

## ANALYSIS OF THE HUMAN FACTOR IN MANAGEMENT IN IPBC WG2 GROUP WORK SESSIONS

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This report presents the synthetic results of a qualitative analysis of the ideas, concerns, questions and observations of participants in WG2 focus groups.

We will then build from these results, and with the help of other scientists from the IPBC (Group 1), will administer an Internet quantitative questionnaire to WG2 members which will also be analyzed by us.

This will contribute to better understand, anticipate, measure and evaluate, in order to:

- contribute to decision-making, economic actors and citizens;
- contribute on the most exhaustive possible state of solid knowledge on behavior, individual and collective, in their great diversity and complexity,
- facilitate the integration of disciplines and the emergence of trajectories, the only ones able to better secure long-term decisions and investments, reduce uncertainties, objectify the brakes and levers, levels of action of all kinds,
- able to promote, in all rigor and transparency, the emergence of a world that is more sustainable, equitable and desirable.

Transdisciplinary behavioural sciences present in the IPBC have an essential contribution to make in their capacities to provide clear, operational and controllable data.

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## CONTEXT.

Recent national and international climate and energy objectives have raised the stakes and increased the challenge to be met in 2050, with several countries on every continent in the world adopting carbon neutrality (greenhouse gas emissions must correspond to the natural capacity of their absorption!). Some firms have already undertaken scenario exercises relative to this aim, such as Companies for the Environment ([ZEN 2050 project](#) having received much attention), which conclude that ALL actors need to be involved (while recognizing their different status, capacities and wishes) in all sectors, including companies.

These objectives will require great efforts (and we must also tackle biodiversity), forcing all players to start working differently (including research!): "stop working in silos" and learn to operate in a multi-sector, multidisciplinary and multiple scale, which is complex because we haven't learned how to do it (path dependency). This is one of the major areas of concern that we noted when analyzing the reports of the work of the Group 2 Companies of the IPBC.

## METHOD.

In order to analyze the results of the ideas, concerns, questions and observations raised by participants in WG2 focus groups, we proceeded by

- i) an analysis of the content of the responses and
- ii) a quantitative lexical analysis of the terms used and the relationships between them, followed by a semantic analysis in order to correctly identify the meaning of the double terms or even triple meaning (eg : does "world" mean "planet", "people" or "society"?).

Statistical analyzes were also carried out to try to identify sets of terms appearing grouped together as well as their possible links. For example, is the word "management" more often associated with the word "sustainable" or "human factor"? The lexical analysis (carried out by Stéphanie de Chalvron) and that of the content of the verbatims (carried out by S. La Branche) complement each other, each confirming in their own way the conclusions presented here.

This lexical map presented here schematizes the links between the different terms used by the participants, as given in the meeting verbatim. We see, for example, the issue of the relationship between management and change often being a problem for the participants and that this is associated with the question of measurement. We come back to it throughout our analysis.

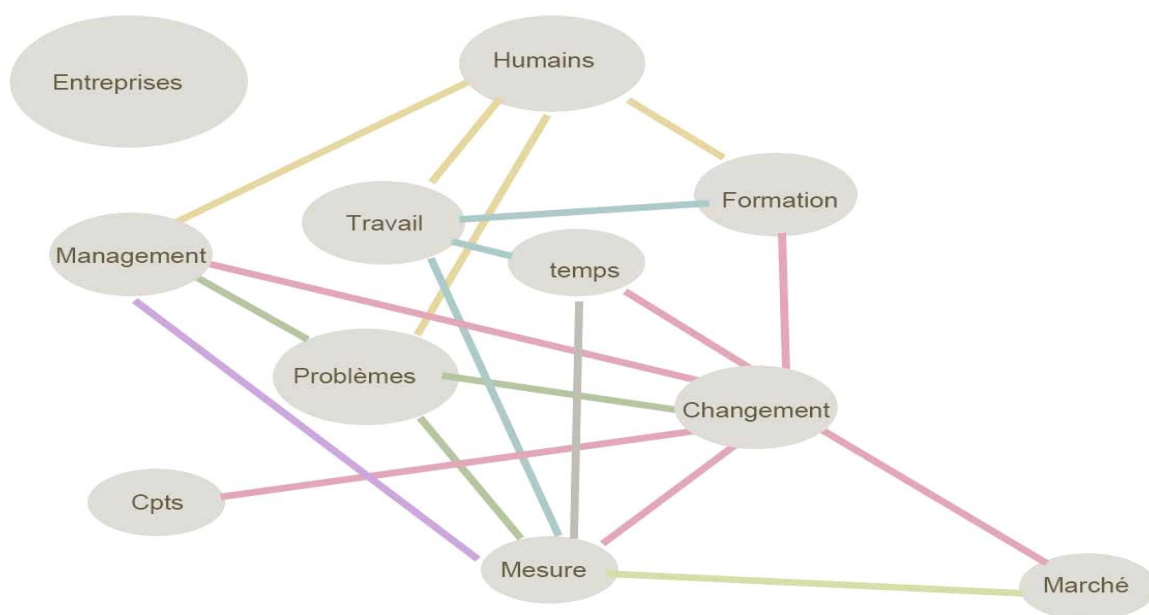
The lexical analysis shows that the most used word is "company(s)" with 292 occurrences against 15 for all terms related to the "environment" and 80 for "behavior" and 117 for "change" or "evolution". The analysis also shows that the participants create links between different issues (training, behavioral changes, management) starting from their own experiences and their personal objectives, which meet many IPBC's scientific objectives. Then, we observe several sets and sub-sets including, for example, "human factor", "problems", "change", "management" and importantly, "indicators". We come back to this in the analysis because the content analysis shows that the main questions of the participants revolve around three cross-cutting issues:

