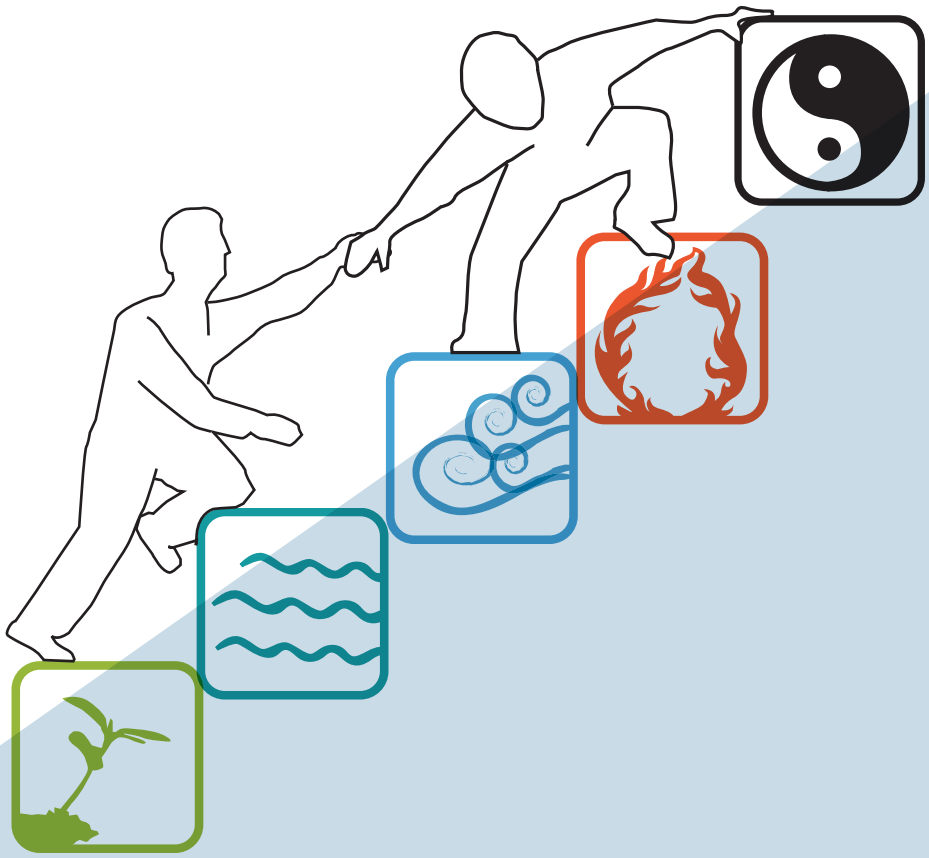
The Five Elements Guide

Structured information to help engage individuals to act strategically towards sustainability



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Strategic Leadership towards Sustainability
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SUMMARY

In order to reach sustainability, all parts of the system "individuals within organisations within society within the biosphere," have to change. In this quest, individuals are major leverage points. Being more efficient in engaging them to act strategically towards sustainability is and will be of critical importance for those who wish to accelerate societal change. To explore how to improve this engagement process, this *Five Elements Guide – Structured information to help engage individuals to act strategically towards sustainability*; structures the information found in a transdisciplinary literature review, and includes three brief examples to illustrate how it can be used.

We believe this Guide can be useful for individuals and organisations with the intention of engaging individuals to take actions leading strategically towards sustainability. It can be used before or during the development of an approach, or when an existing engagement process is not achieving the expected results.

Based upon a deep awareness of strategic actions which move towards sustainability, determinants of human behaviour, and how individuals change and become engaged, this guide is structured into five interconnected and interdependent elements:


The Fifth Element – Think 'Systems'.


Earth – Understand yourself and what you want to achieve.


Water – Understand the other's behaviour and the influence of context.


Air – Understand how change happens.


Fire – Design an approach and perform it.

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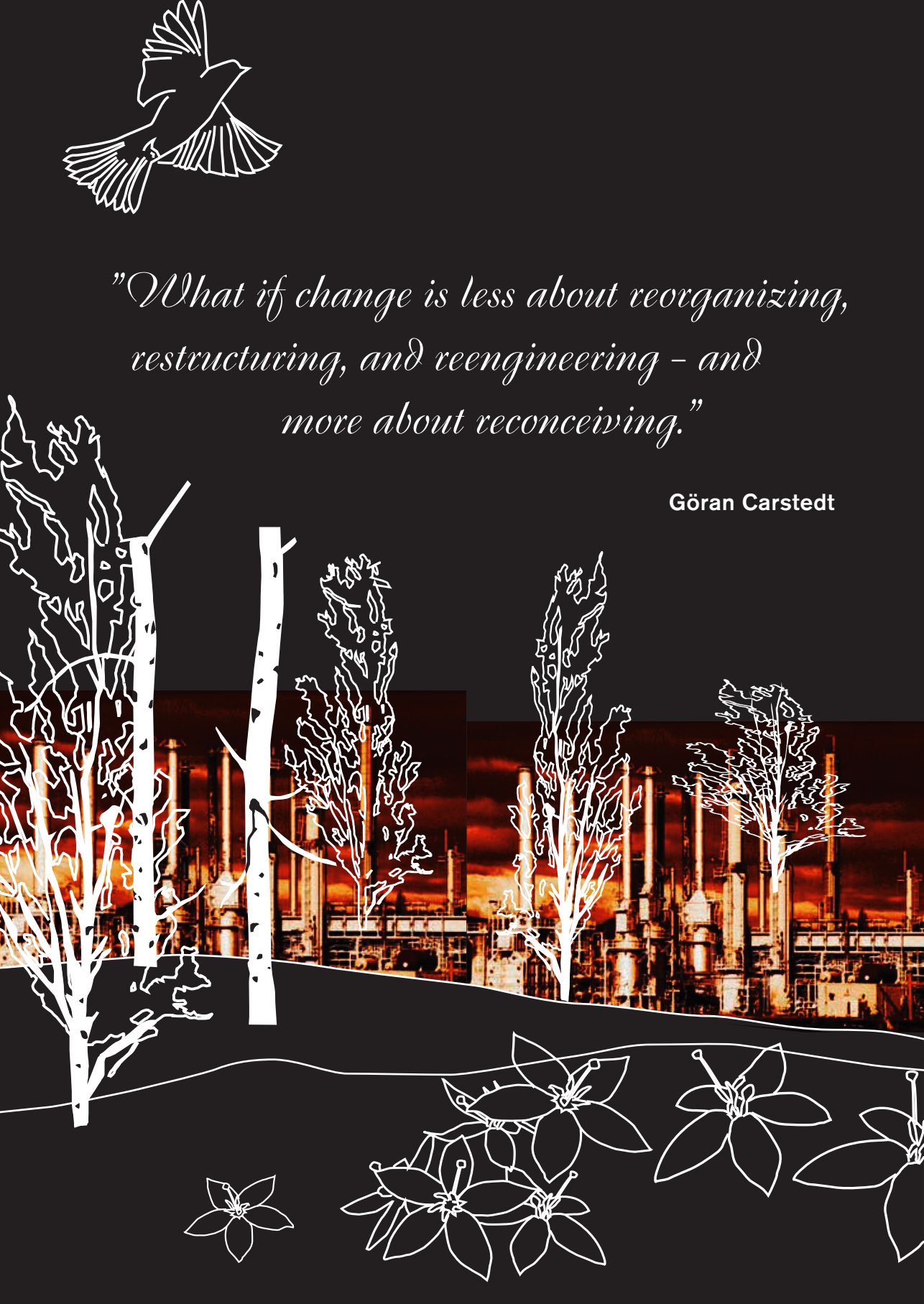


"What if change is less about reorganizing, restructuring, and reengineering – and more about reconceiving."

Göran Carstedt

WELCOME

Why this Five Elements Guide?

Background

> *« Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.»*
>
> Margaret Mead

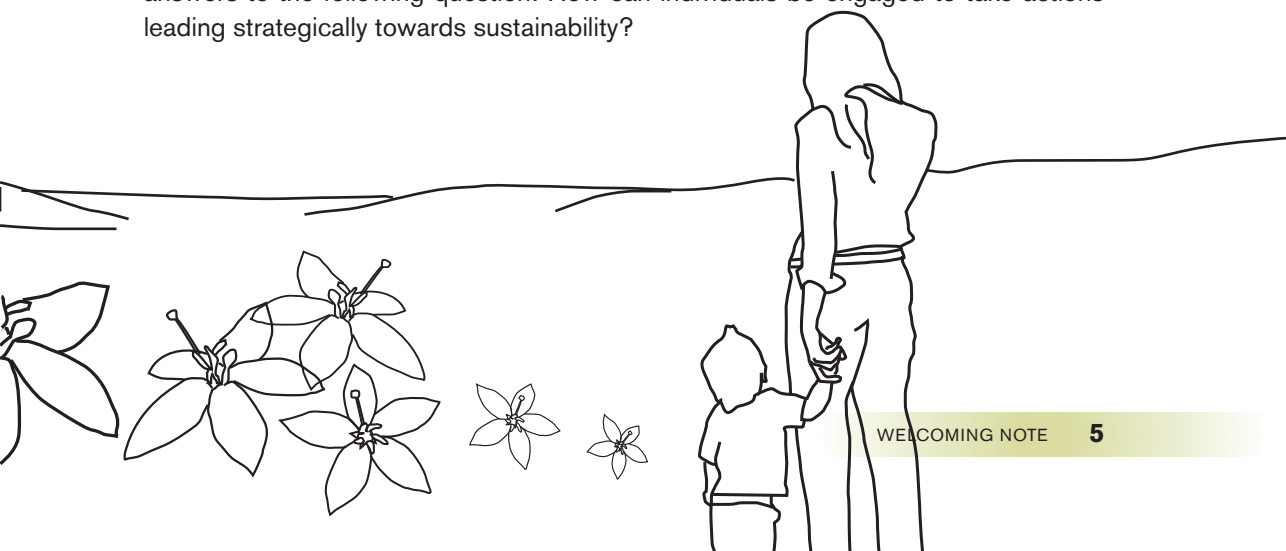
In the last century, in less than a blink of an eye from a geological time perspective, human beings have uncovered from the Earth crust what took billions of years and millions species to clean and detoxify.

In the last 50 years the environmental movement has grown bigger, and there is now a general recognition that working towards sustainability can be a win / win situation, a big opportunity, and not, as may people see it, limiting or frustrating constraints which we have to place upon ourselves.

There are many examples from businesses, NGOs, communities and other institutions showing possible paths forward and benefits of being proactive. But then, why is everyone not clearly engaged in taking action towards sustainability? Why is change so slow? One answer can be found in the following words:

> *« The restrictions in the system 'human society within the biosphere' for arriving at a sustainable society are not to be found in the capacity for production of food, or energy, or technical solutions, or financial means, or even of selfish incentives to support sustainable development. The question is whether there will be enough good leaders in time. »*
>
> Dr. Karl-Henrik Robèrt

For change to take place, the commitment and actions of individuals is critical. We believe that one way to accelerate the needed change towards sustainability is to find answers to the following question: How can individuals be engaged to take actions leading strategically towards sustainability?



Content and targeted audience

The "Five Elements Guide – Structuring information to help engage individuals to act strategically towards sustainability" is an attempt to answer that question. It is designed for the engager, the person who wishes to engage other individuals on this journey towards sustainability.

One can use it before or during the development of an approach, or when an existing engagement process is not achieving the expected results.

Structured in a multi-layered way, you will find: information on individuals' behaviour, psychology, and change process; information and tools on sustainability, engagement strategies, communication, and some other ideas that we believe can be useful to engage individuals to act strategically towards sustainability.

Acting Strategically towards Sustainability

Of course, you will learn more about this subject later in the Guide, but this concept will come back often, and it is important to define it in the very beginning.

Sustainability – using everyday life words, one of the many ways to describe a sustainable society is «One where we all live our lives in a way that everybody else can live theirs anywhere, now and later». Our current world is not sustainable in relationship to at least at least two major aspects: many people on our planet are not able to meet their basic needs, and we are living at the expense of future generations and other life forms.

Acting strategically towards sustainability – it is about planning from a principle definition of success and then developing strategies to arrive at that goal: «Placing ourselves in the future, and imagining that we have reached sustainability, we ask the question: how did we engage individuals back then (i.e., today).»

