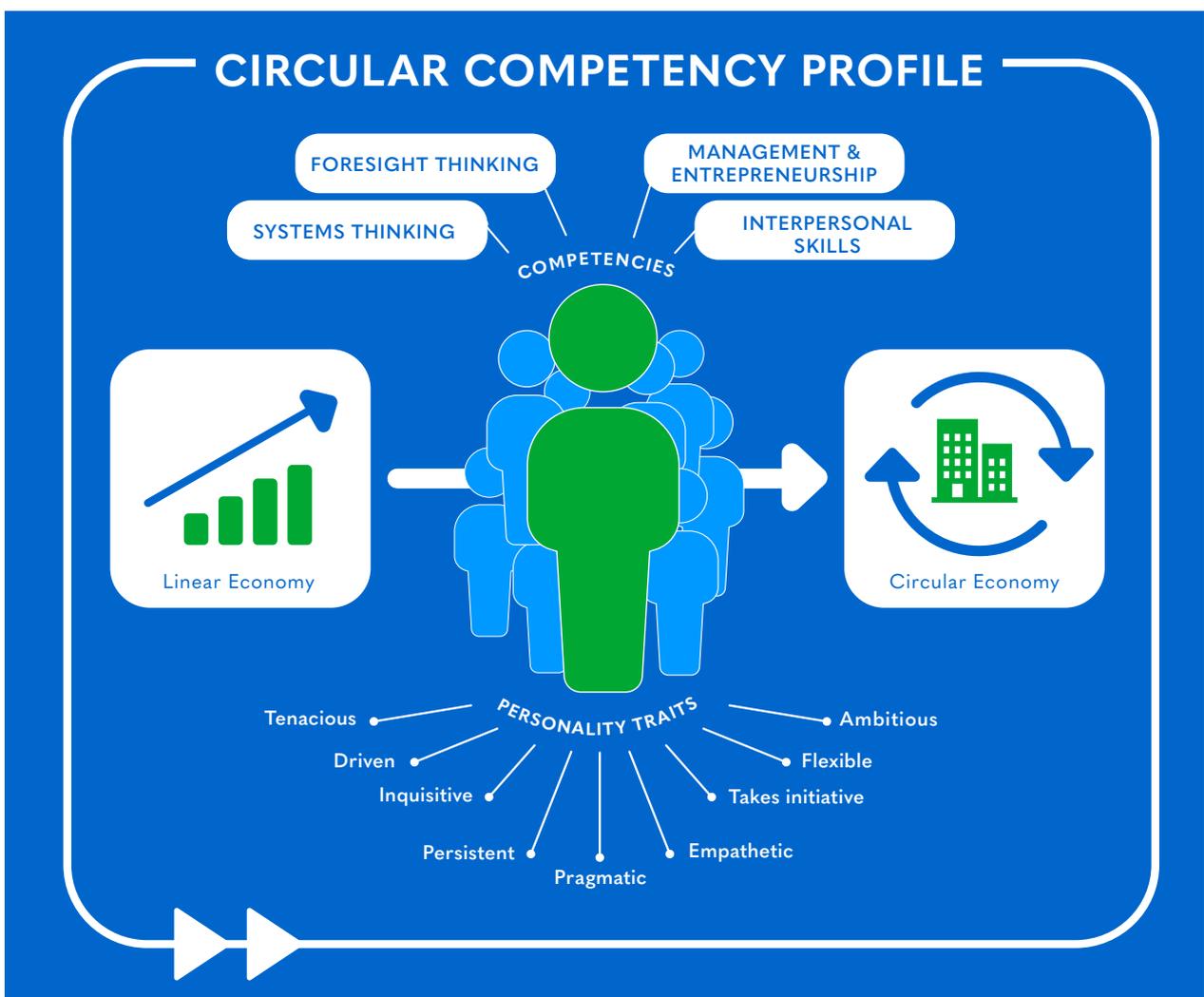
Investing in systems thinking and expansion to all business processes

One of the most important results from the research is that a CE professional must excel at systems thinking. A systems thinker is able to look at and make changes to an entire system and its parts in a multidisciplinary and circular way. However, this competency is relatively new and not generally covered by educational institutions, the recruitment and selection process, assessments or HR manuals.

The research also concludes that the success of CE initiatives depends on all the departments and

processes in a company. This dependency is more significant with CE than with other sustainable strategies, such as incorporating energy transition and social responsibility. It is therefore essential for the transition to CE that knowledge, skills and competencies related to CE are developed throughout all business processes of a company.

In summary, we have found that systemic change towards a circular economy requires distinctive CE competencies of professionals. These competencies should be recognized and developed. This white paper offers tools to help develop these competencies.



INTRODUCTION

Currently, 24.5%² of the Dutch economy is circular. The goal is to be fully circular in 2050. This is an ambitious objective. With respect to the circular economy, every country in the world is still developing³.

To transition to a fully circular economy, governments, companies and individuals must further develop technology, policy and behavior. As part of the value chain and the ecosystem that has to realize the circular economy, companies play an important role in the transition to a circular economy. Companies have different reasons for wanting to do so. In addition to an intrinsic motivation, there may also be commercial reasons. As is evident from the value creation model (figure 1) inspired by Hart and Milstein, incorporating circularity can create value for shareholders and stakeholders. This value may be achieved by focussing on 'operational excellence' and a 'license to operate'. For example, circularity can lead to the improvement of (existing) products, more efficient production processes that create less waste, and a better relationship with stakeholders (external parties) who find it important that the impact on the environment is less negative. Other companies view the circular economy as an opportunity for the future, with new markets and products. These companies are working on a future business model or are using circularity to drive innovation. Whether closing the cycle because of the scarcity of raw materials, (future) regulations or reputational damage, there are plenty of commercial reasons for companies to get moving. The transition

to a circular economy is not possible without the impact of established industries. Larger existing companies in particular can greatly accelerate the transition by changing their business activities and processes from linear to circular.

Creating change within businesses is dependent on their employees. To transition to a circular business model, companies are dependent on their human capital: the knowledge, skills, competencies and potential of employees. Employees need to be able to innovate, implement circular work processes and engage the supply chain. Firstly, this applies to the professionals who initiate and manage the transition within the organization, such as sustainability managers. But it also applies to professionals in other fields, such as finance and logistics.

The transition from the current linear way of working to a circular way of working is complex. Organizations as well as their supply chains have to reorganize their business models, designs, processes and methods. In addition to these organizational changes, the transition also requires different behavior and new methods of collaboration. There have not yet been many studies within the social sciences to determine what this employee behavior should be (see appendix). Knowing what is effective "circular" behavior is important to selecting, assessing, developing and training the right people to accelerate the transition to circular business models.

² The Circularity Gap Report The Netherlands (2020), Circle Economy

³ Global Circularity Gap Report (2020), Circle Economy

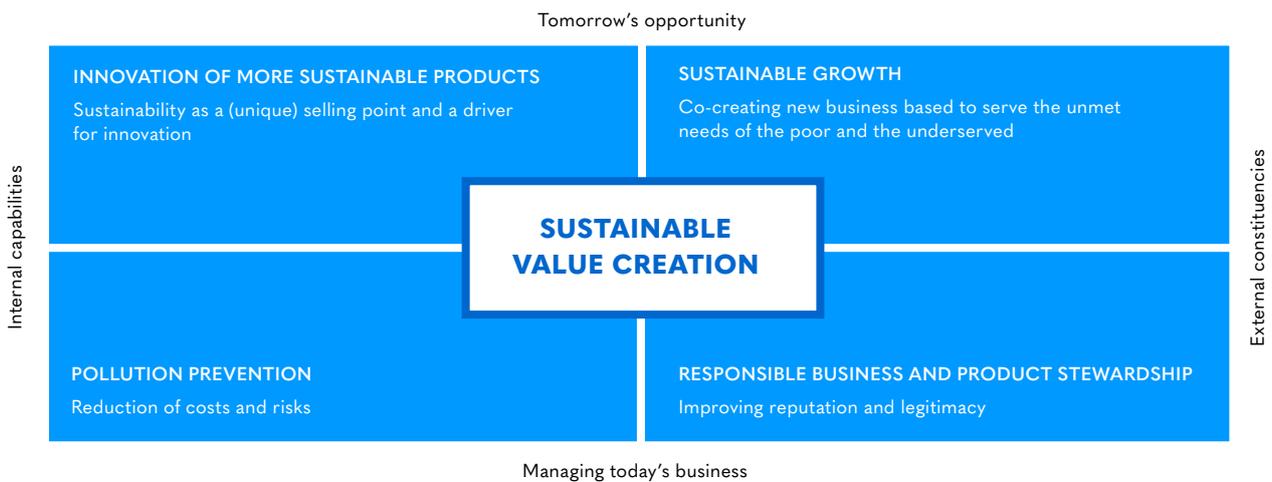


Figure 1. The Sustainable Value Framework by Stuart L. Hart and Mark B. Milstein shows the different ways in which companies create sustainable value.