- 1) the measurement / quantification of the effects of taking into account and operationalizing the HF (Human Factor) in their efforts;
- 2) the generalisation of good approaches, methods, strategies and practices and finally;

3) management issues and their organization (team leader interaction, including personal development and self-knowledge).

The two types of analysis also show an ambiguity with regard to the term "human factor" associated with "work", "management", "training", but also with "problem, constraint, difficulties". The human factor therefore represents both a constraint and a potential solution. It is perceived as crucial, in particular in relation to management and training. They mention difficulties such as "it is not possible to...", "we do not have the power/capacity to ..." suggesting a form of powerlessness despite a real desire to change things. We come back to this in the sub-sections.

*Wordmap (mapping of links between factors)*



### GENERAL FEEDBACK ON G2 SESSIONS.

The participants appreciated both the form and the content of the sessions which both confirmed their interest for the IPBC and aroused their interest and curiosity for further collaboration: *"That is why we are participating in the IPBC, to better understand behavioral changes. Human behavior and its advances, this corpus must be disseminated in the company"*.

We also see in the comments a real desire for change with a feeling that there are obstacles to efforts, *"you have to deploy tons of strategies to achieve results"*. They particularly want to understand the drivers and obstacles to change: *"how to go from intention to an action that can be sustainable and profitable"*, in their interactions with their partners (from suppliers to end customers) and also and above all, internally. A large part of their reflections revolve around efforts to make changes within their companies: *"how behavioral sciences in conjunction with other models can help us find solutions, better manage these contradictions and support the various stakeholders, and to resolve contradictions and interferences"*. Participants say they need the IPBC's expertise to support them in a process of internal change, in their practices, advertising, process, strategies and managerial methods. Several factors emerged as important

## **THE ROLE OF PEDAGOGY, CONSTRAINTS AND SUPPORT.**

Participants discussed much on the role of constraints, education and training and their impact on behavior change. *"How do you go from constraints to something desirable? If I had wanted - outside the COVID context - to encourage homeworking, 6 months later I would still be there. In ½ day, it was done. In two weeks, no one imagined travelling 100 km for a physical meeting. The change was made under duress, but now no one wants to go back".*

In fact, much social and cognitive sciences research exist on the roles and impacts of these methods on behavior change. These sciences already offer many answers but they wholly remain sectoral. What we do know is that for each type of effort, sector or activity, the drivers and pragmatic barriers to change vary because they are sector specific. In contrast, cognitive and emotional brakes are probably cross-cutting. Behavioral sciences of transition efforts and energy consumption show that information in itself does not cause behavior change and that other factors play a role: a rupture, an important event in life (moving, arrival of a child, etc.); pedagogy, constraints, support and nudges.

### ***Pedagogy.***

The terms of 'work' and 'employees' are clearly associated with 'education' and 'training' in the sense of "experience" and "support", participants often mentioning the idea of 'training' by experience or by doing. At the same time, they have a strong demand for scientific and cognitive confirmation of their strategies and goals.