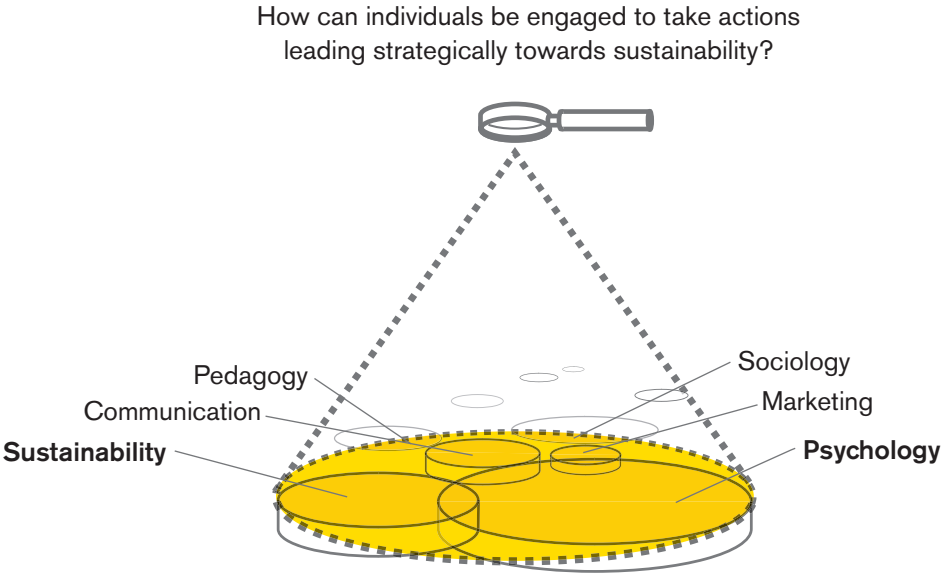
How was this Guide developed? … and who created it!

We, the two authors of this Guide, studied together at a Master's programme entitled 'Strategic Leadership towards Sustainability' at Blekinge Institute of Technology (Karlskrona, Sweden). The latter half of the program focused on a thesis topic of interest to us. The Guide you are reading now is the result of our decision to spend this time on the following question:

« How can individuals be engaged to take actions leading strategically towards sustainability? »

To address this question, we built on previously gained knowledge and experience in the fields of communication, human relationships and strategic leadership towards sustainability. Then, through a broad transdisciplinary literature study, we increased our understanding of determinants of behaviour for an individual, and of how an individual changes and becomes engaged. The areas we looked into include the field of psychology, communication, pedagogy, marketing, and sociology… and of course sustainability.

As represented below, the focus through the study has been to get a high-level understanding without getting lost in details.



Using this Guide to its maximum potential

Because of the complexities surrounding the human mind and behaviour, and the concept of sustainability, there is no way to make a cookbook of sure-fire recipes on how to engage individuals to act strategically towards sustainability. What we have found, however, is that there are 'ingredients' from many areas that seem to gather a broad support, and that can be useful to consider when planning such an engagement process.

We realised quickly that one of our biggest challenges, and hopefully achievements, was not in finding especially new or revolutionizing information, but to structure the information into a usable format. We believe the Guide is a pretty intuitive solution. The information is divided into three levels followed by some examples developed using the Guide. But just in case, let us explain how you can use this Guide to the maximum of its potential.

Level 1- The Five Elements

The Five Elements is the metaphor we used as the backbone of our results. The Five Elements – Think 'Systems', Earth, Water, Air, and Fire – function as a principal structure for the more detailed information, and as a guiding overview for aspects that should be considered when engaging individuals to act strategically towards sustainability.

Even if you are free to go directly to specific information you are interested in, we do recommend you start by getting to know each of the Five Elements. Always keep in mind that all Five Elements are interconnected and interdependent: all of them are necessary to reach optimum results.

Level 2- The key information

In the key information each Element is further developed. It includes a number of important findings that give the reader a high-level overview of what one should be aware of.

At this level, each point includes one, or several links to specific page numbers in the in-depth information section. The idea is for you to have the flexibility to:

- Read only the key information;
- Read the key information with the freedom to explore a specific subject in depth as per your interest; or,
- Completely read the key information first, followed by some or all of the in-depth information.

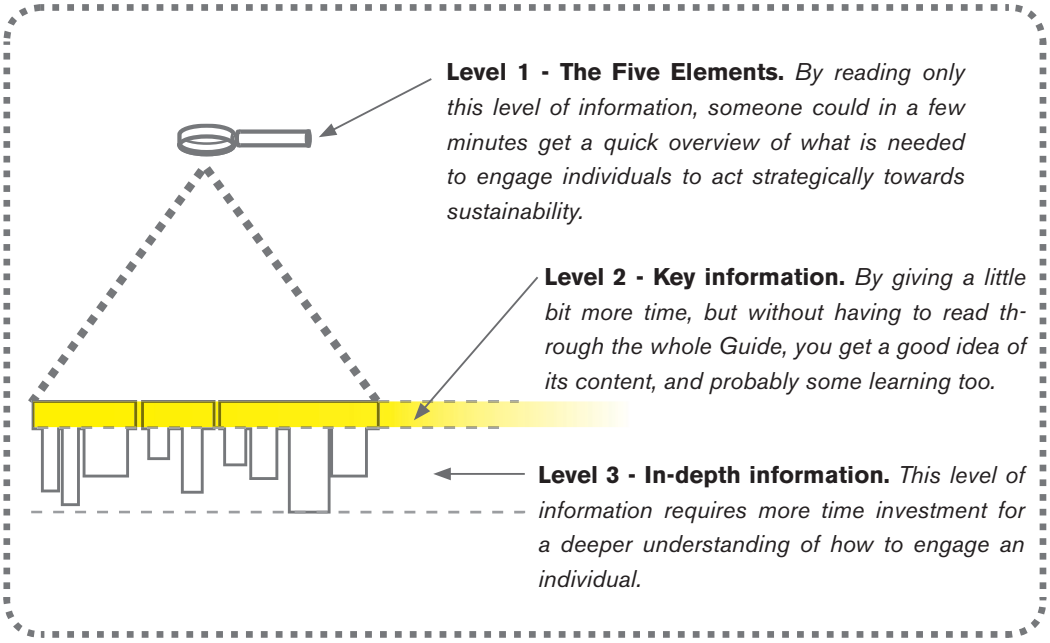
The connection between one point in the key information and the next is that they belong to the same Element. There might be no connection other than this.

Level 3- In-depth information

Here we gathered concepts, notions, and tools that you can use to understand a lot of facets on how to engage individuals to act strategically towards sustainability. This level of information serves three purposes:

- To support and expand the findings we highlighted in the key information.
- To provide tools, stories and examples for the engager.
- As a starting point for readers who wish to go even deeper into a particular subject, by using the external references provided.

We do recognise that it is not possible to cover all the existing information of all the related fields. Neither is it possible to find one model or one concept per field that everyone would agree with. Hence, we decided to give an overview of the main concepts, often using more than one way to present them, and with the overall intention to reach a variety of readers and learners.



Illustrative examples

This Five Elements Guide ends on three illustrative examples that show how the Guide can help analyse and improve existing practices, and how it can be used to create new engagement interventions.

THE FIVE ELEMENTS

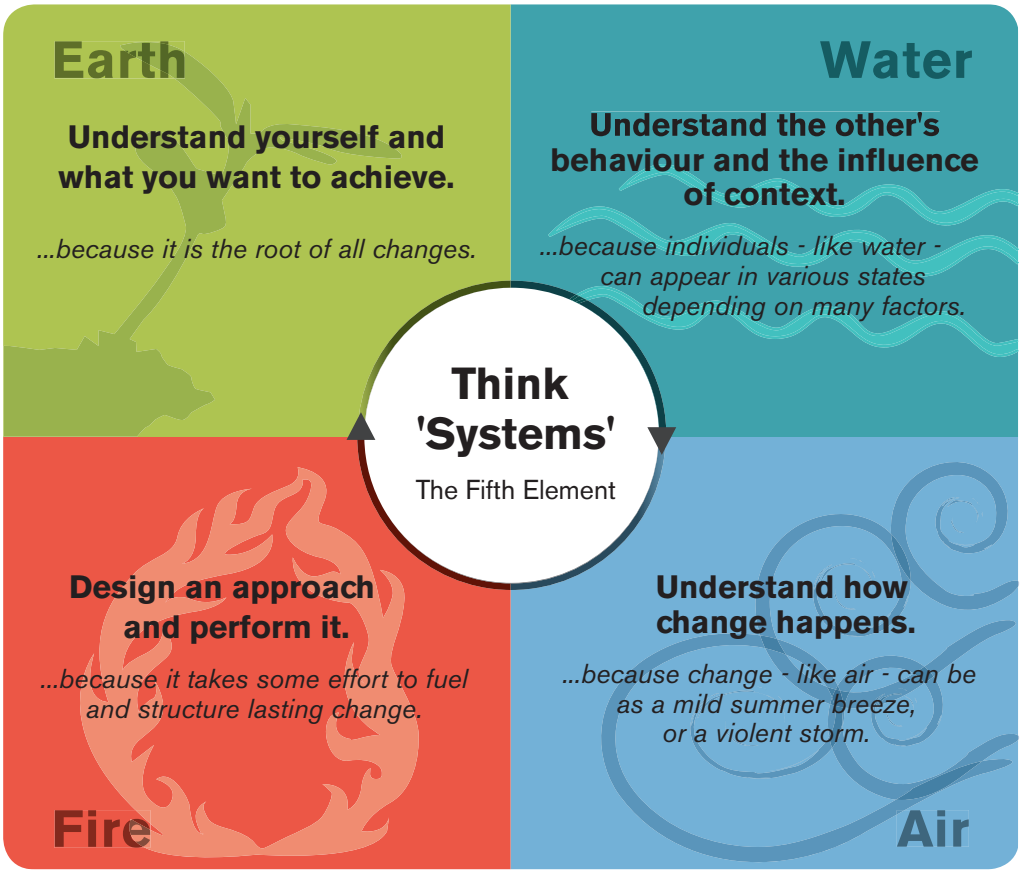
From the information gathered in our literature review five areas emereged that we describe as:

- Understand yourself (the engager) and what you want to achieve (strategic actions towards sustainability).
- Understand the other's behaviour and the influence of context ("the other" being the individual one wants to engage, a semantic way in to distinguish between the engager and the engaged).
- Understand how change happens.
- Design an approach and perform it.
- And a fifth area addressing how all of these groups of information are interconnected and interdependent, i.e., "systems thinking."

When looking for a vivid and efficient way to communicate this information, we came up with a cinematographic reference (Luc Besson's "The Fifth Element" with Bruce Willis and Milla Jovovich) where a fifth element combines with the four existing elements (Earth, Water, Air and Fire) to 'defeat evil', something which the five elements only can do together. The similarities between our five information groups and the five elements made us realise that the metaphor could be used to communicate our five information groups. The result is the Five Elements as you can see them in the figure on the right.

Within the resource and time constraints we had to develop this Guide, we have explored from a high level perspective if the five areas cover the subject. Our conclusion is that they are relevant, necessary and enough. We welcome any feedback on this subject (and on the whole Guide too …).

In the next pages, you will find the second and third levels of information, which we call Key information and In-depth information. Both levels are structured around the Five Elements. Keeping in mind that all Elements are interconnected and interdependent, we encourage you to come back and review the graphic description of the Five Elements from time to time.



The Five Elements are the backbone of the Guide. The Five Elements – Think 'Systems', Earth, Water, Air, and Fire – function as the principal structure for the more detailed information, and as a guiding overview for aspects that should be considered when engaging individuals to act strategically towards sustainability. By only reading this level of information, you can in a few minutes get a quick overview of what is needed to engage individuals to act strategically towards sustainability.

KEY INFORMATION

Think 'systems' – The Fifth Element

22-28

What is a system?

23

"Anything which takes its integrity and form from the ongoing interaction of its parts."

Peter Senge

The biosphere, society, organisations, television sets, computer games, cells, and human behaviour are all systems. What all of these systems have in common is that change in one part of the system will have effects in another part or parts of the system.

Systems thinking

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Descriptions of systems thinking are generally based on the idea that it is only by recognizing the interdependence of its different parts that one can start to understand a system. Another important notion is that the interaction of the parts is not often easily explained in any mechanistic way. Systems thinking helps you think, and act more effectively towards desired goals in the system, no matter what problems and opportunities you may face in the future.