In collaboration with the competency experts at GITP/PiCompany, among others, and supported by the Goldschmeding Foundation, the Sustainability University Foundation conducted a study into the specific competencies, or behavior, required of professionals in order to implement circular solutions at work. Which competencies do people need to be successful at accelerating the circular economy?

For the study, sustainability professionals in companies contributing to accelerating the circular economy were approached. They are the front-runners, the change agents who launch circular initiatives and have to set a good example. Because of their firsthand experience, these CE professionals understand which competencies are required within a company to be able to implement circular processes in their organization and supply chain. The key question of the study is: "Which specific roles and competencies do CE professionals need, in order to make companies see the importance of the circular economy and to accelerate it?"

To answer this question, the research is based on a solid foundation: the book *7 Roles to Create Sustainable Success*⁴ by Carola Wijdoogen, which outlines the seven different roles of sustainability managers, and scientific research by Eghe Osagie^{5,6}, which describes the eight competencies of sustainability professionals. In her research, Osagie explains that all competencies are equally important. However, in the discussion, she acknowledges that this is likely inaccurate, and that further research is needed.

The study is a combination of quantitative and qualitative research. The quantitative analysis is based on the 2019 and 2020 editions of the online State of the Sustainability Profession Survey⁷, to which respectively 112 and 97 sustainability professionals responded, and on a questionnaire sent to 35 predetermined CE professionals. These CE professionals were selected based on their success at realizing projects or activities necessary for the transition to a circular economy. The qualitative analysis is based on conversations held during four peer-to-peer learning sessions based on case studies. The 25 CE professionals who participated

⁴ Wijdoogen, C. (2020). *7 Roles to Create Sustainable Success: A Practical Guide for Sustainability and CSR Professionals*.

⁵ Osagie, E.R.; Wesselink, R.; Blok, V.; Lans, T.; Mulder, M. (2016). Individual competencies for corporate social responsibility: A literature and practice perspective. *Journal of Business Ethics*, 135, 233-252

⁶ Osagie, E.R., Wesselink, R., Blok, V., Mulder, M. (2019). Contextualizing Individual Competencies for Managing the Corporate Social Responsibility Adaptation Process: The Apparent Influence of the Business Case Logic. *Business & Society*, Vol. 58.

⁷ <https://sustainabilityuniversity.org/research/>

in these conversations work at companies where the transition to a circular economy is already in full swing. These include Philips, KPN, NS, Tommy Hilfiger, Schiphol, Meerlanden, Interface, IKEA, ABN AMRO and Arcadis. By asking these professionals which competencies, behavior and elements of their personality they find essential to achieving successful CE results, it was possible to establish a competency profile of an effective CE professional.

After giving a brief account of CE in today's business world, this white paper will answer the research question: which roles and competencies are required for the circular economy? The CE competency profile, which consists of the most distinct competencies and personality traits necessary for CE, is worked out as a definition, visible behavior and development levels. Practical tips and learning experiences have also been added.

Defining a competency profile is the first step. The next step is using the profile to train, develop, recruit and select professionals. This is essential to the profile contributing to the acceleration of the transition to a circular economy. Parties able to follow up on this are business professionals and specifically HR and sustainability professionals, educational institutions, executive and non-executive board members. Therefore, a consideration of these roles, combined with recommendations for follow-up, is covered by this white paper.

A clarification of the terms used in this white paper:

Supply chain: network of organizations and companies that supply products and services to, or purchase products and services from, one another. For example, suppliers or purchasers and their suppliers or purchasers.

Sustainability professionals: professionals who focus on the implementation of sustainability within companies and organizations (frequently including the implementation of CE).

CE professionals: professionals (including sustainability professionals) who focus on implementing change within companies and organizations, in order to transition to a circular economy.

Circular economy: economic system of closed loops in which raw materials, components and products lose as little value as possible, renewable energy sources are used and systems thinking is at the core⁸.

Competency: set of behaviors that leads to the intended result when performing a task within a company or organization.

⁸ <https://kenniskaarten.hetgroenebrein.nl/kenniskaart-circulaire-economie/is-definitie-circulaire-economie/>

“Circular economy. Two words that shelter an entire world, as evident from this paper by the Sustainability University. I fully endorse the results of this study, in which systems thinking emerges as the most important competency of CE professionals. Some sustainability strategies, such as reducing energy usage and building a more diverse and inclusive workplace, can be tackled at the organizational level. However, the circular economy inherently demands that changes are made throughout the supply chain. This means collaborating with existing customers and suppliers, but also other parties in the

system, such as knowledge institutions, financiers, NGOs, governments, and competitors. Furthermore, the circular economy creates a common interest in preserving the flow of materials inside the system, either through an organic or technical life cycle. This also requires other forms of cooperation between these parties. This paper provides guidance on the required competencies of CE professionals and how those competencies can be put into practice.”

André Nijhof, Professor Sustainable Business and Stewardship, Nyenrode University



CIRCULAR ECONOMY IN COMPANIES AND BUSINESS PROCESSES

In the first phase of the study, professionals were asked to which extent their organizations addressed various sustainability themes, specifically climate and energy, circularity, and social responsibility. They indicated in 2019 and 2020, that the circular economy received the least attention (figure 2).

This can be partially explained by the fact that the circular economy is a more recent topic and had a less prominent position on the political agenda than, for example, the energy transition. As a result, there was less political pressure to implement

the circular economy. In addition, changes necessary for the energy transition can be incorporated into an existing, linear organization. Switching to a circular business model, on the other hand, requires changes to all business processes and affects collaboration inside and outside the organization.

At companies that focus more on the circular economy, sustainability - and thus CE - is much more integrated into their business processes. This correlation is not as strong with other sustainability themes, such as climate and energy transition or social responsibility.

To what degree does your organization focus/work on the following topics?



Figure 2: Sustainability professionals indicate that their organizations focus less on the circular economy than on the energy transition and social responsibility.

Degree of integration of sustainability in business processes at organizations that have more or less focus on CE

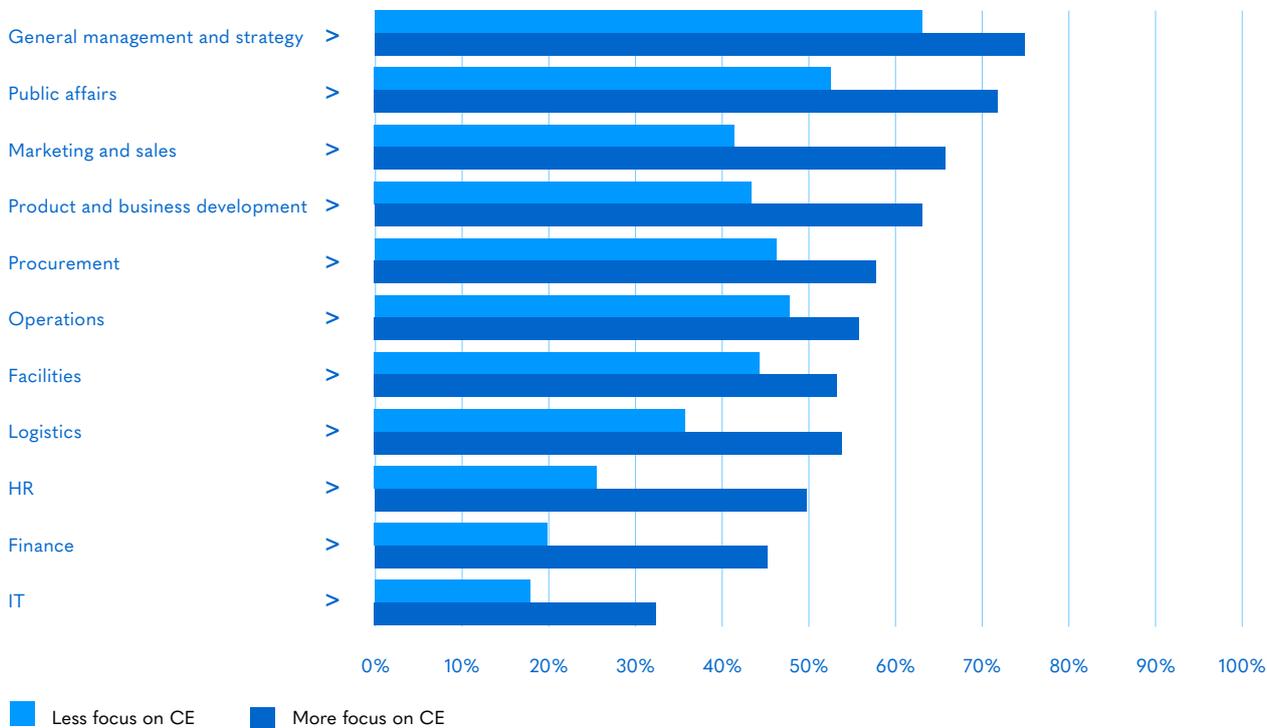


Figure 3: Companies that focus more on the circular economy have integrated sustainability to a greater degree into their business processes

For a company to contribute to the transition to a circular economy, CE must be integrated into all business processes. This is why it is very important that, for every business process, investments are made in the knowledge and competencies of professionals. These investments should not be limited to the sustainability department: the transition to a circular economy will not occur if the required skills are not present throughout all departments.