Pedagogy takes several forms: cognitive, sensory, project-based... Research on environmental issues tends to show that the most effective pedagogy is that which brings about know-how rather than the acquisition of information and knowledge. But traditional awareness and pedagogical methods such as that traditionally used in school, have an effect on knowledge levels but not on transformation. At the same time, information could have a positive effect on the acceptability of certain constraints but this depends on the objective (pressure on cars will be less accepted if the goal is to mitigate climate change than if the objective is to improve air quality). But we also know that information in itself does not lead to changes in practices; it must be accompanied by other types of measures: *"we change our behavior. When we experience something, we live it!"* There are indeed teaching methods that are more effective than traditional methods to initiate change, such as role-playing and environmental education, the basic principle of which is to do to learn, often in project mode.

### ***Sharing good practices.***

Sharing good practices is widely carried out at all levels, between public institutions, countries, companies and cities in different countries or within the same country. Over the past 20 years, we have seen the emergence of numerous exchange platforms and institutions such as the national French transition agency (ADEME) have made this one of their main missions. But there are conditions for feasibility and effectiveness: studies tend to show that practice sharing is easier between members of the same trade or the same sector. One of the obstacles is that even for cities or companies that are geographically close or in terms of activities will not always have the same institutional culture. This makes it difficult to integrate an innovation in one while it is obvious in another. This refers to the attitude and existence of a culture of experimentation, to which we return below, as this issue has come up repeatedly in the discussions of WG2.

### ***Exemplarity.***

Sharing good practices is based on a few conditions. The first is obvious: leading by example implies that good practices exist, but certain areas or sectors are better off than others. In terms of urban

mobility and energy renovation of buildings, data, models and techniques exist but other “*areas are suffering: agriculture for the mobilization of resources, for support of change, the area of agro-food*”.

The second is, to put it simply: it is difficult to give advice if you do not practice it yourself. Within their own company, they insist on the fact that the N + 1 manager must set an example so that employees follow and respect the instructions. This also applies to other actors: citizens expect their elected officials to set the example. Some participants observed inversely, that the bad example given by the hierarchy has a negative effect: “*A boss who asks everyone to work in an open-space but who has his own office*”.

### **Constraints.**

Constraint and coercion work to a certain extent for certain cases (eg containment has had an effect on the Covid spread, see our soon to come [IPBC publications on the covid issue](#)) but surveys show that coercion, alone, tends to create resistance (eg, yellow vests) as well as escape and of bypasses. But offering the possibility of taking action does not guarantee the expected actions (a high energy bill can cause stress but not necessarily lead to changes in energy behaviors at home). On this point, the participants join the behavioral sciences: a simplified approach, with little physical and cognitive efforts, works better.

### **Social norms.**

In social sciences, a norm refers to an unspoken rule of conduct which has a positive status in a society, anchored in habits and founded by values and collective beliefs. In WG2 discussions, the notion was addressed through thoughts on communication and advertising. This is related to ongoing discussions within the economic world, partly driven by the carbon neutrality strategy in 2050, resulting from scientific analyzes. A participant raises an important question in this regard: “*how do we reconcile the scientists who alert us and are perceived as austere, with marketing which makes us dream and better succeeds in getting people on board?*”

Advertising’s strength is “*that it makes people dream*”, it is not limited to cognitive processes; it addresses desires, more or less conscious images that people want (the house with the garden and BBQ). The question that arises is therefore that of “*the evolution of advertising’s trajectory, of the dreams it conveys*”; advertising as a by-product of CSR and as transition tool? This is not fundamentally contradictory, but as participants underline, the objective is to make profits and in order to do so, one must sell products, which raises the sustainability issue. On this point, we have recently witnessed a rise on the public scene to criticism against advertisers for their abuse of ecological arguments. But the potential for a positive impact has been put forward by participants.

## **MANAGERIAL MODELS AND PRACTICES**

The second major category of issues discussed is that of managerial models and practices, often associated, as we have seen, with efforts for change and resilience. This is not surprising given the participants’ roles, desires and responsibilities in their own firms. Several sub-issues emerge: the obstacles and drivers of behavioral change, including : organizational culture; the integration of FH into a firm’s practices; the role of management in particular, “from the old culture of leadership (top down, authoritarian) to move towards leadership of commitment (producer of initiative, sharing a sense of team and responsibility) The lexical analysis shows that in the relations between the terms used by the speakers, the difficulties emanate from the type of management, from the management of the projects and from individual behaviors themselves. Several elements of the discussions relate to social science work on the role of organizational structure and functioning on efforts at reaching new environmental goals (Young, 2002).