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Change, leverage points, and systems

There are many different places to intervene in a system; many parts that can be used as potential leverage points to bring about change. Deciding which leverage point to influence depends upon the goal and the resources available. There is no simple recipe for finding appropriate leverage points. Sometimes a goal can be reached by influencing small things such as single parameters in the system and other times the design of the system is what causes the problem, and the system has to be redesigned, or the goal redefined.

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A Five level Model for planning in complex systems

Robèrt offers a five level model for planning in complex systems. The five level model makes it clear that it is only by understanding how the system functions, and by having a clear view of what one wants to achieve in the

system that one can determine strategies, guide actions and use tools strategically towards that goal.

1.	**System**	Understand the system.
2.	**Success**	Determine favourable *outcomes* in the system.
3.	**Strategy**	Determine *how* to reach a favourable outcome in a system.
4.	**Actions**	Carry out actions that are in line with the strategy 3) for how to reach success (2) in the system(1).
5.	**Tools**	Use tools and concepts that help guide actions, monitor progress, and build capacity.

The 5-level model for planning in a complex system

30-47

Earth – Understand yourself and what you want to achieve

Understand yourself

31

It is important to understand why you take actions leading strategically towards sustainability and why you want to engage others: what is it that motivates you? You should also learn about your own strengths and weaknesses, limitations and resources, so that you can better engage others.

To gain a better understanding of these aspects you can look to the elements “Water” and “Air”. You are an individual too, and your behaviour is influenced by the same factors as the individuals you want to engage.

Understand what you want to achieve

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For the purpose of this project, “understand what you want to achieve” is to understand what it means to engage individuals to act strategically towards sustainability, and to understand what it takes to achieve a lasting change towards sustainability.

“Engage individuals…”

To engage individuals is to lead them on a path of discovery where they learn new and different ways of thinking and behaving.

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"…to act strategically…"

If an action leads in the right direction towards a desired goal or vision, provides a platform for future strategic actions, and provides enough return on investment to allow further strategic actions, then it can be defined as a strategic action. Being strategic requires backcasting which implies that at the starting point of the planning, an envisioned successful future outcome has been clearly defined.

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"…towards sustainability"

Based on the system conditions for sustainability, the goal of an individual's strategic actions towards sustainability is to:

…eliminate the individual's contribution to systematic increases in concentrations of substances from the Earth's crust.

…eliminate the individual's contribution to systematic increases in concentrations of substances produced by society.

…eliminate the individual's contribution to systematic physical degradation of nature.

…eliminate the individual's contribution to the systematic undermining of human's capacity to meet their needs worldwide.

An even larger vision for the individual would be for him to promote the elimination of society's violation of the four conditions, to reach a society "that meets the needs of the present without compromising the ability of future generations to meet their own needs."

35-47

Achieving a lasting change towards sustainability

As the other elements of the key information will support, achieving a lasting engagement requires among other things, that the individual takes concrete actions and that he values the credibility of the information presented. Hence, to be able to inspire, guide and answer questions from the individual you wish to engage to act strategically towards sustainability, it is important for you to be aware of:

35-40

1. The current reality.

40-43

2. The sustainability opportunity and existing successes.

44-47

3. Useful tools and concepts.

Water – Understand the other's behaviour and the influence of context

48-73

Overview of factors determining behaviour

49

Many factors have been identified to influence behaviour, most easily divided into two broad categories, internal and external:

- ***Internal factors.*** Attitudes, beliefs, values, worldviews, connectedness with nature and others, emotional involvement, behaviour specific skills, locus of control, perceived cost, sustainability awareness, motivation, intention, commitment, old habits, different intelligences, decision making, etc.

58-68

- ***External factors.*** Context, physical environment, infrastructure, resource availability, social norms and roles, culture, economy, etc.

69-73

The relative importance of the factors varies between individuals, over time, and with various situations and contexts. The convictions of your heart and the actual content of your thoughts (internal) are always balanced with the immediate context of your behaviour (external). There are three factors can be seen as "necessary and sufficient" for generating behaviour. That is for a given behaviour to occur, an individual must:

49-51

…have strong intentions (or made a commitment) to perform the behaviour,

…have the necessary skills to perform the behaviour,

…not be restricted by environmental constraints.

Apart from the necessary skills that the individual needs to be able to perform the behaviour, he also has to have an understanding that guides his actions strategically towards sustainability (see "Earth – What you want to achieve").

As an example of the diversity of the internal and external factors, we have listed a few below which may help to understand the other's behaviour and the influence of context.

Highlighting a few internal factors

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Motivation. Motivation is shaped by the following three components that determines which behaviour is chosen from all the possible options:

- ***Direction:*** what a person is trying to do.
- ***Effort:*** how hard a person is trying.
- ***Persistence:*** how long a person continues trying.

59

An individual's behaviour can be motivated by a concern for himself (egoistic), for others (altruistic or enlightened self-interest), and/or for the biosphere.

62

Attitudes. Attitudes are the positive or negative feeling about some person, object, or issue. They are often wrongly thought to be the primary determinant of behaviour. They do have a greater influence on behaviour when:

- we are aware of them,
- they are strongly held,
- they are directly related to a specific behaviour,
- there are few counteracting situational and external factors.

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The trap of decision making – freezing effect. Once a decision is made, justified or not, individuals tend to repeat the actions associated with that decision, even if it has unsuspected effects. A seemingly insignificant "yes" to a small request can influence us to behave in a totally different way we may have otherwise. This is known as a "freezing effect."

67

Locus of control. Locus of control represents an individual's perception of whether he has the ability to bring about change through his own behaviour.

Highlighting a few external factors

51, 69

The power of context. Human beings often make the mistake of overestimating the importance of internal factors and underestimating the importance of the situation and context. As an example, even if the intention exists to use renewable energy, this may not be an option for many people because of the absence of infrastructure or the extra initial cost.

72

Culture. Culture influences how an individual learns, perceives, categorizes, believes, and behaves in relation to his environment. It is helpful to keep in mind that, as individuals, we see the world less "as it is" and more "as we are."

70

Social diffusion. Human choice is not a straightforward mechanical process of calculating what is best for the individual. Individuals often adapt ideas and behaviours that they encounter around them – they do as others do. An individual can be affected more by a friend's experience than an expert's judgment, by neighbor's expectations more than by personal inconvenience or cost.

Air – Understand how change happens

The illusion of "information → attitude change → behaviour change."

74-89

75

Especially in the field of pro-environmental behaviour, many studies show the inefficiency of communication campaigns and strategies based on the simplistic assumption that more knowledge will automatically lead to more enlightened behaviour. Lack of knowledge, awareness, and appropriate attitudes are significant, however not the only factors that can prevent change.

How does an individual change?

76

Although we did not encounter a commonly agreed upon model for the change process, we have provided two examples that seem to be representative of the many models we reviewed:

77

- Unfreeze → Movement → Freeze
  - Unfreezing: recognise the need for change by identifying driving and resisting forces.
  - Movement: change is implemented through a strategy which decreases resisting forces.
  - Freezing: reinforce new behaviour and be open to feedback.

A cyclical model going through:

79

1. Security, a pre-change phase,
2. Anxiety caused by the loss of old familiar patterns and processes,
3. Discovery during which new information, skills, and behaviours are uncovered,
4. Integration, during which the new information, skills and behaviours are used to develop new practices and processes

When is change likely to happen?

84

Perceived value difference. Change is likely to happen when the individual perceives difference in value between the old and the new way of doing things as greater than the perceived 'cost' of the switch (in terms of money, effort, time, discomfort, inconvenience, etc).

Facing threats. Threats can be strong incentives for change along certain conditions: when the individual perceives that the problem is serious, that it is likely to affect him, that it can be avoided by taking certain specific action, and that he is capable of performing the behaviour. Too much fear and a feeling of helplessness are likely to lead to maladaptive responses.

84

85

Empowerment. Empowerment is a process through which individuals and groups gain power from within themselves by understanding their situation, their own value and strength, and their own capacity to handle problems that they meet in life. That is, switching from "I cannot" to " I can" or "we can".

What promotes a lasting change?

87

Different types of commitment. An individual's type of commitment influences the kind of change that can be reached. One can differentiate between four forms of commitment which combine in various ways to make up a four levelled hierarchy from the shallowest to the most profound. Understanding commitment in its various forms is central to their purposes:

- Political (commitment to something in order to gain something else).
- Intellectual (commitment of the mind to a good idea) or Emotional (commitment that arises out of strong feelings).
- Intellectual and Emotional.
- Spiritual (commitment to a higher purpose).

88

A feeling of freedom leading to voluntary change is a very efficient type of engagement if the goal is a long lasting behaviour change. Authority, manipulation, and persuasion can all have an impact on behaviour, but may not yield the best results on a longer time scale. This is why "inviting someone to something purposeful, meaningful, and learningful" may seem a good strategy for engagement.

Fire – Design an approach and perform it

90-111

Take the other four elements into account!

91

- ***Fifth Element:*** Be aware you're dealing with systems.
- ***Earth:*** Understand yourself and what you want to achieve.
- ***Water:*** Understand the other's behaviour and the influence of context.
- ***Air:*** Understand how change happens.

Example: It can be better to spend one's efforts on removing external barriers that lie beyond the individual's influence, than trying to engage the individual to influence internal factors.

A few strategies to guide interventions

Change can be brought by promoting the new, critiquing the old, and supporting/ facilitating the switch. 91

Levers of change. Gardner claims that human beings have a set of relatively autonomous intelligences and that no two people possess exactly the same profile of intelligences. Building on this, he later identified seven "levers" that can have a significant impact on the process of mind change: 92

- *Reason* (making logical arguments)
- *Research* (presenting factual data)
- *Resonance* (connecting with an individual's or group's emotional or spiritual core)
- *Representational redescriptions* (presenting the same idea in multiple formats, reflecting our various intelligences)
- *Resources & rewards* (offering positive or negative reinforcement)
- *Real world events* (leveraging happenings that are out of your control)
- *Resistances* (identifying and countering longstanding, contrary beliefs)

Involvement of the audience. Much can be gained in terms of support and increased chances of success by including the individual(s) in the development and execution of an engagement strategy. 93

Multiple intervention strategies. Use multiple intervention strategies to account for the many factors that influence an individual, and the differences between individuals. 95

Pilot, test, and continuously monitor, evaluate and adjust the intervention strategy. 95

Some possible interventions 97

Information and communication. The individual has to be able to relate to the information with his own interest, experience, intelligences, culture and imagination. 98-107

Providing information works better when it takes some principles for effective communication into account, including:

- Capturing attention by using vivid, concrete and personalised information (ex: stories or graphs); 99

100, 102

- The type of information and the amount of information; and

101, 102

- The credibility of the communicator, the framing of the message, and considering the use of appeals to threat and/or opportunities.

105

The theory of committing communication suggests to move towards "Who says what, to who, in which canal, having him do what, and with what effect?", adding the importance of linking action to information. The action improves the chances of changing the individual's behaviour.

106

Depending on the culture the other individual is from, he may pay a different level of attention to certain kinds of information from his environment. "Some sample the content of communications more than the context (e.g. tone of voice, gestures), whereas others do the reverse."

107

Interpersonal interaction. A few interpersonal communication techniques can help solve and avoid conflicts, and increase communication effectiveness. Robèrt highlights the "Yes, and" and "Asking Advice" techniques which help create a more constructive dialogue.

108

Laws, Regulations, Incentives. These tools are not always available for everyone, but they can be part of a good approach to engage an individual as long as it is understood that they do not necessarily lead to long-lasting changes.

109

Compliance techniques. Compliance techniques allow for engagers without power or ability to pressure to have other individuals perform an action they normally would not. It also has the advantage that the engaged individuals feel they have acted freely based on their own ideas and values. These techniques are widely used in marketing and communication, and increasingly in recycling and energy saving campaigns.

109

One example is the Foot-in-the-door which begins with asking a person to comply with a small request, often called preparatory act. Compliance with the small request enhances the probability of compliance with a larger request later.

Concluding thoughts – Key Information

We have now gone through the Five Elements, and the content of the key information part of our results. We feel it is important to remember that:

- Each of the Five Elements informs an important aspect of engaging an individual to act strategically towards sustainability.
- The Five Elements are interconnected and interdependent.

As you continue through the remainder of the Guide, you may want to occasionally return to the Key Information and the Five Elements to maintain the overarching perspective of how the In Depth information relates to the ultmate goal of engaging individuals to act strategically towards sustainability.