“The circular economy is unique because it connects products to business models. A circular goal cannot be achieved by engineering and product design alone; all other disciplines need to be involved, such as purchasing, finance, marketing and even sales. CE only works if you collaborate.”

Eelco Smit - Senior Director
Sustainability, Philips International

ROLES AND CIRCULAR ECONOMY

To implement a circular approach within companies, it is important that sustainability is integrated to a great degree. The study shows that, in order to achieve this, sustainability professionals must be able to balance 7 roles to integrate sustainability. The time spent on the different roles should be evenly distributed. If one or more roles receives less attention, sustainability will be less integrated.

The same applies to a CE professional: he or she must balance all roles in order to integrate the circular economy into a company.

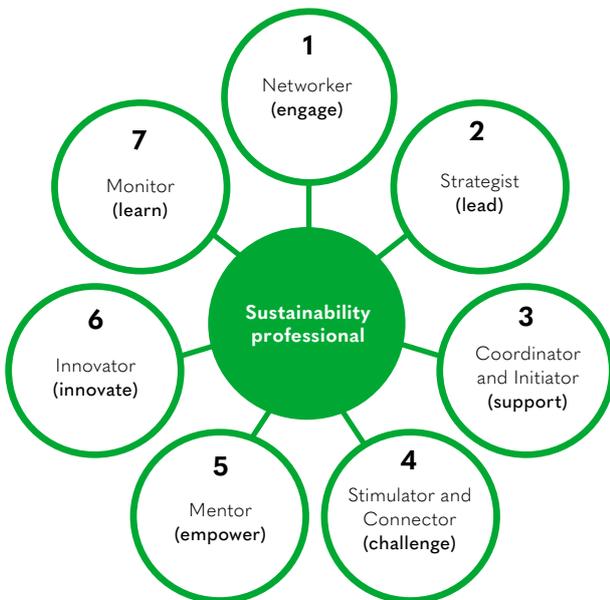


Figure 4: The different roles of a sustainability professional

DESCRIPTION OF THE ROLES	
1 Networker Engage	Create and maintain networks around the sustainability field and the organization's sustainability program. Representing the company and its program in meetings with external stakeholders, peers and other parties.
2 Strategist Lead	Develop the sustainability strategy and integrate this into the overall strategy of the organization.
3 Coordinator and Initiator Support	Support people in other departments in the organization to implement the sustainability strategy.
4 Stimulator and Connector Challenge	Act as a sustainability ambassador, inspiring (outside-in) and activating others to integrate sustainability goals into tasks, usually without formal influence.
5 Mentor Empower	On an individual functional level: advise, inform and train colleagues, to enable them to achieve the sustainability goals.
6 Innovator Innovate	Initiating and guiding innovation processes, so that ideas and innovations can come to life and lead to implementation of sustainable business models, products and services.
7 Monitor Learn	Monitor, report and evaluate the progress of the sustainability goals and the related development of the organization.

The study shows that the CE professional, as opposed to other sustainability professionals, spends more time on the innovator role than on other roles. This can be explained by the need for new circular work processes in the organization and supply chain.

COMPETENCIES NEEDED FOR A CIRCULAR ECONOMY

INTRODUCTION TO COMPETENCIES

In the last fifteen years, it has become more prevalent within organizations to think and work in terms of competencies. People can only deliver the right results if they not only work hard enough, but also possess the right competencies for the job. When competencies, as a set of

behaviors, lead to the intended result, it is essential to distinguish these competencies to ensure every position is performed successfully⁹. The competency profile is an important starting point for the selection and development of every (potential) circular economy professional.

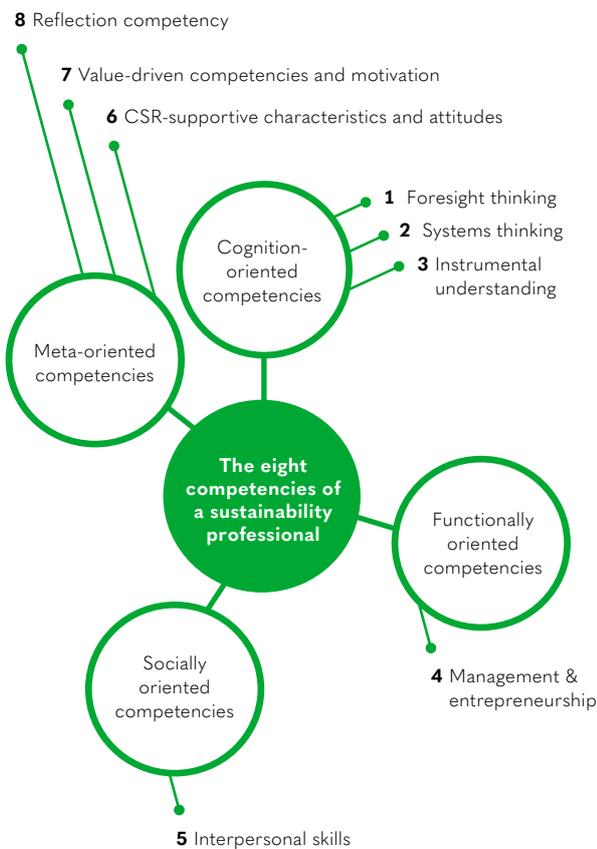


⁹ Van de Werfhorst, D.J., directeur PiCompany (2017). Coachen op gedrag en resultaat: praktijkgids voor het verzilveren van talent van Nico Smid, voorwoord

The 8 competencies of a sustainability professional

Eghe Osagie, Assistant Professor HR Analytics at the HAN University of Applied Sciences in Nijmegen, has been researching the competencies of sustainability professionals for several years. Eight competencies of sustainability managers have emerged from her scientific research¹⁰ (figure 5). The competencies are divided into four

groups: cognition, functionally, socially and meta-oriented competencies. So far, research into which competencies are required has made no distinction between the various sustainability themes on which the sustainability professional focuses. However, it is clear that a distinction is needed; the study shows that the transition to a circular economy requires a different set of competencies than the other themes.



COGNITION-ORIENTED COMPETENCIES

1 Foresight thinking	The ability to think in scenarios and to anticipate future developments.
2 Systems thinking	Understanding the interdependency between complex systems and subsystems inside and outside of the company. Knowledge of that which needs to be done to change systems.
3 Instrumental understanding	Ability to understand and deal with CSR-relevant drivers, values, standards, regulations, politics and governance.

FUNCTIONALLY ORIENTED COMPETENCIES

4 Management & entrepreneurship	Ability to develop a sustainability vision and to translate this into a sustainability program/plan, as well as manage it. Entrepreneurial skills to be able to see and realize opportunities.
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SOCIALLY ORIENTED COMPETENCIES

5 Interpersonal skills	Effective social, communicative and networking skills.
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META-ORIENTED COMPETENCIES

6 CSR-supportive characteristics and attitudes	Sustainability professionals are ethical, empathetic, patient, persistent, flexible, pragmatic and able to put the interests of others above their own (ego).
7 Value-driven competencies and motivation	High intrinsic motivation and consistent in "what you say" and "what you do".
8 Reflection competency	Ability to challenge your own ideas, habits, and assumptions and to act upon this.

Figure 5: the eight competencies of a CSR manager, from *7 Roles to Create Sustainable Success* by Carola Wijdoogen¹¹

¹⁰ Osagie, E.R.; Wesselink, R.; Blok, V.; Lans, T.; Mulder, M. (2016). Individual competencies for corporate social responsibility: A literature and practice perspective. *Journal of Business Ethics*, 135, 233-252

¹¹ Wijdoogen, C. (2020). *7 Roles to Create Sustainable Success: A Practical Guide for Sustainability and CSR Professionals*.

From talent to competent to result to impact

The degree to which someone can master and efficiently deploy the right competencies depends on their talent, which includes intelligence, personality, and motivations. Different people have different talents, and the ability to develop competencies is affected by these differences. A person's talents are largely fixed, which means that not everyone finds it equally easy to learn or do certain things. Personality and intelligence in particular limit the extent to which competencies can be internalized. On the other hand, personality and intelligence may provide opportunities to strengthen other competencies¹².

In other words: impact is determined by results, which are determined by competencies, which in turn are determined by talent. This is illustrated in the following iceberg model by American psy-

chologist David McClelland (figure 6). Visible behavior, or competencies, are above the surface. The facets below the surface are not immediately visible, but influence behavior.

In a nutshell, talent determines behavior and the extent to which behavior can be developed. Talent comprises one's cognitive abilities, values and characteristics. In addition, knowledge (such as knowledge about the circular economy) and skills form an integral component of a competency profile. This component is essential to achieving intended results.

This study specifically focused on the behavior, personality and values of successful CE professionals, which have so far been scarcely studied. An image was also formed about the developability of the competencies.

