THE PLACE AND STATUS OF THE HUMAN FACTOR IN MANAGEMENT

IPBC WG2 WORK SESSIONS RESULTS

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The IPBC WG1's (scientific Group) goal is to publish exhaustive reports on the state of science on issues linked to behavioural change and non change , either on specific subjects (Thematic Reports, annual or biannual) and Global Main Reports (every 4 years). As for the Working Group 2, it aims at contributing 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; in various fields and sectors of activity; sharing difficulties, successful experiences, needs and challenges ahead.

WG 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. With this objective in mind, the IPBC conducted in2020 two series of discussions with WG2 private firm members, with a total 63 individuals representing over 35 small and large firms, between March and June2020.

This report presents the synthetic results of a qualitative, content and lexical, analysis of the ideas, concerns, questions and observations, relative to the inclusion of the Human Factor in management practices during these meetings.

We then built from these results, and with the help of other IPBC scientists (Group 1) administered an Internet quantitative questionnaire to WG2 members which will also be analyzed (results will also be published in French and in English as soon as possible). We hope this will then:

- 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. For a full presentation of the IPBC, visit IPBC Home | International Panel on Behavior Change.

CONTEXT.

Recent national and international climate and energy objectives have raised the stakes and increased the challenge to bet 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!). In France, some firms have already undertaken scenario exercises relative to this aim, such as Companies for the Environment (the ZEN 2050 project having received much public and ministerial 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 fashion, which is complex because we have not learned how to do it yet (the path dependency problem). This was one of the major areas of concern reported by the IPBC Working Group 2 members.

General feedback on WG2 sessions.

The participants appreciated both the form and the content of the sessions, both confirming their interest for the IPBC and arousing 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 "*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 revolves 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.

METHOD.

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

- i) the content of the responses and

- ii) the terms and lexical register used as well as the relationships between them, followed by a semantic analysis in order to correctly identify the meaning of the double terms or even triple meaning (ex : does the word "world" mean "planet", "people" or "society"?).

Statistical analysis was 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"? Both analyses, lexical (carried out by Stéphanie de Chalvron) and verbatim content (carried out by S. La Branche) complement each other, each confirming in their own way the conclusions presented here. For example, participants express concerns about the relationship between "management" and "change", and that they associate this with the question of measurement.

The lexical analysis shows that the most used word is "company(s)" with 292 occurrences, against 117 for "change" or "evolution", 80 for "behavior" and 15 for all terms related to "environment". The

analysis also shows that the participants see a relationship between different issues ("training", "behavioral changes", "management") based on their own experiences and their objectives. Then, we observe several sets and sub-sets of terms including, for example, "human factor", "problems", "change", "management" and importantly, "indicators". We come back to this later but the content analysis shows that the participants' main questions 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 diffusion 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 relative to the term "human factor" which is associated to "work", "management", "training" and also with "problem", "constraint" and "difficulties". The human factor is therefore seen as both a constraint and a potential solution. It is perceived as crucial, in particular in relation to management and training but it is also related to lexical terms 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.

THE ROLE OF PEDAGOGY, CONSTRAINTS AND SUPPORT.

Participants discussed at length 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 on the same spot. But now, in ½ day, it was done. In two weeks, no one imagined anymore 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 different methods on behavior change. For example, we do know 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. This raises the issue of the most efficient ways to enter into a process of behavioral change and how to combine different methods in order to reach an optimal result.

Pedagogy.

The terms "work" and "employees" are clearly associated with "education" and "training", 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 input for their strategies and goals.

While pedagogy takes several forms (cognitive, sensory, project-based...), research on environmental issues tends to show that the most effective pedagogy brings about know-how rather than information and knowledge. But traditional awareness raising campaigns and pedagogical methods (traditionally used in a school setting) aim at improving knowledge levels rather than transformation. At the same time, information can 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). Behavioral sciences show that information in itself does not lead to changes in practices and that it must come with other types of

measures: "*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 learn by doing, 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 national and international exchange platforms and institutions. But diffusing practices also include feasibility and effectiveness conditions: 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. Thus, innovation in one institution may be easier than in another due to differences in attitudes and institutional culture relative to experimentation, risks of failure and so on. We return to this point below, as this issue has came up repeatedly in the WG2 discussions.

Exemplarity.

Sharing good practices includes two elements. The first is obvious: leading by example shows that good practices do exist and that they can be implemented. But certain areas or sectors are better off than others. While in sectors such as urban mobility and building retrofitting, data, models and techniques exist but other "*areas are suffering: agriculture for the mobilization of resources, for support of change*".