IN-DEPTH INFORMATION

Coming up next is the in-depth information section where we have gathered concepts, ideas, and tools that can be used to understand many of the facets surrounding how to engage individuals to act strategically towards sustainability. This level of information serves three purposes:

- To support and expand the findings we highlighted in the key information.
- To provide tools, stories and examples for the engager.
- As a starting point for readers who wish to go even deeper into a particular subject, by using the external references provided.

This level of information requires more time investment for a deeper understanding of how to engage individuals to act strategically towards sustainability. It can be read from the beginning to the end, or you can visit specific sections based on those that interested you in the Key-Information section.

THE FIFTH ELEMENT - THINK 'SYSTEMS'

What is a system?

Systems thinking

Change, leverage points, and systems

A Five level Model for planning in complex systems

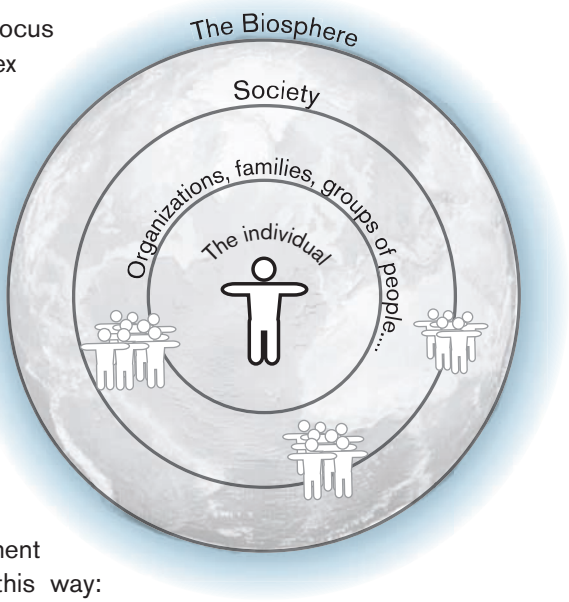
What is a system?

« You think because you understand 'one', you must understand 'two', because one and one make two. But you must also understand 'and'. »

Ancient Sufi saying

A system can be described as "anything which takes its integrity and form from the ongoing interaction of its parts". Companies, nations, families, biological niches, bodies, television sets, personalities, and atoms are all systems. What all of these systems have in common is that change in one part of the system will have effects in another part or parts of the system [1].

In this Five Elements Guide, we especially focus on the system "Individual," quite a complex task, even without adressing the biological functioning of this system. What we do consider is mainly the individuals inner domain and the interaction between the individual and the bigger systems he is part of, i.e. "organisations within society within the biosphere". [2]



Below, we highlight three general concepts that help to gain a better understanding of what a system is and what it implies [3].

Problems are interdependent. Management systems pioneer Russell Ackoff puts it this way: "Managers are not confronted with problems that are independent of each other." People are confronted, he says, only with dynamic situations that consist of complex systems, of changing problems, interacting with each other. His term for such systems is "messes." Purely analytical techniques will not serve managers. Their job is managing messes, and they need "the active, synthetic skill of designing a desirable future and inventing ways of bringing it about."

The system is already doing exactly what it is "supposed to do." In some way, the system you're trying to understand (your home, work, community, or nation) is operating precisely as it is designed, to satisfy some particular (and often hidden) set of priorities. If you're unhappy with your system's performance, look at the benefits that various parts of the system gain from the performance that makes you unhappy.

No one is to blame. Systems determine the behaviour of people more than people determine the behaviour of systems. Changing the players, or "fixing" their behaviour by commanding them to act differently, won't solve systemic problems. But if you can figure out the right people to involve in conversation, together you can all begin to rethink and redesign your system.

Systems thinking

Five kinds of Systems thinking [3]

In work that involves organizational learning, "systems thinking" has always meant the "loops and links" of system dynamics (all components of a system are mapped out, and links are created between them, allowing for modelling and understanding the system). But some people react to these in frustration. They can't quite figure out how to take their complex problems and translate them into a relevant, clear set of archetypal structures, let alone a systems model. In the end, there is not one kind of systems thinking, there are probably many; each appropriate to the attitudes and learning styles of different people. Charlotte Roberts describes five of them.

Open systems: seeing the world through flows and constraints; open systems work starts with the idea that the whole of a system is more than the sum of its parts.

Social systems: seeing the world through human interaction; a family exists with the goal of giving children a stable and nurturing place to grow.

System dynamics: seeing the world through ongoing patterns of influence; system understanding (often through diagrams) help recognize the presence of reinforcing and limiting forces.

Process systems: seeing the world through information flow; process mapping, for instance, gathers a cross-section of people together to chart the flow of work – either as it is today, or as it could be in an ideal future.

Living systems: seeing the world through the interaction of its self-creating entities; this perspective assumes that human groups, processes and activities are self-organizing. Instead of looking for particular leverage points, a living system thinker might listen for "where the system wants to go". By amplifying or intensifying people's awareness of that direction, new behaviours will naturally emerge, and propel the overall pattern of the system across a threshold into a new form.

Most people seem to have a tacit, unspoken preference for one or another approach. They tend to fall back on that method when asked to think about "systems." For example, engineers are more comfortable with system dynamics; computer people, with information flow; biologists, with living systems. In practice, each type of systems thinking has its own value while all are complementary to each other.

All five approaches to systems thinking are based on the idea that the forces in a system are complex, and their interaction can't be predicted in any mechanistic way. Systems thinking helps you think, and act more effectively towards desired goals in the system, no matter what problems and opportunities you may face in the future.

Change, leverage points, and systems

> *« People know intuitively where leverage points are… Everyone is trying very hard to push it in the wrong direction! »*
>
> Jay Forrester, MIT

As an invitation to think more broadly about the many ways there might be to achieve change within systems, Donella Meadows proposes a list that she calls "a work in progress, not a simple, sure-fire recipe for finding leverage points." "A leverage point is a part of the system that has especially strong influence upon the system. In increasing order of effectiveness, she proposes the following 12 places to intervene in a system [4]:

12. Constants, parameters, numbers (such as subsidies, taxes, standards).

11. The sizes of buffers and other stabilizing stocks, relative to their flows.

10. The structure of material stocks and flows (such as transport networks, population age structures).

9. The lengths of delays, relative to the rate of system change.

8. The strength of negative feedback loops, relative to the impacts they are trying to correct against.

7. The gain around driving positive feedback loops.

6. The structure of information flows (who does and does not have access to what kinds of information).

5. The rules of the system (such as incentives, punishments, constraints).

4. The power to add, change, evolve, or self organize system structure.

3. The goals of the system.

2. The mindset or paradigm out of which the system–its goals, structure, rules, delays, parameters–arises.

1. The power to transcend paradigms.

We found the deeper explanation she pffered for three of those leverage points to be of special interest.

"On parameters. Parameters are the points of least leverage on the list of interventions. Diddling with the details, arranging the deck chairs on the Titanic. Probably 90–no 95–no 99 percent of our attention goes to parameters, but there's not a lot of leverage in them. Not that parameters aren't important. They can be, especially in the short term and to the individual who's standing directly in the flow. People care deeply about parameters and fight fierce battles over them. But they rarely change behaviour. (…) Parameters become leverage points when they go into ranges that kick off one of the items later on the list.

On information flows. There was this subdivision of identical houses, the story goes, except that for some reason the electric meter in some of the houses was installed in the basement and in others it was installed in the front hall, where the residents could see it constantly, going round faster or slower as they used more or less electricity. With no other change, with identical prices, electricity consumption was 30 percent lower in the houses where the meter was in the front hall.

About changing a society's paradigm. In a nutshell, you keep pointing at the anomalies and failures in the old paradigm, you keep speaking louder and with assurance from the new one, you insert people with the new paradigm in places of public visibility and power. You don't waste time with reactionaries, rather you work with active change agents and with the vast middle ground of people who are open-minded." [4]

Meadows concludes with an interesting statement that "in the end, it seems that power has less to do with pushing leverage points than it does with strategically, profoundly, madly letting go."

Visualising systems thinking [5]

Among many other abilities, a systems thinker can change perspectives to find new leverage points in complex systems. One easy exercise to realise how changing perspectives work is to:

1. Stand up, point a pen (or your finger) at the ceiling and draw circles in a clockwise direction.
2. Keep drawing circles in the same direction and slowly bring the pen down until you can watch it from above. Continue to draw the circles.
3. In what direction is the pen moving now?
4. Of course, bringing the pen down did not change the direction of the movement, but the observer's perspective has changed!

An example of systems thinking for education

In education today, people are trying to improve a system that is the wrong system, rather than making the system right. The system is wrong because of several assumptions that underlie the concept of how to educate. People assume that the best way to learn something is to have it taught to you and that educators know what students will need when they leave school. Other misassumptions include failing to distinguish among problems, exercises, and questions, and forbidding the answering and asking of certain questions.

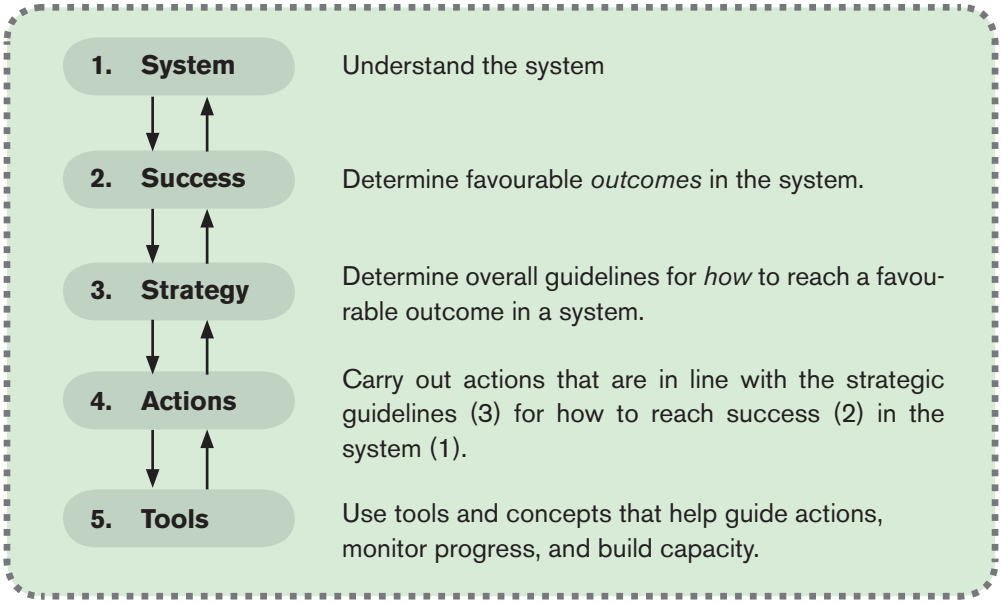
Teaching is a marvellous way to learn; being taught is a terrible way. School is backward--the students ought to be teaching and the teachers learning. Not too long ago, people conducted experiments reversing the direction of computer-assisted instruction. There are very few courses where the attempt to use computers to teach children arithmetic or mathematics has succeeded. Usually the children drop them before the end of the semester. But a recent experiment in which the children were given the task of teaching the computer how to do arithmetic was tremendously successful. We have to reverse the roles. The role of a teacher should be to encourage and facilitate learning; the teacher should be a resource the students can use as the students see fit, not as the teacher does.

Exercises distort the learning process. The question distorts it further because it's an exercise from which the reasons for wanting to answer it are removed. So we ask a kid, "How much is 2 + 2?" Do you all think you know the answer? You don't even know what the question is, because I haven't identified the reason I want to know the answer. The answer, if I'm talking about 2 degrees Fahrenheit, is very different from whether I'm talking about two tables or chairs. If I add 2 degrees Fahrenheit and 2 degrees Fahrenheit, I get 2 degrees Fahrenheit, not 4. We don't make the distinction. Furthermore, even the problem is an abstraction from reality. We don't experience problems. Reality is a complex system of interacting problems and we extract problems from reality by analysis. But we raise children with the impression that problems will constantly be given to them rather than that they have to take them. The art of extracting problems out of reality is something the schools don't teach.

Extract of an article written in 1993 by Russell Ackoff: Rethinking Education [6]

A Five Level Model for planning in complex systems

Robèrt [7] describes a five level model for planning in a complex system. The figure below describes the five interdependent levels, and then the examples of chess and the air transport system are used to illustrate it.



The example of chess and the air transport system:

System – For instance, the principles that define chess (the make up of the game with its rules for how to move and take the pieces from your opponent) or society's infrastructure for an air transport system (boundaries that describe the interrelated functions of airlines, airplanes, airports, authorities, etc.).