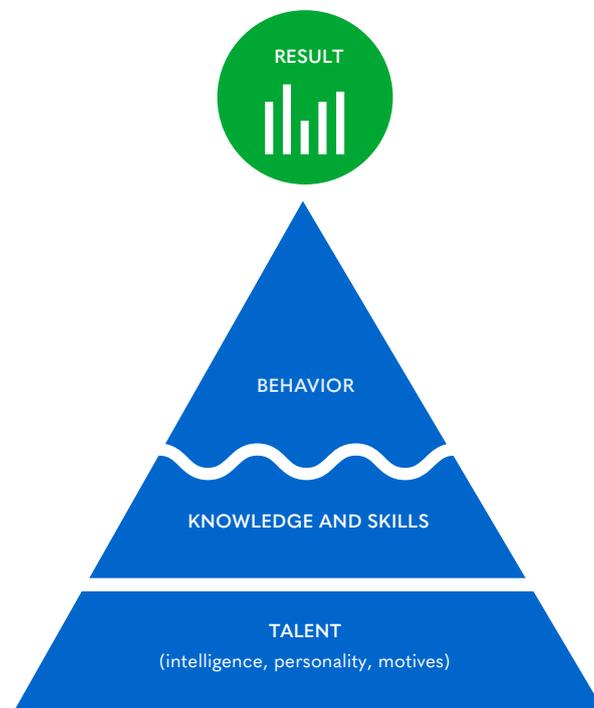


Figure 6: Iceberg model by psychologist David McClelland

¹² Smid.N. (2017). Coachen op gedrag en resultaat: praktijkgids voor het verzilveren van talent, p10.

COMPETENCY PROFILE OF A CIRCULAR ECONOMY PROFESSIONAL

Analysis of data from questionnaires, interviews and peer-to-peer sessions between sustainability professionals and CE professionals reveals a consistent pattern of distinctive competencies. The study was conducted among a group of successful CE professionals, each with CE experience and often with a pioneering role in organizations. In general, this requires a leader, somebody who can open doors, create opportunities, initiate projects and get results. The research shows that the professional's behavior (competencies) is aimed at realizing change, combined with influencing and inspiring stakeholders. This means identifying, creating and taking advantage of new opportunities

to achieve what was previously impossible. In the study, systems thinking and foresight thinking clearly emerge as the most indispensable and distinct competencies. Next, the competencies interpersonal skills and management & entrepreneurship are the most frequently used. The research shows that, to achieve success, these competencies are intertwined and cannot be seen separately. One must constantly switch between long-term planning and recognizing and creating opportunities, all while being pragmatic and realistic. It is important not just to pursue business interests, but also know when and how to involve others.



COMPETENCIES

Systems thinking



Definition

The ability to understand systems and subsystems relevant to the circular economy, including their mutual dependencies. The ability to think holistically.

Explanation: visualizing, understanding and analyzing complex dynamic systems and issues, externally (within the supply chain) and internally (how the company operates). Overseeing business processes and the relationship between them. Knowing how systems inside and outside of a company work. Knowing what is needed to change systems.

Behavior

- Oversees all factors that influence the system.
- Understands the relationship between the components of a system and how they influence one another (feedbackloops).
- Recognizes when cause and effect do not lead to a logical and predictable outcome.
- Is able to map the boundaries of a system and the interactions between its elements.
- Is able to think and operate from the larger whole (system), as well as from independent components (details) within (zoom in and out).
- Is not afraid to act on intuition, especially if there is no certainty now or in the future.
- Recognizes the effect of individual actions and interests on the functioning of the system.
- Demonstrates that he / she is aware of current societal developments during conversations. Examines the different interests of stakeholders within the supply chain.

Systems thinking peer-to-peer learning

CE professionals visited a colleague at another company. Each professional brought their own case and they learned the following important lessons from one another:

- Talk to stakeholders: what is their interest in your CE project? Decide who is driving the project, who wants this? Consider the finances: what is the business model behind your idea and how much do you need to assure someone before they will invest in your idea?
- Consider the issue of ownership: who owns what? Realize and take into account the effect your CE project has internally (on all the different business processes) and externally (on the different stakeholders).
- Realize that changing one component affects a different component of the system: see the whole picture.
- See where there are tensions in the systems.
- Be able to weigh up different principles, interests and solutions in order to make a decision that suits your goals.
- Look for partners who want the same thing as you do and who want to invest. Create a network, internally and in the supply chain.

"The best circular system is found in nature. If you want to run your organization in the same way as nature, you need to make this system accessible to everyone in the company. Translate the lessons from nature to your organization and involve everyone in your organization and your supply chain in your goals."

Geanne van Arkel, Sustainable development accelerator / former head of sustainable development at Interface.

Foresight Thinking



Definition

The ability to anticipate (future) CE challenges and developments related to the company.

Explanation: ability to think critically, ahead and in scenarios. Bringing the outside in.

Behavior

- Thinks in concepts, new opportunities and developments even when there are no specific opportunities for implementation.
- Makes seemingly impossible long-term goals concrete by creating a step-by-step plan.
- Suggests different solutions to questions and scenarios for potential (future) problems.
- Distances from own practice and views situations from multiple angles and from the perspective of stakeholders
- Separates himself / herself from everyday business. Recognizes that what is not possible now, may be possible in the future.
- Identifies developments in the sector, market or in society and indicates the ways in which the department or organization can capitalize on them.
- Looks at the long-term consequences and long-term impact goals of proposals.
- Expresses in which direction he / she thinks the department and the organization should be headed.

Foresight thinking peer-to-peer learning

CE professionals visited a colleague at another company. Each professional brought their own case and they learned the following important lessons from one another:

- Look far ahead: which agreements and contracts exist, what can we do when these expire?
- Consider the long-term consequences and long-term impact goals in proposals. How can we scale up or make impact in the future?
- Always be realistic, make a decision based on the present, knowing things can change in the future.
- Think about whether a decision that is a good idea in the short term will also have the desired effect in the long term.
- Keep an eye on future internal and external plans that might be relevant to CSR challenges and developments in your company.
- If you are unable to immediately prove the results of a CE project, show the risks of the alternative.
- Provide insight into which relevant (technological) developments will exist in the future and remember that something (e.g. technical) that is not yet possible, may be in the future.
- Hold off on making definitive decisions for the distant future, but take steps with pilots and interim evaluations.

Management & entrepreneurship ●●●●●

Definition

Managing or leading CE projects and identifying, prioritizing and realizing CE-related business opportunities.

Explanation: the ability to develop a CE vision, translate this into a program or plan and manage it. Entrepreneurial skills to see and realize opportunities. The ability to create a business case and know the company well enough to make decisions and reach implementation. Skills related to change and program management.

Behavior

- Identifies possibilities and opportunities instead of obstacles.
- Takes action when opportunities present themselves, stimulates others to step outside their comfort zone.
- Makes clear agreements with others about necessary actions (who does what when, being able to delegate).
- Coordinates with all relevant parties when he or she makes changes to a schedule.
- Uses available resources, time and people in such a way that they contribute optimally to the intended goals. Takes the time to implement things properly.
- Is able to see the link between CE initiatives and financial opportunities (commercial opportunities) for the organization.
- Knows how to empower people. Can create appealing visions of the future to impel an organization to take the right actions.
- Inspires and motivates others by working with energy and enthusiasm.

Management & entrepreneurship peer-to-peer learning

CE professionals visited a colleague at another company. Each professional brought their own case and they learned the following important lessons from one another:

- Make sure you have a good business case. This often turns out positive.
- Connect stakeholders. Talk until you're blue in the face!
- Scrutinize suppliers and tell them: "Prove it!"
- Find a partner in crime, you are going to need one.
- Pay attention to leadership in the organization and reward frontrunners: put people inside the organization in the spotlight and award the best bidders.
- Make sure that, in addition to motivating your employees, you persuade people at the top. They set an important example and make the final decision. This also prevents frustration among ambassadors in the organization.
- Demonstrate the strategic importance of CE, for example with a risk analysis. Link it to business interests. General business trends are understood by people at the top. This gives you more leeway to try things. Create a sense of urgency.
- Set concrete goals that you communicate internally and externally. In that way, you can motivate the entire organization.
- Create support. Establish what is possible on a small scale (start with a pilot and monitor the effect) and scale up afterwards. "Just start and the rest will follow."
- Do not give up!

"There is no such thing as waste! At NS, we are well on our way to zero waste by 2030. Currently, 99% of our trains are reused. But this is not an easy task. 20-year-old train floors were disposed of as waste. I didn't think this was right, so I started looking for a new purpose. To do this I approached about 200 entrepreneurs. Eventually I ended up with a circular producer who could turn a train floor into a table tennis table. Once this table tennis table was built, the ball started rolling. This led to far more ideas and more entrepreneurs who wanted to

be involved. Now, nearly a million train floors are being repurposed in the form of furniture, telephone booths and kitchens. So my belief is: if you can turn 20-year-old train floors, which have traveled 5.7 million kilometers and been trodden on by 44 million feet, into beautiful new products, you can't throw anything away as waste! Do not give up! Show that it is possible. After that, scaling up is (almost) automatic."