### **Organizational structure: from the silo to the transverse.**

“When we offer cross-functional services or products, being in silos (internally, but also with customers) complicates things for the new goals.” This observation from a participant also applies to companies and to national and international territorial public authorities. For example, the public road service does not interact with the mobility service; the image of a CSR service is very strongly promoted but has no human resources and there are no environmental conditions in the tenders...

Lexical and content analysis show that the notion of “change” (as well as “evolution” and “transformations”) is at the heart of concerns. However, we note in this regard the use of the word “silo” (“we reason/act in silo”, separately, without connexion) which is very often adjacent to the words “in my field”. The participants are therefore aware that there is still too little transversality, but they themselves reason from their own personal (and thus non transversal) experience - which was the goal sought in our working group discussions. Finally, concerning the secondary associated terms, the notion of “change” is associated with “approach/process”, “resilience”, “power/capacity” and “desire/pleasure”.

There are also other more complex factors that the IPBC will explore, including the culture of experimentation - or lack thereof – and which has implications for managerial and leadership styles. Indeed, the more complex a project is, the more numerous and diversified the actors are as well as their interests and potential conflicts, and thus the more complex and delicate the governance will be. Organizational analyses of the management of complex projects in a transitional framework show that beyond technical issues, a key factor is the capacity for coordination. Akin to an orchestra conductor, the coordinator must bring into harmony actors who have their own role, skills interests both personally and as members of their own firms. In addition, they are also in interaction with their society, changing values and the new ecological constraints and objectives. Participants mentioned in this regard the notion of “intermediate moral body of employees and of society”.

Finally, let us note that the very function of a service can play a role in its efforts at integrating the HF. It is easier, ‘more natural’, for some than for others and this needs to be taken into account when one tries to understand the obstacles and the drivers. For example, for a corporate social or environmental responsibility unit, this would seem more obvious than “for engineers and technicians who will always find ... a technical answer to the problem”. But participants were insistent on the point that, without taking into account the HH, the risk of failure, total or partial, is significant.

### **Culture of experimentation**

As suggested above, some studies show that the existence of a culture of experimentation is a powerful factor in explaining why certain local authorities are ahead of others in their innovations in terms of environmental and energy climate policies (La Branche and Bosboeuf, 2017). We can also see some public authorities who wait for regulations to come before they act, and others still that will continue not doing much. The same is true for companies and for different departments within the same company. One of the factors explaining these differences is attitude toward experimentation and risk taking.

Indeed, experimenting implies a positive attitude with regard to the risk of failure and the “right to make mistakes” (“one of the conditions for mobilizing intelligence”), as they are steps for learning, and also eventually, disseminating lessons and good practices to others. Participants propose to “talk about resilience rather than the right to make mistakes” and to have a more proactive attitude: “How do I turn this problem into an opportunity... How do I try to bounce back and how do I readjust?”. This feedback strategy was initially implemented in the aeronautics industry and was then extended to the sensitive areas such as industrial zones with disaster risks. But participants raise another obstacle: it is difficult to integrate such an approach when faced with “people who never question themselves, which raises the question of interpersonal skills” and competing logics within the

company: "How do I, as an individual, accept to say that the I may not succeed in the purely economic sense of the term but in other terms, yes?"

As a partial response, two strategies are mentioned: i) at the organizational level, by creating the conditions of receptivity for experimentation (by anticipating and managing the different interests) then, ii) by training employees and employees in interpersonal skills.

### ***Know-how and knowing how to be.***

Participants discussed a lot about interpersonal skills, stressing the importance of "*something other than just business expertise, which is not at all the same as being a manager.*" By interpersonal skills, they mean learning to disconnect from only 'doing' and performance and move toward well-being at work, which they relate to self-knowledge, empathy and connection with one's emotions and doubts. They also mention emotional intelligence as an element of business transformation, with multiple implications: "*how do we accept to integrate individuals as they are as-a-whole, with their emotions? We need to initiate a cultural change in management, in connection with governance; accept that our employees are fully-fledged beings*". This is linked to the notion of respect: "*respecting everyone with their fears, their perceptions, their reservations, in relation to who they are, their function. (this implies) suggesting a variety of paths or solution to each one, so as to overcome each person's blockages. Without forgetting that the injunction to change can be very scary!*"

These considerations are certainly subjective but they are also key, and they can be integrated into management. It has been observed that a large part of work accidents occur after the actors have a "bizarre" feeling of an anomaly that cannot be formulated with the event. Hence the following sometimes explicit rule: "*if you have any doubt or unusual anxiety (in the face of an irreversible act in particular), you should not act until you have clarified the situation ... and call on your management*".