Success – In chess, there are the principles for checkmate. In the case of an air transport system, the principles determining favourable outcomes would be that (a) frequent enough airplane flights (b) arrive at the right destination, (c) safely, (d) comfortably, and (e) on time.

Strategy – In these cases strategic principles in chess, or for supervising, operating and navigating of airplanes.

Actions – The series of chess moves or of concrete activities that make all the technical facilities and logistics of the air transport system work in line with the principles for a favourable outcome.

Tools – For instance, documentation and studies of smart strategic moves in chess that can improve the player's game, or measures to determine that the speed, direction, and altitude are in line with the planning of a flight, that the remaining fuel in the tanks is sufficient, etc.

EARTH - Understand yourself and what you want to achieve

Understand yourself

Understand what you want to achieve

"Engage individuals…"
"…to act strategically…"
"…towards sustainability"

Achieving a lasting change towards sustainability

The current reality

Tragedy of the commons and our ability to notice things
About indicators: a discussion on GNP
About technology: the history of CFCs
Graphical presentation of unsustainability - The funnel
Who will we need to make it through the funnel?

The sustainability opportunity and existing success

The sustainability opportunity
Finding inspiration in existing successes
Gaviotas – Electrolux – Whistler – Scandic – Porto Alegre – Interface

Useful tools and concepts

The Natural Step Framework
Agenda 21
Environmental Management Systems
Ecological Footprint
Factor 10
Life Cycle Assessment

Understand yourself

It is important to understand why you take actions leading strategically towards sustainability and why you want to engage others: what is it that motivates you? You should also learn about your own strengths and weaknesses, limitations and resources, so that you can better engage others.

The simple act of considering these self-assessment questions could be sufficient for the purpose we are focusing on (getting better at engaging individuals to act strategically towards sustainability). But if one wants to go deeper into the concepts around self-awareness, below are two different and broad suggestions we propose to the reader.

Hardly a week passes without an article or a test on "getting to know yourself better" in one of the numerous men's or women's magazines, and maybe as many in scientific journals. Not trying to compete with all this material, we can say that to gain a better understanding of these aspects you can look in the elements "Water" and "Air" of this Guide. You are an individual too, and your behaviour is influenced by the same factors as the individuals you want to engage.

Morin [8] refers to self-awareness as the capacity to become the object of one's own attention, in which the person actively identifies, processes, and stores information about the self. It is an awareness of one's own mental states (e.g. perceptions, sensations, attitudes, intentions, and emotions) and public self-aspects (e.g. behaviours and general physical appearance). His model of self-awareness proposes the existence of three sources of self-information. First, the social milieu includes early face-to-face interactions, self-relevant feedback, a social comparison mechanism that leads to perspective taking, and audiences. Second, contacts with objects and structures in the physical environment foster self–world differentiation in infants; this environment also contains self-focusing and reflecting stimuli, such as mirrors and video cameras. Third, the self can reflect on itself using imagery and inner speech, and can develop bodily awareness through proprioception (the ability to sense the position and location and orientation and movement of the body and its parts).

Understand what you want to achieve

For the purpose of this Guide, "understand what you want to achieve" is to understand what it means to engage individuals to act strategically towards sustainability, and to understand what it takes to achieve a lasting change towards sustainability. This section focuses on further exploration of the meaning of "Engage individuals", "to act strategically" and "towards sustainability"

« Engage individuals… »
We define "engage individuals" as the action of leading them on a path of discovery where they learn new and different ways of thinking and behaving.

« …to act strategically… »
If an action leads in the right direction towards a desired goal or vision, provides a platform for future strategic actions, and provides enough return on investment to allow further strategic actions, then it can be defined as a strategic action. Being strategic requires backcasting which implies that at the starting point of the planning, an envisioned successful future outcome has been clearly defined [9].

Backcasting stands out as an alternative to traditional forecasting [10]. It is a method in which the future desired conditions are envisioned and steps are then defined to attain those conditions, rather than to take steps that are merely a continuum of present methods extrapolated into the future. Backcasting is particularly useful when:

- The problem to be studied is complex;
- There is a need for major change;
- Dominant trends are part of the problem;
- The problem to a great extent is a matter of externalities; and,
- The scope is wide enough and the time horizon long enough to leave considerable room for deliberate choice.

In the case of planning to reach sustainability, the above criteria clearly present the value of using a backcasting methodology.

A commonly applied backcasting strategy is to backcast from scenarios, building on the envisioning of a simplified picture of success. It can be related to doing a jigsaw puzzle, where the player is helped by a more or less specific picture of the expected outcome. This approach, based on scenarios, can have disadvantages in the case of sustainable development [2]:

- Large groups may have difficulties reaching a common vision of a sustainable outcome because of differences in values, backgrounds, etc;
- Technical or political unexpected changes can make the scenario irrelevant;
- It is not a natural way to plan for individuals; using the metaphor of chess, one knows how success is defined (checkmate for chess), and there are a very large number of winning combinations.

This is why it is recommended to backcast from basic principles for a sustainable society (which are described below). From this commonly agreed principle definition of success, initial concrete steps can serve as flexible stepping-stones in the right direction, and be continuously re-evaluated along the way. That way, the number of potential

ways to reach success remains large while the probability of selecting winning moves increases dramatically [2].

« *…towards sustainability* »

Based on the system conditions for sustainability from Robèrt et al. [2, 9], the goal of an individual's strategic actions towards sustainability is to:

…eliminate the individual's contribution to systematic increases in concentrations of substances from the Earth's crust.

…eliminate the individual's contribution to systematic increases in concentrations of substances produced by society.

…eliminate the individual's contribution to systematic physical degradation of nature.

…eliminate the individual's contribution to the systematic undermining of human's capacity to meet their needs worldwide.

The above system conditions have been developed in a process we will describe briefly below.

Since there is no limit to the number of possible designs of sustainable societies, the definition had to be searched for on the principle level – any sustainable society would meet such principles. Since sustainability was a non-relevant expression until non-sustainability started to exist due to human activities, it is logical to design the system conditions as restrictions, i.e. principles that determine what human activities must not do [10].

A scientific consensus process led to the formulation of the four basic principles for sustainability. First, basic principles of socio-ecological non-sustainability were identified by clustering the myriad of downstream socio-ecological impacts into a few well-defined upstream mechanisms. Thereafter a "not" was inserted in each to direct focus to the underlying system errors of societal design [10]. Below are the four Sustainability Principles, in the business community known as 'The Natural Step (TNS) System Conditions', after the non-governmental organisation promoting them [2]:

In the sustainable society, nature is not subject to systematically increasing …

… concentrations of substances extracted from the Earth's crust,

… concentrations of substances produced by society,

… degradation by physical means,

and, in that society. . .

… people are not subject to conditions that systematically undermine their capacity to meet their needs.

The scientific consensus that allowed for the creation of the sustainability principles was based on the following scientific findings[2]:

- Earth is an open system for energy but closed for matter, and the first law of thermodynamics applies ("nothing is lost, or created, all transforms").
- The second law of thermodynamics: all processes irreversibly disperse matter and energy into ever more chaotic states (carpets turn to dust, not the other way round).
- Material value is concentration, structure and purity.
- Photosynthesis is the primary producer of the system.
- Humans are inherently a social species.

It is also important to note that the principles are: [11]

... based on a scientifically agreed upon view of the world,

... necessary to achieve sustainability,

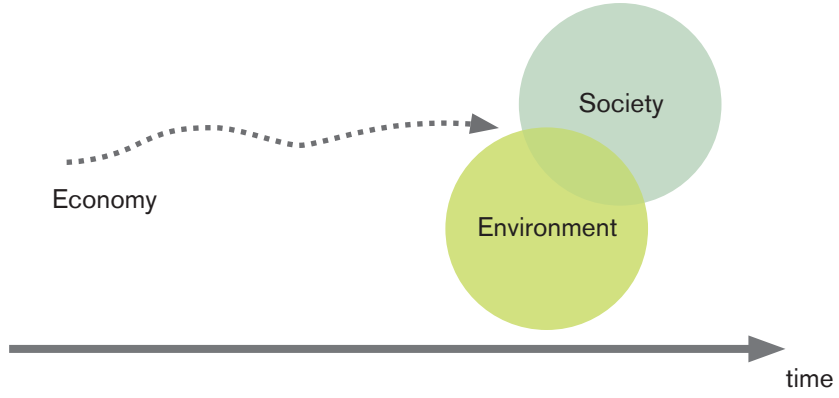
... sufficient to cover all aspects of sustainability,

... concrete enough to guide actions and problem solving, and preferably,

... mutually exclusive (non-overlapping) to facilitate comprehension and monitoring.

To make the principles relevant to an individual engaged to act strategically towards sustainability, "eliminate the individual's contribution" was added in the phrasing of each principle. An even larger vision for the individual would be for him to promote the elimination of society's violation of those four conditions, to reach a society "that meets the needs of the present without compromising the ability of future generations to meet their own needs." [12]

Below is an illustration of how we see society's evolution towards compliance with the socio-ecological sustainability principles of success; the economy is the means to reach these goals. As its original definition indicates: "the system of production, distribution and consumption".



Achieving a lasting change towards sustainability

As the other elements of the key information will support, achieving a lasting engagement of the individual requires among other things, that the individual takes concrete actions and that he values the credibility of the information presented. Hence, to be able to inspire, guide and answer questions from the individual you wish to engage, it is important for you to be aware of:

1. The current reality.
2. The sustainability opportunity and existing successes.
3. Useful tools and concepts.

Current reality (Achieving a lasting change towards sustainability)

> *"Consider this: all the ants on the planet, taken together, have a biomass greater than that of humans. Ants have been incredibly industrious for millions of years. Yet their productiveness nourishes plants, animals, and soil. Human industry has been here in full swing for little over a century, yet it has brought about a decline in almost every ecosystem on the planet. Nature doesn't have a design problem. People do."*
>
> McDonough and Braungart [13]

With all the environmental and social issues we hear about every day, the current reality can be quite confusing. We can use the metaphor of a tree [14] to try to explain where this confusion might come from. The sustainability tree has many leaves which represent many problems of varying importance, and it also represents many different solutions and good news. Those leaves hide the trunk and branches of the tree, the general structure of that complex system, the guiding principles. The many leaves (i.e. details) makes it hard to see the trunk and branches (i.e. the guiding structure).

The four sustainability principles mentioned above define the guiding principals for a sustainable society. Before getting into the good news and opportunities people can build upon to start acting (in the next sections), we would like to share with you four stories and one graphical representation to help understand the problem of our current society (or tree):

- Tragedy of the commons and what we notice as human beings.
- Are we using a good indicator? More on the GNP (Gross National Product).
- The illusion that "technology will take us through it": the story of CFCs.
- A graphical representation of unsustainability: the funnel.
- Finding the funnel's exit: It's everybody's work.

Tragedy of the commons and our ability to notice events (Current reality)

> *"Most of human evolution took place before the advent of agriculture when men lived in small groups, on a face-to-face basis. As a result human biology has evolved as an adaptive mechanism to conditions that have largely ceased to exist. Man evolved to feel strongly about few people, short distances, and relatively brief intervals of time; and these are still the dimensions of life that are important to him."*
>
> Evolutionary Biologist S.L. Washburn, quoted in [15]

Scientists have been trying to "sound the alarm" for decades with the message that the biosphere is in danger on many fronts. This quote about human biology may be one of the hidden reasons why human society reacts with such a long delay to these dangers. Another concept that can explain why we our society is threatening the balance of the biosphere can be found in what is called by Hardin the "Tragedy of the Commons" [15].

His parable starts from a pasture "open to all", on which of course each herdsman tries to keep as many cattle as possible; an arrangement that worked for centuries while wars, diseases and thieves kept a number of men and animals below the carrying capacity of the land. But when the long-desired goal of social stability is finally at hand, the tragedy appears. Each additional animal increases the degradation to the land "just-a-little" with a relatively big gain for its owner, but if all owners do the same the commons will be destroyed: "Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own interest in a society that believes in the freedom of the commons."

In a more scientific vocabulary, the tragedy of the commons is linked to social dilemmas, and their origin has been categorized by some authors into three kinds of traps [17]:

- ***Social traps:*** some people may fall prey to the temptation to profit at the expense of other people.
- ***Temporal traps:*** individuals choose short-term benefits at the immediate expense of their own future selves.
- ***Spatial traps:*** people in a certain location may benefit while those who are in a different location suffer.