Ilse de Vos van Eekeren
Circular Manager, Dutch Railways (NS)



Interpersonal skills



Explanation

Effective social, communication and networking skills. Flexible style, knowing how to adapt to the recipient. Realizing awareness and ownership of CE within others. Coaching and supporting others in order to integrate CE in their day-to-day work. The ability to motivate, facilitate and enable cooperation in the field of CE. The ability to identify stakeholders. Working in multidisciplinary and multicultural alliances while serving the interest of the company and stakeholders.

Behavior

- Knows who is involved or has influence, regarding one's own work or the ongoing project. Recognizes stakeholders.
- Informs involved parties and stakeholders about the progress of projects and tasks.
- Involves relevant people when there are new developments. Links parties inside and outside the organization in order to interconnect the various interests.
- Invests in relationships with the people involved in the work or the project.
- Communicates his / her opinion with energy and conviction.
- Uses logical and understandable arguments to advance their opinion.
- In the event of resistance, switches to investigating the wishes and interests of the other.
- Investigates what the other is sensitive to and leverages this with his / her arguments.

Personality traits and motivations

The study reveals the following characteristics or personality traits that distinguish a CE professional:

Characteristics and motivations of a CE professional

- Flexible
- Has perseverance, does not give up, go-getter, goal-oriented
- Anticipates and quickly picks up on stress and tension in the workplace
- Pragmatic and systematic
- Enterprising
- Solution-oriented
- Strong networker
- Pursues future goals
- Prioritizes greater good above own interests
- Focusses on short term and long term
- Driven by relevant issues in society
- Sticks to own drive, goal and purpose
- Ambitious
- Inspiring
- Empathetic
- Inquisitive and open minded

A notable characteristic of CE professionals is the possession of a certain level of perseverance: the degree to which someone sticks to his / her proposals or plans. Perseverance is related to sensing tension and responding effectively (stress resistance). After all, perseverance is often important in situations where resistance and time constraints arise. Ambition and drive speak of the quality requirements of CE professionals, how they achieve their goals and the demands they impose on their performance. High demands can mean that CE professionals want or expect to deliver higher quality work than "average" professionals. Finally, the study shows that a CE professional can be sensitive and empathetic, while being inspiring and showing leadership. It seems that flexible use of behavior, and thus a broad behavioral repertoire, is essential to being an effective CE professional.

DEVELOPABILITY

As previously mentioned, desirable behavior is determined by a person’s talent, their cognitive abilities, drive and personality traits. Therefore, these aspects are important to determining how much a certain behavior, or competency, can be developed.

A competency has different levels of proficiency. These levels are revealed by the degree to which the competent behavior is demonstrated. There are three distinct levels: professional, tactical and strategic. These can be described as follows:

- Professional: display effective behavior independently and on their own initiative.
- Tactical: encourage effective behavior in others within the workplace, partly by setting an example.
- Strategic: inspire effective behavior in others inside and outside the entire organization, by creating conditions and setting an example.

In the following section, the underlying talents of each competency will be examined to determine the competency’s developability. For each competency, several behavior examples and their corresponding levels will be given.

Developability of systems thinking and foresight thinking

Systems thinking and foresight thinking are cognitive competencies and demand certain conceptual and cognitive abilities that are difficult to control. The ability to independently develop ideas or solutions for the longer term, outside daily practice, is an indicator for conceptual qualities. If employees have these abilities, it can help to teach them to use tools and models developed for their position. These will improve the presentation of their vision and the development of strategies.

In the case of systems thinking, if a CE professional has difficulty seeing the connection between systems or overseeing factors that have an impact on the system or its components, this might be due to a lack of judgment. However, good judgment does not automatically make it easy to think in systems. Someone’s level of intelligence limits the complexity of problems they can handle. If a person is regularly confronted with difficult problems, it undermines their motivation to continue. Therefore, awareness of one’s own level of intelligence is essential. If a CE professional possesses intelligence and good judgment but lacks knowledge about (market) developments in society or does not have insight into the various

Examples of behavior within different levels of systems thinking:

PROFESSIONAL LEVEL	TACTICAL LEVEL	STRATEGIC LEVEL
Is able to think and operate from the larger whole (system), as well as from independent components (details) within (zoom in and out).	Helps others make connections between the elements that can influence their own system or other systems.	Directs others within the organization to take into consideration all system-related aspects in strategic decision making.
Demonstrates that he / she is aware of current societal developments during conversations. Examines the different interests of stakeholders within the supply chain.	Encourages employees / colleagues to stay up-to-date on societal developments and to investigate the various interests of stakeholders within the supply chain.	Translates social, political and economic developments into relevant sustainability policy.

interests of parties in the supply chain, it is easier to develop systems thinking. Especially if the CE professional can translate these interests to his daily activities and can experience the impact of his role's activities and decisions on the functioning of the system.

Foresight thinking requires commanding a lot of complex information over a longer period of time. The more intelligent someone is, the easier this will be. The other facet of this competency is the degree to which the employee is interested in and up-to-date on the world and developments around him / her. If an employee lacks knowledge of certain developments, this facet of the competency can still be improved (increase

knowledge). It is important to make him / her aware of the best sources of information for developments in the industry and outside the organization. It is also important to provide examples of external influences and their consequences. If an employee is aware of these developments but does not translate them to his or her own activities, then it is more difficult to develop the competency.

Intelligence (abstract thinking) and persistence (personality) are strong indicators of the ability to develop foresight thinking.

Examples of behavior within different levels of foresight thinking:

PROFESSIONAL LEVEL	TACTICAL LEVEL	STRATEGIC LEVEL
Thinks in concepts, new opportunities and developments even when there are no specific opportunities for implementation.	Makes others think of different solutions to questions and scenarios for potential (future) problems.	Associates the organization's sustainability strategies with the organization's other strategies. Demonstrates interrelatedness and dependency.
Distances from his / her own practice and views situations from multiple angles and from the perspective of stakeholders.	Expresses in which direction he / she thinks the department and the organization should be headed.	Develops a new interpretation of the organization's goals, based on developments in CE.

Developability of management & entrepreneurship

The competency management & entrepreneurship refers to the ability to identify and capitalize on (commercial) opportunities. It requires awareness (of the market) and the capacity and courage to take initiative. These qualities are more difficult to develop, because taking initiative and accepting possible risks depend on someone's personality. The same goes for energizing and empowering others, which requires empathy, understanding what makes someone "tick" and the ability to respond skillfully and effectively (see interpersonal skills). If a CE professional has these qualities, but has trouble acting on them, tools and training can help. In general, management skills can be improved.

In addition to communication and leadership skills, personal style and preference play important roles. Leadership problems can be caused by inflexibility, a lack of sensitivity or not listening to people. On the one hand, the management & entrepreneurship competency includes facets that are fairly easy to develop, such as structured working, planning and coordinating aligning activities. But it also includes cognitive aspects that are harder to develop, such as being able to determine what is important and setting the right priorities.

Strong indicators of the ability to develop management & entrepreneurship are personality (for example: mainly sees solutions, takes charge, works in a structured manner) and intelligence (oversees and prioritizes).

Examples of behavior within different levels of management & entrepreneurship:

PROFESSIONAL LEVEL	TACTICAL LEVEL	STRATEGIC LEVEL
Is able to see the link between CE initiatives and financial opportunities (commercial opportunities) for the organization.	Proactively asks colleagues and employees to present innovative ideas that can improve and expand activities, products or services.	Makes decisions that lead the company to strongly deviate from or change its course.
Makes clear agreements with others about necessary actions (who does what when, being able to delegate).	Coordinates the actions and plans of different CE projects or activities within the organization.	At crucial moments, sets the right priorities in situations or projects that have a big (strategic) impact.

Developability of interpersonal skills

The competency interpersonal skills is strongly correlated with personality traits (empathy, directness, a genuine interest in others) that are harder to develop. However, the competency also involves realizing the effect of one's

behavior on others, understanding the importance of one's behavior and being willing to change it if necessary. If someone is capable of these things - and receives time, guidance and attention - it will be easier to develop this competency.

Possible reasons to focus on interpersonal skills:

- inability to think of alternative solutions or approaches when met with resistance or someone else's emotions;
- inability to anticipate others' reactions, not sensitive enough;
- inability to properly survey the situation and therefore sticking to a specific approach, insufficient problem analysis;
- no insight into, or unable to recognize, project's participants / stakeholders, not understanding the behavior of groups and organizations;

It may help a CE professional to understand how he / she can look for different approaches and deploy / communicate these with the right tone to achieve a goal.

Personality (extraversion, sensitivity, the ability to adjust) and motives (connecting people) are strong indicators of the ability to develop interpersonal skills.

Examples of behavior within different levels of interpersonal skills:

PROFESSIONAL LEVEL	TACTICAL LEVEL	STRATEGIC LEVEL
Knows who is involved or has influence, regarding their own work or the ongoing project. Recognizes stakeholders.	Supports employees / colleagues when identifying, informing, involving or consulting stakeholders in projects.	Connects parties inside and outside the organization to make relevant connections between different interests. Involves parties when strategic decisions have to be made.
Uses logical and understandable arguments to advance their opinion.	Has several arguments ready for when he/she is confronted by those with a different opinion / point of view.	Communicates strategic points of view such that they are accepted throughout all levels and departments of the organization.