The second is to put it simply: it is difficult to give advice if you do not practice it yourself! Within their own company, WG2 participants 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 policies makers: citizens expect their elected officials and public institutions to set the example. Inversely, some participants observed that a 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 in certain cases (ex: the Covid lockdown has had an effect on the Covid spread, see our IPBC publications on the Covid issue) but scientific analyses show that coercion alone, tends to create resistance as well as escape strategies and bypasses. Thus, constraint needs to come with an appropriate incentive and also implementable real life solutions. One cannot ask a population reduce car use if usable alternative mobility modes do not exist. Yet, offering the possibility to take action does not guarantee the expected actions (creating cycle lanes does not mean that we will start going to work by cycle). 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 the issues of communication and advertising. A participant raised 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 actually better succeeds in getting people on board?*"

Indeed, advertising's great strength is "*that it makes people dream*", it is not limited to cognitive processes; rather it addresses desires, more or less conscious images of what people desire (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*"; in other words, advertising as a by-product of CSR and as transition tool? This may not be as fundamentally contradictory as it may seem, but as participants underline, the aim of corporations who hire advertising agencies is to make profits and in order to do so, they must sell products, which raises sustainability issues. 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, who recognized the very important amount of work to be done if inroads are to be made in this area.

Managerial models and practices

The second major category of issues discussed is managerial models and practices, often associated with efforts toward change and resilience, which 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 the human factor in a company's practices; the role of management ("*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 arise in : management style, project management and individual behaviors; which relate to social science work on the role of organizational structure and operations on efforts at reaching new environmental goals (Young, 2002).

Organizational structure: from the silo approach to the transversal one.

"*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, a public road service that does not interact with the mobility service; the image of a CSR 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 "transformation") 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 evaluate this 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 more complex factors that the IPBC will need to 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 and thus, their interests and potential conflicts as well. And thus the more complex and delicate the governance is. 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 and both interests as individuals and as members of their companies. In addition, they are also in interaction with society, its changing values and the new ecological constraints and objectives.

Finally, let us note that the very nature of a team's function can play a role in its efforts at integrating or not, the Human Factor. It is "*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, taking the HF into account would seem easier for a corporate social or environmental responsibility unit than *"for engineers and technicians who will always find a technical answer to a problem"*. But participants insisted on the point that, without taking into account the HF, 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 within an institution 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). Other public authorities wait for regulations to come before they act, and others still continue not doing much. The same can be found in different companies or in 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, as well as disseminating lessons and good practices to others. Participants propose the term " *resilience rather than the right to make mistakes"*. A proactive attitude is key to them: *"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 sensitive areas such as industrial zones with disaster risks. Then, 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 I may not succeed in the purely economic sense of the term but in other terms, I do?*".

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 different interests) and, ii) by training employees and managers in interpersonal skills. One can see here that purely technical skills are not mentioned and indeed, that this goes beyond strict professional 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 the 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; and accept that our employees are full-fledged human beings*". This is associated 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 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 (...).You can have a very green offer which is not accepted, 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 seriously*".

Participants mention that consistency is also sought after by customers who "*are very sensitive to the fact that brands should not put their own teams at risk*". 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 entire 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, social sciences still have a lot to do, especially when it comes to tackling multisectoral or multidisciplinary issues. More generally, it is easier to develop criteria to evaluate so-called 'natural' issues than it is for 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, would not be 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 help change along*". But to demonstrate this, there is a need for scientific understanding on the integration of FH in management, communication and actions and its impacts. 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-to-be". But which indicators and how do we measure the intangible aspects of the human factor and associate them with the KPI? Which quantifiable and qualitative criteria?*" The participants also believe more work is needed to "*define KPIs (which make the links with know-how and well-being at work)*" integrating 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 would be like a fresco of behaviors* ".

This topic of indicators was developed much more in the Excel which participants filled in on their own than during the oral working sessions. We analysed their answers and comments according to the following framework:

	Strengths	Weak-nesses	Risks	Opportu-nities	Issues	Invest-ments	ROI*	ROE*
Governance								
CER* Strategy								
Education Formation								
Societal								
Social								
Environment Climate Biodiversity								
Fiscality, legislation								
Territorial Ecosystem								
Political Institutions								
Macro-economy								

* CER : Corporate Environmental responsibility
* ROI : return on investment
* ROE: return on equity.

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.

Criteria for a KPI taking the Human Factor into account would include, according to participants:

- Trust with customers relative to new services and products

- Interactions with suppliers to create trust

- 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.

- Evaluation of well-being at work

- Attitudes toward innovations

- Risk of failure in innovation attempts.

To participants, a methodical approach based on evaluative criteria would make it possible to guide and convince investors, shareholders and 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*".

The trend in the last few years in terms of research and measures linked to ecological transition measures is to deploy a strategy combining information, nudges, incentives as well as material and structural constraints in the most optimal 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 various 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 understood than others. 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, and 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 its emergence is improbable without knowledge and orchestration at all levels of all sectors of societies.

Our next step is to deepen and test some of the results of these discussions on a large scale. Our first step is to explore and test the themes and issues identified in this analysis as well as questions other WG1 researchers through online questionnaires. The results will also be made available on our website.

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ANNEX

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.

Then, in order to root itself in the ground, the IPBC called on long-standing partner consulting firms to participate in the facilitation in the WG2 March and June 2020 meetings.

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.

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.

Christophe Carpinelli is Deputy Director Executive Education at Audencia Business School and in charge of educational innovation.

Olivier Fronty is CEO of SBT Human (s) Matter.

Anita Sillon. Beyond her responsibilities in large French or international groups, she created Bingo Solutions, a change management firm, based on the neurocognitive approach in the management of the human factor, to support the coming complex transformations.