Today our endangered commons include the quality and availability of the air we breathe, of the water we drink, and of the land we use to produce our food. There are many scientific studies listing the problems and impacts building on the three types of traps. An increasingly well-known quote attributed to a Cree Indian prophesy says: "Only after the last tree has been cut down, the last river has been poisoned, the last fish caught, only then will you find that money cannot be eaten."

About indicators: a discussion on GNP (Current reality)

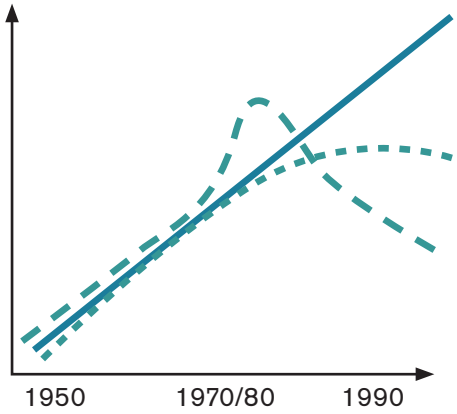
Above we described our biological tendency to not easily grasp the dimensions of our current situation, and our predisposition to fall into the tragedy of the commons. It seems unbelievable that in spite of this knowledge, and at the level of development some parts of the world have reached, we are still not reacting fast enough to face current unsustainability patterns. What could be wrong? Maybe the roots of the solution can be found in the following quote:

> *"97% of what matters cannot be measured,*
> *but it seems like 97% of managers' time is on measuring."*
>
> Deming

One of the world's most used indicator to measure if "everything is fine and going in the right direction" is the GNP, three letters meaning Gross National Product. It is assumed to be an indicator of the country's economic health, and is an addition of the total market activity of a country and total goods and services rendered. The general belief is that the higher the GNP, the better the economy, and the better world we live in. We do recognize the value of such an indicator, but we wish to highlight two elements suggesting it should be calculated differently and used with much more care.

First, the GNP adds everything, both the good things and the bad things. If you have a car accident, and have to buy a new vehicle: good for the GNP. If someone gets AIDS and needs to be hospitalised: good for the GNP. If you cut down all your trees and sell them to another country: good for the GNP. But if you help your neighbour repair is car for free, that is not good for the GNP. If you are successful in the hard and unpaid work of taking care of your home and family, the GNP does not go up. The GNP is an index that even some economists start questioning very strongly, but we still hear about it every hour during each radio news flash.

The second point we want to make is based on Chilean economist Manfred Max-Neef's "Threshold Hypothesis" stating that: "for every society there seems to be a period in which economic growth (as conventionally measured) brings about an improvement in the quality of life, but only up to a point – the threshold point – beyond which, if there is more economic growth, quality of life may begin to deteriorate" [18]. He backs up his hypothesis on results calculated around another indicator called Index of Sustainable Economic Welfare (ISEW). The index combines social factors, income inequalities and environmental deterioration. When comparing the ISEW and GNP, it appears they run parallel between 1950 and the 1970s or 80s depending on the country being studied. But from that point onwards the GNP per capita continues to grow while the ISEW begins to decline!



Schematic representation of the GNP curve.

Schematic representation of the ISEW curve obtained in the study. Different countries show different curves, but all countries studied show this threshold point (Austria, Germany, Netherlands, UK, USA).

Diagram adapted from Max-Neef [18]

Nowadays, a similar indicator called Genuine Progress Indicator is increasingly used and compared to the GNP. And there is also fast increasing interest in a small kingdom of the Himalayas called Bhutan that uses Gross National Happiness as its main indicator [19].

About technology: the history of CFCs (Current reality)

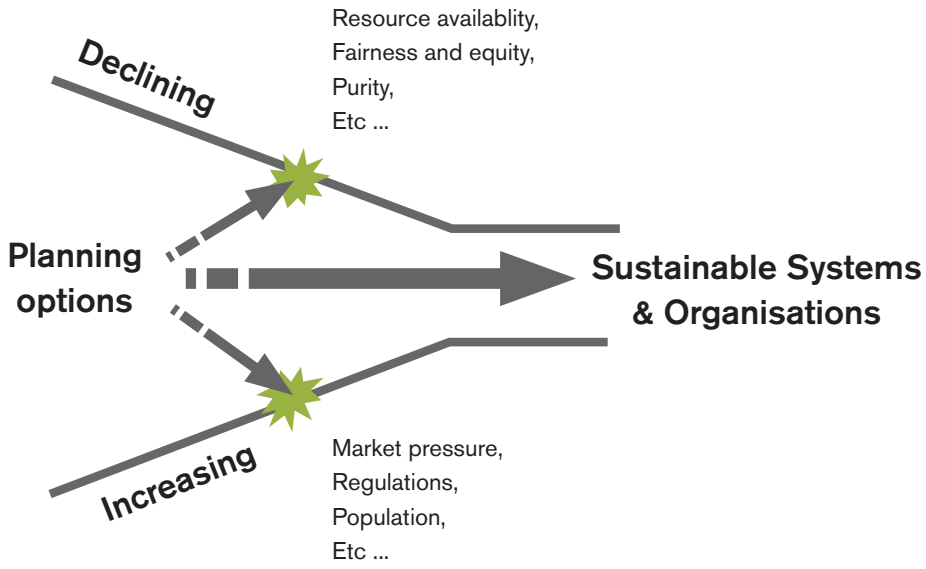
Faced with facts regarding our unsustainable situation, some believe that technology will provide all the solutions to our most accute and global problems. We do recognize the major role technology has and will continue having. The development of renewable energies and internet based meetings that reduce transportation needs are only two examples of how technology can be used, but it is also important to remember one story and that puts technology into today's context.

In the 1930's, the Chlorofluorocarbon (CFC) refrigerant gases were introduced and highly acclaimed: they were non-toxic, resistant, non-flammable, etc. Some believed they were the perfect chemicals, and they became widely used. It was not until thirty to forty years later that the role of the CFC's in the depletion of the ozone layer (this fine layer protects life against the sun's UV-radiation) was discovered. Later still, in the mid-80's, when the ozone hole became globally recognized and the resulting danger was acknowledged, some international agreements were signed to ban them. Today, nearly twenty years later, CFCs are still produced, although in much smaller quantities and expected to stop in the next years.

What was thought to be a perfect technical solution (a chemical one in that case) turned out to pose a direct risk to our ability to live on Earth. We would hope that society have learned from this, but unfortunately we have our doubts . One reason for the doubt is that out of more than 100.000 chemicals thought to be on the European market, only 14% have the minimum amount of data required to make a reasonable, informed judgement as to whether or not a chemical is likely to be dangerous [20].

Graphical representation of unsustainability - The funnel [14] (Current reality)

The former stories and facts about our non-sustainable society can be visualized as entering deeper and deeper into a funnel (see figure below). The walls represent for example decreases in resource availability and purity, fairness and equity, as well as increases in population, market pressure, pollution, and regulations. With time, as society and organisations move deeper into the funnel, their margin for action becomes smaller. Strategic planning aims at the exit of the funnel, and the sustainability principles can be used as a compass to get there.



One common question is “How steep are the walls of the funnel? Is it closing slowly, or very abruptly?”. If the informed scientists agree with the existence of this funnel, any attempt to answer such questions would probably raise never ending discussions. One real answer is “we don’t know exactly”. And what reaction should this unknown fact raise? If we relate the unknown future to the image of a driver on the highway on a very foggy day; he is aware that there is a wall coming up further down the road, but he doesn’t know exactly when (in 100 meters or 100 kms). All of us would naturally slow down and get off this road as soon as possible. From a global perspective however, it seems our society is still pushing on the accelerator pedal, not breaking or turning yet, even if it is quite obvious that in some parts of the world it is too late, people and other species have already hit and are hitting the walls of the funnel.

Who will we need to make it through the funnel? (Current reality)

It seems obvious that in the complex system we live in – we are all part of the human society within the biosphere – we all have a role to play if we want to make it through the funnel. In the words of the Earth Charter's conclusion:

> *"As never before in history, common destiny beckons us to seek a new beginning. (…) This requires a change of mind and heart. It requires a new sense of global interdependence and universal responsibility. We must imaginatively develop and apply the vision of a sustainable way of life locally, nationally, regionally, and globally. Our cultural diversity is a precious heritage and different cultures will find their own distinctive ways to realize the vision. (…) Every individual, family, organization, and community has a vital role to play. The arts, sciences, religions, educational institutions, media, businesses, nongovernmental organizations, and governments are all called to offer creative leadership. The partnership of government, civil society, and business is essential for effective governance."*
>
> Earth Charter's conclusion – The Way Forward

The Earth Charter is a text of values and principles for a sustainable future. It was written by an international collaboration of thousands of individuals and organisations over several years, based on the outcomes of the main international summits (www.earthcharter.org).

The sustainability opportunity and existing successes (Achieving a lasting change towards sustainability)

The previous section highlighted the current reality and the need to orientate our actions towards sustainability rapidly. It is not always easy to persuade people to understand the need to act quickly, and it becomes very challenging to engage them if they believe that taking action requires more efforts, more constraints, and less fun. In the following sections, we want to highlight how sustainability is an opportunity which opens the door for huge successes.

The sustainability opportunity

We could: write pages, tell many stories, try to present how our actions today could help future generations, and other species that share Earth with us, and prove how North / South balance would help to solve many ecological and social problems locally and globally. For many individuals, all of these examples would be brilliant reasons to act now, but they may fall short for others who for various reasons focus more on short

term and financial interests. For this reason, we will reportthree brief stories taken from the April 2005 issue of the Atkisson Report that came out while we were writing this guide [21]:

« The German Government recently discovered that its policies and investments in reducing greenhouse gas emissions had had "zero negative effect" on the economy ... while producing 450,000 new jobs. It takes the smallest of logical leaps to realize that if nearly half a million people went from being on unemployment to paying taxes, the government's investment in reducing climate change will earn it billions of dollars. »

« Toyota Japan, in its "Environment and Social Report 2004", reported spending 201 billion yen on "environmental costs." A few pages later, in the same document, they reported on the impact of those expenditures among consumers. It turns out that Toyota's good environmental reputation resulted in 260 billion yen in additional purchases from consumers, who chose Toyota over the competition for green reasons ... which means that Toyota is making roughly a 30% return on its "environmental costs." »

« Writing in the Washington Post, Climate Group co-organizer Michael Northrop reported that six major companies – IBM, DuPont, BT (British Telecom), Alcan, NorskeCanada and Bayer – had each reduced CO2 emissions by at least 60 percent since the early 1990s ... and collectively made more than $4 billion in the process. »

Finding inspiration in existing successes

Our main challenge in this section was to choose which stories to highlight. There are many and we hear far less about them than about the environmental problems or very important scandals around such and such singer or athlete. We will mention stories about one village, three companies and three local communities.

Gaviotas

Gaviotas is a village of about 200 people in Colombia, South America. For three decades, Gaviotans - peasants, scientists, artists, and former street kids - have struggled to build an oasis of imagination and sustainability in the remote, barren savannas of eastern Colombia, an area ravaged by political terror. They have planted millions of trees, thus regenerating an indigenous rainforest. They farm organically and use wind and solar power. Every family enjoys free housing, community meals, and schooling. There are no weapons, no police, and no jail. There is no mayor. The United Nations named the village "a model of sustainable development." [22]

Describing this incredible place, one can't help notice how everything fits well together, the characteristic of a project when the whole system has been taken into consideration. In the book describing the magnificent successes of Gaviotas, one can find how they combined technically well engineered pumps, with one of the simplest children's game, a seesaw: using the seemingly endless energy of children to pump water. [23]

Electrolux [24]

When international refrigerators producer Electrolux had to stop using CFCs, there first move was to move to HCFCs which are less damaging to the ozone layer but still directly violating system condition two. One of their clients questioned this choice when they were discussing a $US125 million deal. Of course that was a sufficient incentive to analyse the question of this technical choice a little it more. Using backcasting and the four system conditions, they realized that there was another technical solution, using a chlorine free substance called R134a. This solution also has the advantage of technically and economically facilitating the next development phase, which will use isobutene mixtures as cooling agents. Through this solution they put forward a plan which phases out of their processes all long-lived and unnatural synthetics that threaten health and nature.