Development through reflection

The CE profession is a young and rapidly developing line of business. As a whole, the transition to a circular economy is a development that contains a lot of trial and error, which requires the ability to learn from one's successes and mistakes. Therefore, every CE professional must regularly evaluate his / her behavior and the behavior of the organization to determine what should be done differently in the future. Reflection is an important competency for every professional who wants to create change. As such, this competency is not distinctive to CE professionals, but is relevant for them to be successful.

Behavior examples:

- Asks people for feedback on his / her performance and relevant parties for feedback on the organization's performance.
- Gives negative and positive feedback on someone's performance.
- Asks in time for help.
- Signs up for projects or activities where he / she can gain new experiences that will improve his / her knowledge, skills and behavior.
- Works according to a clear plan with a clear timeline to improve performance.
- When receiving feedback, asks for specific suggestions in order to (further) improve performance.

A BETTER LOOK AT THE COMPETENCY SYSTEMS THINKING

Systems thinking is considered the most important competency for accelerating the transition to a circular economy. It is described as one of the most crucial disciplines within a learning organization¹³ and is seen as essential to finding solutions to personal, organizational and world problems¹⁴. Systems thinking is nevertheless not generally covered by courses, recruitment & selection, assessments or HR manuals. As a result, the study's respondents offered a lot of different interpretations of systems thinking. Therefore, this complex and abstract competency is explained briefly below.

"We learn to zoom in but forget to zoom out. Even though it is essential to seeing the whole picture and expanding the pool of solutions. Only then can a solution be a real solution, and not something that will just create new problems."

Geanne van Arkel,
Sustainable Development Accelerator / Former
Head of Sustainable Development Interface.



¹³ Senge, Peter (1990). The Fifth Discipline: The Art and Practice of the Learning Organization

¹⁴ Meadows, Donella H. (2008). Thinking in Systems: A Primer

Systems thinking is primarily a way of looking at reality. We are used to dividing our complex world into pieces and then studying them separately¹⁵. As a result, we learn more and more about parts of the world, but we find it harder to view the functioning of the world as a coherent whole. After all, the problems we encounter are becoming more complex and, in many cases, can no longer be solved by one person or one specialism¹⁶. Systems thinking is "the ability to see and understand relationships in dynamic systems". By thinking this way, we alternately zoom in and out, so that we can see the overall picture as well as the details¹³.

A systems thinker has the focus to see interrelationships instead of separate phenomena, to see patterns of change instead of snapshots, and to see the difference between a problem and a symptom. The concept of feedback is essential and shows how actions can reinforce or suppress each other. From the perspective of systems thinking, every action is both a cause and a consequence of other actions¹³. To map this, systems thinkers use, for example, the tool "system mapping" in the form of relationship circles, causal diagrams, behavioral pattern graphs and the iceberg model¹⁷.

By doing so, systems thinking brings structure to the understanding that everything in the world is interconnected. It offers a holistic perspective in which we humans are part of nature. Systems thinkers can be found in professions such as ecology, organizational science and sociology¹⁸. As small children we still have this ability but seem to unlearn it as we grow older¹⁶. It is up to the CE professional to make it his / her own again.

In the context of an organization, systems thinking means a way of working at all levels. The degree of proficiency of this competency differs at the operational, tactical and strategic level. This begins with realizing that one is part of a system, seeing relationships with one's own activities, and ultimately being able to change the system. It also requires a different leadership style. There is a limit to the amount of control one can have over a system. In addition to governing based on system analysis, a manager must be able to deal with chaos. This means keeping an eye on what exits, is absent from or deviates from the system and what kind of intervention this necessitates.

"As a systems thinker, I often experience that my tendency to talk about complexity makes people uncomfortable. I think this is because it seems to obscure essentials and side issues. What makes someone an excellent systems thinker, in my view, is someone who is terrific at describing why a particular scope was chosen within a large, gray, complex system with many unknown factors. In my experience, systems thinking is particularly useful when complexity can be constructively incorporated into the process."

Dr. Milan Teunissen van Manen,
tropical paleoecologist and columnist

¹⁵ https://www.natuurlijkleren.org/Data/cms_uploads/files/source/artikelen/artikel-syteemdenkenconf.pdf

¹⁶ Jutten, Jan (2015). Systeemdenken in de school van de 21e eeuw. Article via wij-leren.nl

¹⁷ Leyla Acaroglu (2017). Tools for Systems Thinkers: The 6 Fundamental Concepts of Systems Thinking. Article via medium.com

¹⁸ https://en.wikipedia.org/wiki/List_of_systems_scientists

CONSIDERATIONS

The distinctive competency profile for a CE professional will be validated if employees in companies possess these competencies (more and more) and are selected because of them. Basically, whether anyone, in any department, can become a CE professional. There are several stakeholders with a role to play: sustainability professionals, their colleagues in different departments (specifically the HR department), directors, supervisors, and training and educational institutions. In this section of the white paper, their role is briefly discussed on the basis of the questions: what, in the view of the researchers, must this stakeholder do; what is the status quo; how can the transition to CE be accelerated?



Figure 7: Validity model: stakeholders that can add value to the circular competency profile

The role of sustainability professionals in companies

Often, a company appoints a sustainability professional, in the role of CSR or sustainability manager, who takes the lead in setting the agenda, driving and implementing the sustainable transition - including the transition to CE. Firstly, it is important that this professional has the right competencies. In the study, they were asked to do a self-assessment to determine the presence of CE competencies. More than three quarters of this group indicate that they possess these competencies.

CE can only succeed if it is integrated in all processes, from strategy and finance to procurement, marketing and operations. If that does not happen, CE will remain at project level. The sustainability professional must make every effort to integrate CE into all of the company's processes and its supply chain.

Secondly, it is important that other professionals acquire CE knowledge and competencies. With this CE competency profile, a sustainability professional can create awareness among other professionals in his / her company and draw attention to the recruitment and development of these competencies. Colleagues in HR can be allies. The sustainability professional will be helped if he / she has access to instruments, such as assessments or competency tests, with which to measure the degree of CE competencies in the company, department or individual. Furthermore, he / she should have checklists per business process to be able to transfer CE knowledge and skills.

"You cannot work on the circular economy from behind your desk, you have to proactively involve all relevant partners in the value chain. To better understand the complexity (and opportunities), it certainly helps if you have had various relevant positions in your company."

Jeroen Cox, Senior Manager
Energy & Environment, KPN

The role of other business professionals

CE professionals are needed in all business processes. This is not just limited to the sustainability department. The business processes distinguished in the research are: general management, strategy, operations / production, logistics, product development / R&D / innovation, HR, marketing & sales, procurement, communication, finance, facilities and IT.

The degree to which CE competencies are present among professionals other than sustainability professionals is not known. To date, this competency profile cannot be matched with existing profiles. The profile has similarities with the profiles of a policy officer, project leader and a director. However, the CE profile distinguishes itself from other competency profiles in the demand for innovation and the ability to realize change and the combination of an open mind, thinking outside the box and thinking ahead. All while connecting with practice, various stakeholders and industries. It would be interesting to further investigate for which other professional population this competency profile is distinct or, specifically the competency systems thinking is a distinct competency.

The study clearly shows that the degree of maturity of sustainability in the investigated business processes varies greatly. High maturity is required in all processes to bring about CE transition.

It is therefore important that, across different departments, awareness is created about the capability to contribute to the circular economy. The aforementioned assessments and competency tests could be of added value to measure the presence of the knowledge and competencies needed for this.

The role of HR professionals

A specific business process aimed at the development of talent and competencies, among other things, is HR. The HR department supports the business and, as an expert in talent development, can offer advice on attracting and maintaining the human capital in a company, especially in key positions. However, the study showed that sustainability in general, and thus also CE, is still barely integrated in the HR department at companies (figure 3). It is a missed opportunity. When the board of a company has chosen to adopt a circular business strategy, it is precisely this department that can greatly contribute. The most obvious HR themes are: recruitment, inclusion, leadership development, talent management, team collaboration, organizational development, vitality and mobility. This can include developing new circular skills and competencies in the company by incorporating them in recruitment and selection, job descriptions, training and development, evaluation processes and employees' personal goals. HR can also communicate the inspirational aspect of a circular strategy in leadership processes or core values, so that employees not only know how to act in a circular manner, but also want to. Further research and dialogue is needed to determine how and where HR can and should play a role in accelerating the transition to CE. See the box for an example of the result of an initial dialogue about this topic - in the form of a workshop - with representatives from the HR profession.

How can HR (professionals) contribute in practice to accelerating the transition to the circular economy?