### ***Internal / external consistency.***

Participants are unanimous about the importance of matching internal procedures with external ones, with the public and customers. But several gaps may exist: an internal transition process may be carried out but production or extraction activities do not follow. Or a real desire to implement a CSR innovation exists but "*the teams resist change or the consumer does not understand (...)* There can be a very green offer but which is not received directly, and we can have a very ecological demand which is impossible to offer". While this internal-external coherence is important to them, participants are also aware of the difficulties in a commitment process, pointing out at management issues: "*If we had to focus our first efforts, it would be on HR rather than other departments ... HR is very focused / locked into a regulatory vision (...). They must be freed from this single obligation and encouraged to open up to all these dimensions of behavior, support for change. To do this, we must first train the high level management and put them in the right mental mode to take the HF into account*".

Participants mention that consistency is also sought after by customers who "*are very sensitive to the fact that brands do not put their own teams at risk*", which refers to setting the example. Finally, participants also express the desire for coherence at their own personal level through the alignment between what they are and the image they (want to) give, which requires a minimal amount of self-knowledge.

### ***The issue of indicators***

The whole of the preceding discussion raises a key issue: how can one identify whether or not a HF or CSR objective has been achieved, to what degree and how well? In this regards, there is a need for indicators linked to the human factor. On this issue, human sciences still have a lot to do, especially when it comes to tackling multisectoral or multidisciplinary issues, such as socioecological issues.

More generally, it is easier to develop criteria to evaluate so-called 'natural' issues than human issues, as they include many subjective factors that are at least as important as objective ones.

Participants all say that *"indicators are really key for our organizations"*, both to *"raise awareness of the human factor and include it in an approach that is both HR and managerial, with the objective of changing the ways in which employees are assessed by integrating the human factor"*. Indicators that include the HF would also make it possible to better steer prospectivist strategies which, without HF indicators, will remain *"off the ground"*, not easily operational nor desirable. Participants also believe that the integration of the HF *"would bring substantial gains for the company in terms of time, energy, money, fluidity, to accompany in the change"*. But to demonstrate this, we must have scientific understanding on the integration of FH in management, communication and actions. One participant writes that it is necessary to develop *"a KPI (Key Performance Indicator) which can show the benefits of going towards this know-how"*. *But which indicators and how do we measure the intangible aspects of the human factor and associate them with the KPI; which quantifiable and quality criteria?"*

The participants ask for help to *"define KPIs (which make the links with know-how and well-being at work)" which integrates qualitative and quantitative elements. "Having a qualitative (modulating) mapping of the drivers of change and non change, applicable at all levels, from the smallest to the most global. This will allow us to fully understand, to have a fresco of behavior as we have a fresco of climates according to behaviors"*.

This topic of indicators was developed much more in the Excel which participants filled in on their own than in the discussions. Participants have already given this question a lot of thought. *"It is strategic and urgent to have this kind of HF indicators and to harmonize them as quickly as possible because asset managers are in the starting blocks to integrate them massively into their portfolio management. A chain is being put in place. But there is a missing link which is, indeed, this appreciation of the HF and the overall added value that a company produces, beyond the financial balance sheet"*. This would be eagerly awaited by some decision-makers and could include for example: *"how this quality of interactions with suppliers can create trust with customers and offer new services and products; the number of innovations made with customers or suppliers; the ratio between the number of ideas and products released; the turnover or the additional margin thanks to this posture"*. A methodical approach based on criteria would make it possible to guide and convince *"investors, shareholders, managers"* that HFs are an important asset to develop.