Whistler [25, 26]

Boasting over 7,000 acres of skiable terrain, rising up a mile above the valley, and home of 10,000 residents, Whistler is located in the Coastal Mountains of British Columbia, Canada. "Whistler. It's Our Nature" is a community program to promote and support a sustainable Whistler. This program encourages businesses, households and other organizations to practice sustainability, including using The Natural Step Framework [24] as their "sustainability compass". Some of its successes include:

- A transformed transit system that has grown over a nine-year period from five buses and 300,000 riders to a fleet of 24 buses and 2.2 million riders, the highest per capita in British Columbia.
- Approximately 4200 employee-restricted beds (1/3 of the total beds needed for Whistler employees) created through the establishment of the Whistler Housing Authority to address affordable housing issues.
- The Emerald Forest Conservation Project – the Whistler Village core area was the focus of re-development, rather than undeveloped private land, which resulted in the conservation of 139 acres within a larger protected areas network.
- Financial returns given back to the community. Excess tipping fees from Whistler's landfill raise $300,000 annually for the Environmental Legacy Fund. Interest on this growing fund (now $1.2 million) goes toward funding local environmental projects.
- A geothermal heat exchange system heats and cools the Spruce Grove Community Building and the Beaver Flats resident housing project.

Scandic [24]

Scandic Hotels is the largest hotel chain in Northern Europe. In the early 90's, the organization: suffered from weak core values, had lost confidence in what they were doing, and was at the edge of bankruptcy. The new executive decided to change Scandic Hotels to create an atmosphere of sharing the customer's values. He decided to use The Natural Step (TNS) Framework. The presentation to the management team was in February 1992. The teaching material was ready in May. By August, all several thousands employees had gone through the training. And in November, still within the first year of cooperation with TNS, Scandic had launched 1,500 measures in line with the TNS Framework – measures that were invented by Scandic personnel.

Porto Alegre [27]

Inequality and social exclusion continue to plague the quality of democracy in Latin America despite two decades of transition and consolidation. This has been especially true for Brazil. Since 1990, a system of participatory planning and budgeting has been in place in Porto Alegre. It includes grass roots meetings and debates in individual neighbourhoods, and thematic groups on investment requirements. The participatory budget has produced a synergy between civil associational life, government action, redistribution of basic public goods, and the exercise of formal democratic freedom and rights both in conventional and new public domains.

Interface [28]

Interface is the world's largest producer of commercial floor covering. In 1994, its CEO and founder Ray Anderson realized that his company was part of a system that was jeopardizing Earth's capacity to sustain life: "in 1995 the technologies of our factories and our suppliers' together extracted from the Earth and processed 1.224 billion pounds of material so we could produce those $802 million worth of products". He then decided to change his company to the prototypical company of the 21st century, reaching what he called the top of Mount Sustainability defined by the four system conditions. Advocating that "Our actions must speak louder than our words," here is how he describes one of the achievement (in term of resource efficiency): "Where are we (Interface) in this quest for resource efficiency? The $1 billion of sales we recorded in 1996 consumed 19% less material per dollar of sales than we consumed in 1995, reflecting both increasing efficiency and our shift toward services, especially downstream distribution. This happened while we were realizing record profits, which was not an unconnected coincidence. Cumulative progress over three years is an increase of about 22.5% in resource efficiency; our share price has tripled."

Useful tools & concepts (Achieving a lasting change towards sustainability)

Both during and as a result of the engagement process, the idea is to have individuals act strategically towards sustainability. The facts and concepts already presented in other parts of the Element Earth explain "what you want" (as the engager) and "what you want to achieve". They can suggest actions for the individuals to be engaged. In this section we want to go further than merely suggesting. We will present some commonly encountered concepts when acting towards sustainability. They should be at least generally known by the engager to ensure his credibility. And they can be used by the individual to find what can be done and how to act, a very important component of the engagement process. We will mention:

- The Natural Step Framework
- Agenda 21
- Environmental Management Systems (ISO14001 and EMAS)
- Ecological Footprint
- Factor 10
- Life Cycle Assessment (LCA)

Each concept or tool has a reference where the reader can find more information, including strengths and weaknesses of each tool and the context in which they are better used.

The Natural Step Framework (Useful tools & concepts)

The international non-governmental organisation The Natural Step (TNS) developed and promotes a framework [9] that allows for strategic actions towards sustainability. It is based on and includes concepts and scientific results that have already been presented in The Fifth Element and above in Earth: the five-level model for planning in complex systems, the four sustainability principles, backcasting from sustainability principles, and the metaphor of the funnel.

TNS has also come up with a strategic planning process called ABCD, "think of it as the manual for the TNS Framework, or the text on the box of the family game "sustainable development", describing the principles of success and a strategy to comply with those principles" [24]. In short, the four steps are [2, 11]:

A. Awareness of the system and sharing a mental model of the process to follow.

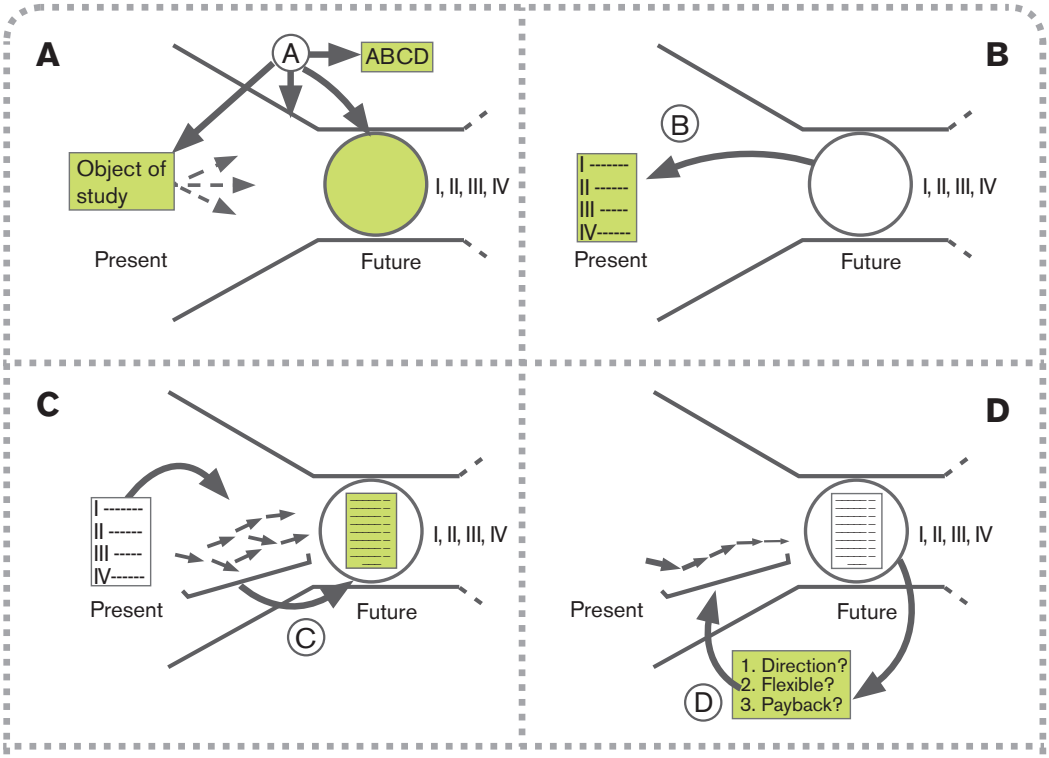
B. Assessing today from the point of view of success, when sustainability has been reached.

C. Brainstorming solutions and visions to go from the present situation towards success.

D. Selecting and prioritising measures from the C-list, by asking for each measure: if

it goes in the right direction; if it is a stepping-stone for future improvement (flexible platform); and if it makes good sense to perform it (i.e. good return on investment, good business or political opportunity…).

The latest graphical representation of the ABCD strategic process will be published in the very next months by Ny [11]:



Backcasting from Principles as illustrated by A-B-C-D-Planning.

A. Agree on (1) the object of study, (2) the sustainability challenge (a funnel of declining opportunity), (3) the future sustainable landing place for the planning (defined by compliance with Sustainability Principles (SPs)).

B. For each SP, list critical practices from the perspective of SPs.

C. Develop a list of possible solutions and investments ('brainstorming').

D. Use guiding questions to prioritise early solutions and investments from C that (1) move towards sustainability, (2) are flexible platforms for future improvements, and (3) give sufficient return on investment to allow a continuation of the transition. The procedure is repeated as the development unfolds.

Ny, 2005 [11]

When applying the TNS Framework, or any other concepts looking for solutions to reach sustainability, it can help to be aware of two sources of ideas and information:

- Two basic mechanisms under which actions can be described [9]:
    - Dematerialization: reduction of material flows,
    - Substitution: exchange of type/quality of flows and/or activities.
- Socio-ecological indicators for sustainability [29]:

  These indicators focus early in the chain of "causes in society, to effects in the environment". One of them calculates the anthropogenic flows from the lithosphere to the ecosphere divided by the natural flows. The anthropogenic flows are mining and flows associated with fossil fuels and the natural flows are weathering and volcanic processes.

  Even if there is no obvious critical value for the indicator, one can make a first comparison by looking at the order of magnitude of the indicator for different elements. In this way one can get an indication of, for instance, which metals could possibly substitute for others.

  From this indicator, we learn that it is much better to use Aluminium (indicator's value 0,048 with data from 1990), Silicium (0,021) or Titanium (0,096), than Manganese (1,1), Iron (1,4) or Carbon (6,4). And that it would be very wise to stop using Copper (24), Silver (22), and Lead (12) as fast as possible.

Agenda 21 *(Useful tools & concepts)*

In June 1992, 178 governments gathered in Rio de Janeiro for the United Nations Conference on Environment and Development, more commonly called Rio's Earth Summit. Among other texts, they adopted the Agenda 21, "a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment" [30].

Local Agenda 21 are strategies for sustainable development that local governments and communities should prepare according to the engagement their national government agreed to in Rio.

Environmental Management Systems (EMS) [2] *(Useful tools & concepts)*

EMS tools are administrative standards for implementing and running the environmental aspects of the sustainability agenda in a company. Examples of such tools are ISO 14001 or EMAS. They do not provide guidance towards sustainability, nor an evaluation of progress. They can help to put the principles and activities into a relevant administrative context for organisations.

Ecological Footprint [9] *(Useful tools & concepts)*
The Ecological Footprint is an overall measuring tool to get a tangible overview of our performance with regard to sustainability. It is unique in its capacity to communicate very directly how life style and technical competence relate to such a perspective. The outcomes of various activities in society are measured and aggregated into units of area. This is then related to an estimation of the total life sustaining area of the biosphere, i.e. the accumulated "footprints" from all activities are related to the total carrying capacity of the ecosphere.

This calculation can be made at national, regional, local, and even at the individual level. A few values from 2001 data will give you an idea of how the Ecological Footprint can be used [31]:

- The calculation of how many Earths were needed to meet the resource requirements of humanity resulted in 1.2 … this means that in 2001, globally, we needed 20% more than we had.
- In 2001, at a worldwide level, we used 1.8 global hectares per person. The calculation found 9.5 used by the average citizen of the USA, 4.8 in Germany, 1.5 in China, and 0.3 in Afghanistan.
- Calculating an individual's footprint, and testing different ways to reduce it can be a powerful indicator. It is available from many website (see [31] for example).

Factor 10 [9] *(Useful tools & concepts)*
Estimations show that it would take at least a two-fold reduction of world-wide use of natural materials in order to avoid continuing systematic degradation of the biosphere. Since the average per capita consumption in OECD (Organization for Economic Cooperation and Development) countries is at least five times that of developing countries, and further increases in world population are unavoidable, sustainable levels of material flows on a global level will not be reached unless the material intensity of the industrialized countries is reduced by at least a factor of 10.

When using Factor 10, even if there is a need to make subtle distinctions between various materials, there is no contradiction with the applicability of a rough estimate of the overall need to dematerialise modern society.

Life Cycle Assessment (LCA) [11] *(Useful tools & concepts)*
LCA is a tool which aims to evaluate the impacts of materials and products from the "cradle" (resource extraction), through transport, production, and use, to the "grave" (fate after end-use). Obviously this leads to a more comprehensive view of the full impact than if only the material or product itself is evaluated.