A workshop about this topic took place during the HR congress in CIRCL on the 23rd of September. Based on the journey of the 'circular employee' (inflow, development and outflow) eight most important tips have been formulated to get started:

Inflow

1. Include the company's circular ambitions in recruitment communication but ensure that it is correct. After a few months, ask new employees whether the company delivered on its promise. Make sure that terms of employment are in line with circular ambitions, for example regarding mobility. And do not forget the Christmas gift.
2. Include required skills and competencies, such as systems thinking, in recruitment and selection.

Development

3. Promote job satisfaction and content by linking personal activities to the social purpose of the organization. Display the SDGs at the reception desk, organize a team outing to a circular company or include the circular ambition in annual goals.
4. Strengthen team building and collaboration - collaboration (interpersonal skills) is important for the circular economy - by, for example, setting goals across departments, stimulating external knowledge journeys in the sector or supply chain, or adapting reward (bonus) structures to stimulate team building and cooperation.
5. Include it in leadership development. Many CE projects are new, which means that the following aspects are important: being allowed to make mistakes (safe environment), courage, innovation and vulnerability.
6. Develop CE competencies of existing employees. Create focus by dividing the circular strategy into smaller parts and stimulate employees, top-down and bottom-up, to implement circular changes.
7. Work-life balance and vitality: protect enthusiastic and idealistic employees which are important to realizing change, because they tend to overtax themselves. An important function of HR is to determine how employees are doing.

Outflow

8. Experienced employees can often add a lot of value to young, social entrepreneurs or circular start-ups (which are especially appealing to young people) - exchanging/matching these two groups can be valuable for both.

"Ultimately, HR covers everything that has to do with people and organizations, so it is impossible to refer to the development of CE competencies as a task specifically for HR. Maintaining the desired human capital of an organization and retaining, attracting and holding the attention of the right people with the right (circular) attitude, especially in key positions, and thus maintaining the desired company culture, is a HR responsibility. It is logical that 'within' this long-term strategic HR assignment, the strategy of the organization changes every few years. In this instance, the organization's strategy follows the HR strategy, not vice versa."

Martijn Scheen, Corporate Director HR,
Wageningen University & Research

The role of the executive and non-executive board

Directors in companies are very important to guiding the transition from existing linear business models to circular business models. This system change is not possible without the leadership of the director. Recent research also cites multi-level systems thinking as a trait of sustainable CEOs¹⁹.

As mentioned in the introduction, there are various reasons for a director to include the transition to CE in the strategy of the organization. Think of intrinsic motivation, long-term value creation for the organization, contributing to national and international goals such as SDGs (sustainable development goals), commercial considerations or mitigating risks in the supply chain. However, it was also discovered that precisely the circular economy, compared to the energy, climate and social responsibility themes, is considered a complex change within companies. The transition to CE requires changing deeply rooted norms. This means stopping 'growth-thinking', sharing risks and responsibilities with partners in the supply chain, and the

ability to cope with chaos because the system is unpredictable.

This calls for certain leadership traits from the director. He / she should be self-aware, responsible, able to think ahead, innovative, able to bring people together, steady and impactful²⁰. In addition, the company benefits from investing in CE competencies, firstly for key positions and leaders in the organization. The director can use this CE competency profile to have a scan done within the company, to ascertain the presence of these competencies and to aid in the development and recruitment of human capital.

In their role, with regard to the strategy and policy of companies and as employers of the directors, non-executive board members have the opportunity to contribute to CE if they know which aspects to select and supervise. Research²¹ and experience show that supervisory and non-executive boards currently do not know much about sustainability in general and CE in particular. The lack of knowledge concerns both the substance, as well as the instruments with which companies implement and embed themes such as sustainability, SDGs or CE into the strategy and throughout business operations. Non-executive board members often do not understand how they can incorporate CE into their own role as supervisor, let alone know and understand the different roles and competencies of the CE professional.

This CE competency profile is an instrument that can be used when recruiting and selecting directors. However, more is needed to accelerate the transition to circular business models. This could include the integration of CE knowledge in training courses for supervisory and non-executive board members, the development of instruments for monitoring and implementing CE, and connecting them with CE professionals in order to increase knowledge and understanding.

¹⁹ Leadership for the decade of action (2020). A United Nations Global Compact-Russell Reynolds Associates study on the characteristics of sustainable business leaders

²⁰ Whitepaper Echt leiderschap, Ebbinge/Nyenrode Business Universiteit

²¹ AEX Sustainable Supervisory Board Index, by TRG

The role of training and educational institutions

It is crucial that future professionals enter the labor market with knowledge of CE and trained in the corresponding competencies. Active professionals must also further develop their knowledge and skills in order to integrate CE into the organization. Currently, there is little research into competencies and skills that are important for the transition to a circular economy. The necessary CE competencies and skills are also barely covered or taught at existing (higher) education and training institutions. This is especially true for systems thinking, the competency that has proven to be most important for advancing the circular economy. Through research and education, training and education institutions have the perfect opportunity to provide the current and future generation of professionals with everything they need to know about CE, to inspire them and to teach them to be (future) pioneers of the circular economy. Training and education institutions can translate existing and future research in the field of CE skills and competencies, including this research, into education in different ways, for example by:

- developing training programs and courses, for example a major or master that focuses on CE knowledge, competencies and skills
- make CE competencies and skills part of general training courses aimed at the labor market²², regardless of discipline. The competencies systems thinking and foresight thinking are particularly neglected in current courses;
- connect education and practice by not only teaching the skills in an educational setting, but in real life. This elucidates the context in which the CE professional works and capitalizes on the need to connect science and education with the business world.

CONCLUSION

The transition to a circular economy is a complex process that requires changing the current, entrenched way of working. This is difficult, and it calls for insight, courage and perseverance. To ensure that the earth is livable for generations to come, companies can use circular business processes to limit or stop the current assault on our natural resources. The CE competency profile can help define which professionals are needed. But this is only one piece of the puzzle to accelerate the transition to CE. Innovation is needed in many areas and things will have to be done differently in the past.

From the eyes of a CE professional, the upcoming period will be simultaneously exciting and fun, frustrating and appealing, uncertain and obvious. But above all, it is the only right way to go.

²² Various universities offer students, in addition to standard courses, the opportunity to develop competencies and skills that will benefit them in the labor market. E.g. <https://leiden.studiekeuzeplein.nl/site/vaardigheden-voor-op-de-arbeidsmarkt> en <https://carriere.uva.nl/stage--werk-vinden/zelfkennis/zelfkennis.html>

APPENDICES

Methodology

Scientific background

Transitions, such as the transition to a circular economy, are initiated and guided by change agents. Change agents can have different roles within a company or organization. They ensure that a change environment is created within the organization so that sustainability (and thus circular economy) can be integrated into business activities²³. A specific example of a change agent is the sustainability professional. The sustainability professional focuses on making an organization more sustainable through, among other things, energy and waste management and sustainable business models and buildings²⁴. He / she works autonomously, often in a complex and “unsupportive” environment, and must be able to establish good working relationships²⁵.

Although substantial research has been done into change agents, there has been little attention for

the change agent who focuses on integrating circular business processes into the organization and the competencies required for effective implementation. To incorporate circular business processes, the change agent must have the right competencies²⁶. As such, it is essential to know what the key competencies are of change agents in their day to day work²⁷. With the right competencies, the change agent can stimulate the integration of a (more) circular approach into the company.

Osagie et al.²⁸ carried out scientific research into eight competencies among sustainability professionals. In her research, she writes that all competencies are equally important. However, in the discussion, she acknowledges that this is likely incorrect and that further research is needed. Moreover, it has been proven that context creates a different importance²⁹. In her book *7 Roles to Create Sustainable Success*, Wijdoogen³⁰ mapped out the different roles and competencies of sustainability managers in companies.

²³ Witjes, S., Vermeulen, W. J. V., & Cramer, J. M. (2017). Exploring corporate sustainability integration into business activities. Experiences from 18 small and medium sized enterprises in the Netherlands. *Journal of Cleaner Production*, 153(1), 528-538.

²⁴ Willard, M., Wiedmeyer, C., Warren Flint, R., Weedon, J. S., Woodward, R., Feldman, I., & Edwards, M. (2010). The sustainability professional: 2010 competency survey report. *Environmental Quality Management*, 20(1), 49-83.

²⁵ Heiskanen, E., Thidell, Å., & Rodhe, H. (2016). Educating sustainability change agents: The importance of practical skills and experience. *Journal of Cleaner Production*, 123, 218-226

²⁶ Lunenburg, F. C. (2010). Managing Change: The Role of the Change Agent. *International Journal of Management, Business and Administration*, 13(1), 1-6

²⁷ Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, 6(2), 203-218.

²⁸ Osagie, E.R., Wesselink, R., Blok, V., Lans, T.; Mulder, M. (2016). Individual competencies for corporate social responsibility: A literature and practice perspective. *Journal of Business Ethics*, 135, 233-252

²⁹ Osagie, E.R., Wesselink, R., Blok, V., Mulder, M. (2019). Contextualizing Individual Competencies for Managing the Corporate Social Responsibility Adaptation Process: The Apparent Influence of the Business Case Logic. *Business & Society*, Vol. 58.