## **TOWARDS INTEGRATED MULTI-METHOD STRATEGIES**

In the words of one participant: *"Goodwill alone is not enough, a societal project alone is not enough, we need an intelligent, strategic cocktail of various measures"*. Indeed, the trend in the last few years in terms of research and transitional measures is to deploy a strategy combining information, nudges, incentives and material and structural constraints in the most intelligent way possible. Thus, a constraint (reduction in the place and status of the car in town) works better if it is accompanied by an alternative solution (more public transport and secure cycle paths) and multiple non-ecological benefits (we forcibly reduce the number of parking spaces but they are replaced by terraces for restaurants and cafes, which is beneficial for neighbourhood life and businesses) while informing that efforts to combat local pollution also have positive effects on children's and elders' health.

This type of strategic approach to change has emerged in large part thanks to the identification, by research in behavioral sciences which identified drivers of change and in change in multiple sectors of activities. One could even say that this is even one of their major contributions to transition efforts. However, behavioral sciences are not equally advanced in all sectors and some of them, are better than others in specific sectors.



But whether one talks about new urban projects, the integration of environmental issues in public policies or the integration of the HF in management practices and corporate activities and work conditions, fundamentally, one raises the issue of Complexity which represents a real challenge for all actors. And it requires transversal thinking as well as collective and strategic intelligence. For companies, this requires coordinating the production process and management, or even upstream: training and education, communication and it even touches on issues of governance, regulations and cooperation.

Scientifically, it is necessary to proceed with an integration of fundamental and applied scientific knowledge on behavior. The multiple discontinuities and dissonances currently described show how far we are still from models capable of anticipating changes, managing them, and allowing all stakeholders (citizens, decision-makers and investors) to invest in the FH as a constitutive part in the transition efforts. It is likely that a sustainable society will be both possible and desirable (and hopefully, more than endured), but also improbable without knowledge and orchestration at all levels of all sectors of societies.

Our next step is to deepen and test the results of these discussions on a large scale. We will explore and test the themes and issues identified in this analysis as well as questions other WG1 researchers through online questionnaires.

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## ANNEX.

### ***Brief presentation of the IPBC WG2 – private firms.***

The IPBC's Scientific Group's goal is to publish exhaustive reports on the state of science on issues linked to behavioural change and non change (which does not exist anywhere else to date!), either on specific subjects (Thematic Reports, annual or biannual) and Global Main Reports (every 4 years).

The purpose of Group 2 is to contribute to the operational environmental, economic and social relevance of future IPBC productions by: better targeting and orienting WG1's work and productions; improving its relevance and usefulness in the short, medium and long terms; specifying the particularities in the various fields and sectors of activity; sharing difficulties, successful experiences, needs and challenges ahead. 5 meetings were so far organized on UNEP premises and by videoconference, between March and June.

Group 2 is led by researchers and consultants (from long-standing IME partner firms), driven by the same motivation to link behavioral sciences and applications useful to actors wishing to bring about lasting change.

### ***Organizers and animators: who are we?***

[Jacques Fradin](#) is a doctor of medicine and a behavioralist. In 1987 he founded and headed the Institute of Environmental Medicine and its Psychology & Neurosciences Laboratory. In 2018, he launched the IPBC, of which he is now Chairman. His work and interventions link neurosciences and psychology, pedagogy and management. He is interested in how our attitudes mobilize our brains and facilitate (more or less) the acquisition of skills and competences.

[Stéphane La Branche](#) is an independent researcher and climate sociologist (one of the first sociologist interested by climate change, in 2003). He is the IPBC scientific coordinator. Stéphane works on the obstacles and drivers of change in an ecological transition context and on climate adaptation issues.

[Sandrine Bélier](#), doctor in cognitive psychology. She is a cognitive designer and coach at SBT Human (s) Matter. It is engaged in an application process of Cognitive Sciences allowing everyone to adapt more serenely to complex environments.

[Pauline Bricault](#) is in charge of development at Imagin / Able.

[Thomas Busuttil](#), economist by training, has worked on sustainable development issues for 20 years. Former SD Director for large groups, he created the Imagin/Able firm, which supports the necessary transition of business models by designing and implementing positive innovation strategies.

[Christophe Carpinelli](#) is Deputy Director Executive Education at Audencia Business School and in charge of educational innovation.

[Elisabeth de la Tour](#) : is founder and CEO of [d'ART d'être](#), offering coaching in leadership development, team building and management training.

[Olivier Fronty](#) is CEO of [SBT Human \(s\) Matter](#).

[Anita Sillon](#) is an engineer by training. Beyond her responsibilities in large French or international groups, she created [Bingo Solutions](#), a change management firm. She is interested in the neurocognitive approach in the management of the human factor, to support the coming complex transformations.