³⁰ Wijdoogen, C. (2020). *7 Roles to Create Sustainable Success: A Practical Guide for Sustainability and CSR Professionals*.

Research methodology

The data in figures two and three and the roles and competencies were obtained through the annual State of the Sustainability Profession Survey of the Sustainability University, conducted among sustainability managers. The survey had 112 respondents in 2019 and 97 respondents in 2020. With a total target group of around 750 sustainability managers in the Netherlands, a representative sample of more than 10% was reached. The statistical significance was determined by a Pearson Chi-Square test or a Spearman correlation test.

The competency profile is based on scientific research from competency experts at GITP / PiCompany, a questionnaire among 35 CE professionals (sustainability professionals who specifically focus on the transition to the circular

economy), peer-to-peer learning sessions with 18 CE professionals, and a competency framework session guided by GITP / PiCompany with seven leading CE professionals.

The study focused on sustainability professionals within companies because they are at the forefront of CE and are therefore a suitable research group. The determined CE competencies are recommended for all business professionals.

The results of the research were tested and shared with a large network of (sustainability) professionals through peer-to-peer meetings, conferences, workshops and learning programs. This whitepaper has been reviewed by 12 people from different stakeholder groups.

Competency profile of a circular economy (CE) professional (schematic)

COMPETENCY			
SYSTEMS THINKING	FORESIGHT THINKING	MANAGEMENT & ENTREPRENEURSHIP	INTERPERSONAL SKILLS
DEFINITION AND EXPLANATION			
<p>The ability to understand systems and subsystems relevant to the circular economy, including their mutual dependencies. The ability to think holistically.</p> <p>Visualizing, understanding and analyzing complex dynamic systems and issues, externally (within the supply chain) and internally (how the company operates). Overseeing business processes and the relationship between them. Knowing how systems inside and outside of a company work. Knowing what is needed to change systems.</p>	<p>The ability to anticipate (future) CE challenges and developments related to the company.</p> <p>Able to think critically, ahead and in scenarios. Brings the outside in.</p>	<p>Managing or leading CE projects and identifying, prioritizing and realizing CE-related business opportunities.</p> <p>Explanation: the ability to develop a CE vision, translate this into a program or plan and manage it. Entrepreneurial skills to see and realize opportunities. The ability to create a business case and know the company well enough to make decisions and reach implementation. Skills related to change and program management.</p>	<p>Effective social, communication and networking skills. Flexible style, knowing how to adapt to the recipient. Realizing awareness and ownership of CE within others. Coaching and supporting others in order to integrate CE in their day-to-day work. The ability to motivate, facilitate and enable cooperation in the field of CE. The ability to identify stakeholders. Working in multidisciplinary and multicultural alliances while serving the interest of the company and stakeholders.</p>
BEHAVIOR			
<ul style="list-style-type: none"> Oversees all factors that influence the system. Understands the relationship between the components of a system and how they influence one another (feedbackloops). Recognizes when cause and effect do not lead to a logical and predictable outcome. Is able to map the boundaries of a system and the interactions between its elements. Is able to think and operate from the larger whole (system), as well as from independent components (details) within (zoom in and out). Is not afraid to act on intuition, especially if there is no certainty now or in the future. Recognizes the effect of individual actions and interests on the functioning of the system. Demonstrates that he / she is aware of current societal developments during conversations. Examines the different interests of stakeholders within the supply chain. 	<ul style="list-style-type: none"> Thinks in concepts, new opportunities and developments even when there are no specific opportunities for implementation. Makes seemingly impossible long-term goals concrete by creating a step-by-step plan. Suggests different solutions to questions and scenarios for potential (future) problems. Distances from own practice and views situations from multiple angles and from the perspective of stakeholders Separates himself / herself from everyday business. Recognizes that what is not possible now, may be possible in the future. Identifies developments in the sector, market or in society and indicates the ways in which the department or organization can capitalize on them. Looks at the long-term consequences and long-term impact goals of proposals. Expresses in which direction he / she thinks the department and the organization should be headed. 	<ul style="list-style-type: none"> Identifies possibilities and opportunities instead of obstacles. Takes action when opportunities present themselves, stimulates others to step outside their comfort zone. Makes clear agreements with others about necessary actions (who does what when, being able to delegate). Coordinates with all relevant parties when he or she makes changes to a schedule. Uses available resources, time and people in such a way that they contribute optimally to the intended goals. Takes the time to implement things properly. Is able to see the link between CE initiatives and financial opportunities (commercial opportunities) for the organization. Knows how to empower people. Can create appealing visions of the future to impel an organization to take the right actions. Inspires and motivates others by working with energy and enthusiasm. 	<ul style="list-style-type: none"> Knows who is involved or has influence, regarding ones own work or the ongoing project. Recognizes stakeholders. Informs involved parties and stakeholders about the progress of projects and tasks. Involves relevant people when there are new developments. Links parties inside and outside the organization in order to interconnect the various interests. Invests in relationships with the people involved in the work or the project. Communicates his / her opinion with energy and conviction. Uses logical and understandable arguments to advance their opinion. In the event of resistance, switches to investigating the wishes and interests of the other. Investigates what the other is sensitive to and leverages this with his / her arguments.
PERSONALITY TRAITS AND MOTIVATIONS			
<ul style="list-style-type: none"> Flexible Has perseverance, does not give up, go-getter, goal-oriented Anticipates and quickly picks up on stress and tension in the workplace Pragmatic and systematic Enterprising Solution-oriented Strong networker Pursues goals in the future 	<ul style="list-style-type: none"> Prioritizes greater good above own interests Focusses on short term and long term Driven by socially relevant issues Sticks to own drive, goal and purpose Ambitious Inspiring Empathetic Inquisitive and open minded 		

Levels of competencies - some examples (schematic)

COMPETENCY	PROFESSIONAL LEVEL Display effective behavior independently and on their own initiative.	TACTICAL LEVEL Encourage effective behavior in others within the workplace, partly by setting an example.	STRATEGIC LEVEL Inspire effective behavior in others inside and outside the entire organization, by creating conditions and setting an example.
SYSTEMS THINKING	Is able to think and operate from the larger whole (system), as well as from independent components (details) within (zoom in and out).	Helps others make connections between the elements that can influence their own system or other systems.	Directs others within the organization to take into consideration all system-related aspects in strategic decision making.
	Demonstrates that he / she is aware of current societal developments during conversations. Examines the different interests of stakeholders within the supply chain.	Encourages employees / colleagues to stay up-to-date on societal developments and to investigate the various interests of stakeholders within the supply chain.	Translates social, political and economic developments into relevant sustainability policy.
FORESIGHT THINKING	Thinks in concepts, new opportunities and developments even when there are no specific opportunities for implementation.	Makes others think of different solutions to questions and scenarios for potential (future) problems.	Associates the organization's sustainability strategies with the organization's other strategies. Demonstrates interrelatedness and dependency.
	Distances from his / her own practice and views situations from multiple angles and from the perspective of stakeholders.	Expresses in which direction he / she thinks the department and the organization should be headed.	Develops a new interpretation of the organization's goals, based on developments in CE.
MANAGEMENT & ENTREPRENEURSHIP	Is able to see the link between CE initiatives and financial opportunities (commercial opportunities) for the organization.	Proactively asks colleagues and employees to present innovative ideas that can improve and expand activities, products or services.	Makes decisions that lead the company to strongly deviate from or change its course.
	Makes clear agreements with others about necessary actions (who does what when, being able to delegate).	Coordinates the actions and plans of different CE projects or activities within the organization.	At crucial moments, sets the right priorities in situations or projects that have a big (strategic) impact.
INTERPERSONAL SKILLS	Knows who is involved or has influence, regarding their own work or the ongoing project. Recognizes stakeholders.	Supports employees / colleagues when identifying, informing, involving or consulting stakeholders in projects.	Connects parties inside and outside the organization to make relevant connections between different interests. Involves parties when strategic decisions have to be made.
	Uses logical and understandable arguments to advance their opinion.	Has several arguments ready for when he/she is confronted by those with a different opinion / point of view.	Communicates strategic points of view such that they are accepted throughout all levels and departments of the organization.

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The Sustainability University Foundation, founded by Carola Wijdoogen and Elfriek van Galen, is a social enterprise aimed at contributing to the transformation to a better world by developing activities that support and professionalize the occupation of (future) sustainability professionals. This goal is achieved, among other things, via a peer-to-peer learning platform with online and offline events, tools, training and research.

The Goldschmeding Foundation for People, Work and Economy is working towards an inclusive and sustainable world based on the conviction that a better world is reached when people serve each other's interests. To this end, they support innovative field projects and excellent scientific research within the themes Inclusiveness, Circular Economy and Humane Economy.

GITP / PiCompany is an expert and advisor in the field of competencies and talent, both discovering and developing them. This makes GITP / PiCompany the HR advisor for selection and development issues. GITP offers organizations insight into the talent, employability and development potential of employees. Together with PiCompany they bring people and data together, Talent Intelligence. This enables organizations to be successful, to select the right people and to help employees with their development.