WATER - Understand the other's behaviour and the influence of context

Overview of factors determining behaviour

Towards an understanding of human behaviour
Determinants of behaviour
Models and theories investigating the relationship between factors

Internal factors

Motivation
Values
Environmental worldviews
Connectedness with nature and others
Perceived responsibility
Attitudes and Beliefs
Perceived cost
Commitments, The strive for consistency, and The trap of decision making
Sustainability awareness
Emotional involvement
Psychological defence mechanisms
Locus of control
Behaviour specific knowledge and skills
Multiple intelligences

External factors

Physical factors
Economic factors
Social factors
Cultural factors

Overview of factors determining behaviour

Towards an understanding of behaviour

To promote a new behaviour or discourage an old one, one needs to design appropriate and successful engagement intervention strategies [32, 33]. A key component to this design is to have an understanding of factors that can positively or negatively influence the person.

There are many theories and frameworks that have been developed to explain and understand human behaviour. But, although many hundreds of studies have been dedicated to it, and many theories and frameworks have been developed, no definitive answer has been found. This indicates that the question of what shapes any behaviour, including a pro-environmental one, is so complex that it cannot be visualized through one single framework or diagram [34].

In this section we list factors that have been found to be influential. We then present a few theories and frameworks that give a further understanding of how the various factors are interrelated and how they influence behaviour.

Determinants of behaviour

Many factors have been found to influence behaviour. In 1991 a Theorists Workshop was held in Washington to identify common elements between the most widely accepted models that are necessary for understanding, predicting and modifying human behaviour [35].

The result of this collaboration was the identification of eight key variables that accounted for most of the variance in any given behaviour. These eight key factors were identified as potential determinants of behaviour and intervention points for behavioural change:

- The individual's behavioural intention
- Environmental constraints
- Skill or ability
- Attitude or anticipated outcomes of a given behaviour
- Norms
- Self standards
- Emotional reactions
- Self-efficacy

The result from the theorist meeting in 1991 does not summarize all of the factors that can have a potentially strong influence on behaviour. There are many other studies that identify various factors. We have found support that the following internal (psychological factors within the individual) and external factors (factors that lie outside of the individual) have some influence, either positive or negative, on behaviour. We will list them here and elaborate on them in the following sections.

- *Internal factors.* Attitudes, beliefs, values, worldviews, connectedness with nature and others, emotional involvement, behaviour specific skills, locus of control, perceived cost, sustainability awareness, motivation, intention, commitment, old habits, decision making, multiple intelligences, etc.
- *External factors.* Social norms, culture, social roles, context, physical environment, infrastructure, economy, resource availability, etc.

It is important to recognize that there are other competing factors that can shape our behaviour that we did not list here. We will for instance not elaborate on the influence of desire for comfort and convenience, personality traits, and demographic factors such as gender and education.

Models and theories investigating the relationship between factors

In the previous section it was not possible to distinguish connections or hierarchical relationships between the various factors. There are however many theories and models that do so. Before presenting three models, we will further explore the conclusions of the theorist meeting in 1991 mentioned above, and an important notion called the fundamental attribution error.

The theorist meeting in 1991 concluded that, generally speaking, for a given behaviour to occur, at least one of these eight factors must be true:

1. The person has formed a strong positive intention (or made a commitment) to perform the behaviour.
2. There are no environmental constraints that make it impossible for the behaviour to occur.
3. The person has the skills necessary to perform the behaviour.
4. The person believes that the advantage (benefits, anticipate positive outcomes) outweigh the disadvantages (costs, anticipated negative outcomes) of performing a behaviour.
5. The person perceives more social (normative) pressure to perform the behaviour than to not perform the behaviour.
6. The person perceives that performance of behaviour is more consistent with his/her self image than inconsistent, or that its performance does not violate personal standards that activate negative self-sanctions.

7. The person's emotional reaction to performing the behaviour is more positive than negative.
8. The person perceives that he or she has the capabilities to perform the behaviour under a number of different circumstances. That is, they have the perceived self-efficacy to execute the behaviour in question.

The first three factors are viewed as factors "necessary and sufficient" for generating behaviour. That is for a given behaviour to occur, an individual must (a) have strong intentions to perform the behaviour, (b) have the necessary skills to do so and (c) not be restricted by environmental constraints.

The remaining factors are viewed as factors that can actively influence the strength and direction of behavioural intention. That is, these dimensions generate a degree of influence on changes in behaviour. In fact, the theorists argued that an individual will not form strong intentions to perform behaviour unless they perceive the positive outcome of performing the behaviour as greater than the negative or that they have the ability necessary to carry out the behaviour.

The fundamental attribution error relates to the second of the points made by the theorists. A fundamental attribution error occurs when we underestimate the impact of the situation and overestimate the role of personal factors when explaining other people's behaviour [36]. An example could be to think that the main reason for an individual to not recycle is his attitude towards recycling, when there is a complete lack of necessary infrastructure to actually recycle. It is important to remember that the convictions of your heart and the actual contents of your thoughts (internal) are always balanced with the immediate context of your behaviour (external).

Three diverse models

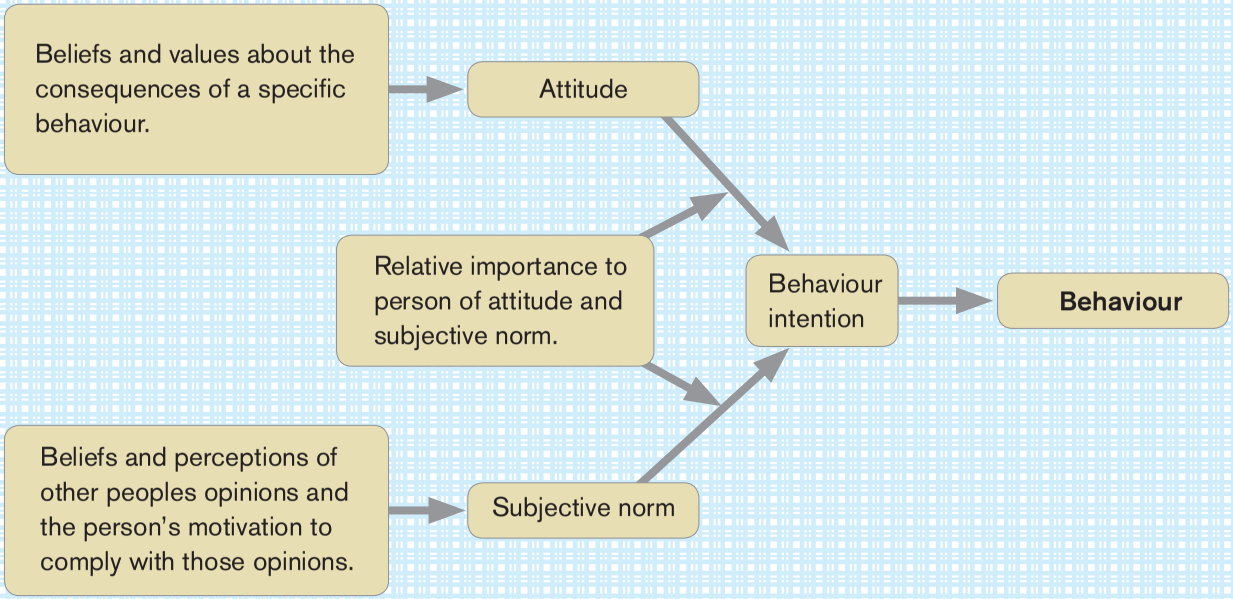
We chose to present three models which explain behaviour in different ways and further illustrate how the various factor interrelate with each other. We include them in this Guide because we believe they can be useful to consider when planning to engage individuals, and believe they can be a source of learning and inspiration:

- The Theory of Planned Behaviour
- Model of pro-environmental behaviour
- Causal model of behaviour

The Theory of Planned Behaviour

The theory of planned behaviour [37, 38] has probably been the most influential attitude-behaviour model in social psychology [34]. It proposes that actions are the product of attitudes, social pressures and intentions. It suggests that attitudes do not determine behaviour directly, but rather they influence our intentions which in turn shape our actions. Intentions are not only influenced by attitudes, but also by our personal perception of social norms, and the degree to which we believe that the behaviour is under our control.

The theory of planned behaviour has proven useful due to its clarity and simplicity, and has been proven to predict behaviour to a moderate degree. But limitations have also been recognised – for example the underlying assumption that people act rationally.



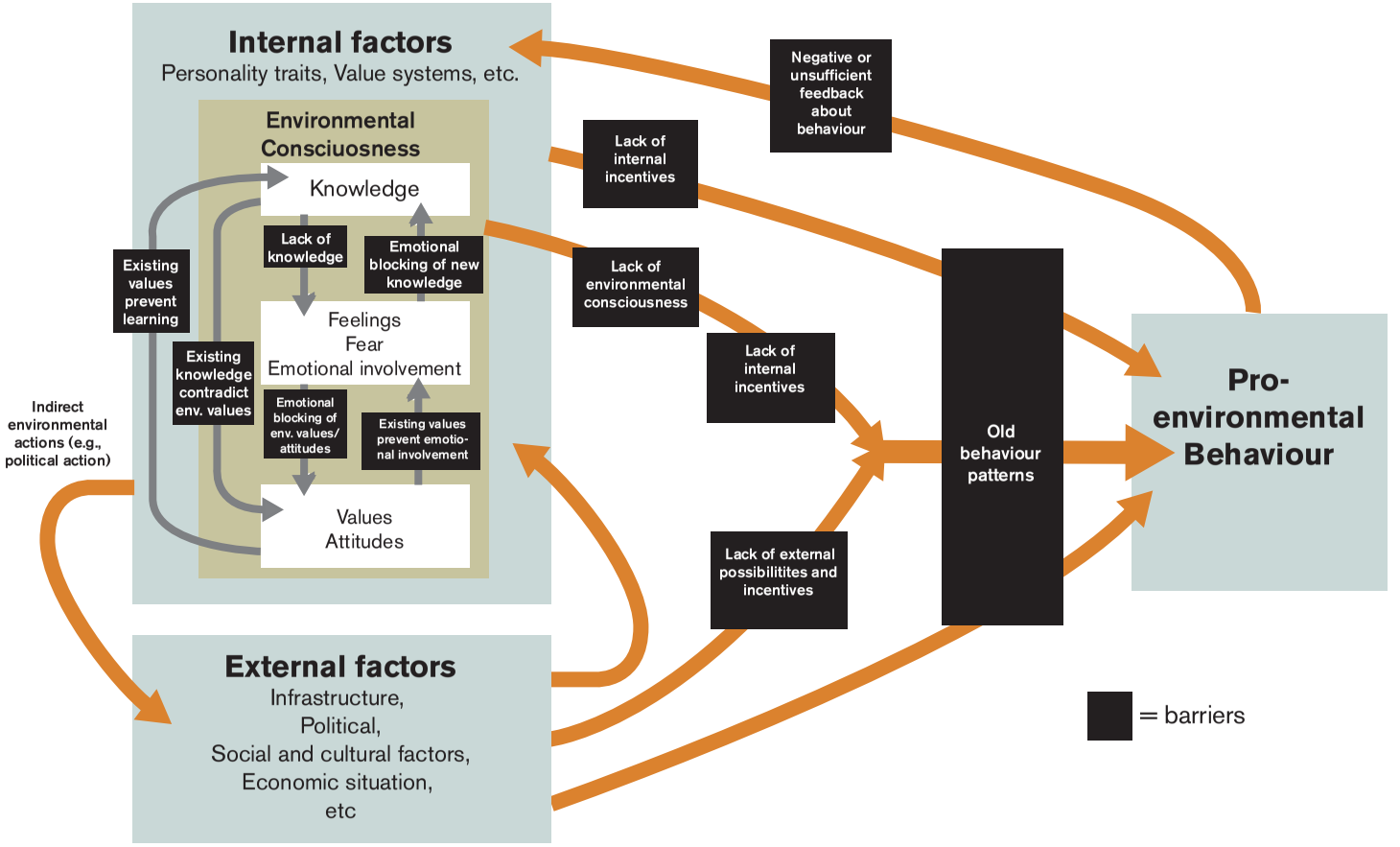
Theory of planned behaviour. Adapted from Arnold et al, 2005 [39]

Model of pro-environmental behaviour

A more elaborate model is presented by Anja Kollmus and Julian Agyeman [34]. The arrows in the figure indicate how the different factors influence each other and, ultimately, pro-environmental behaviour. Most are self-explanatory. The two arrows going directly from internal and external factors to pro-environmental behaviour, indicated by the larger arrow, is achieved when internal and external factors act synergistically.

For us, the most interesting aspect of the model are the black boxes which indicate possible important barriers to positive influence on pro-environmental behaviour. By pointing possible barriers out, the model indicates how various factors can prevent pro-environmental behaviour.

Note also that in the model, old behaviour patterns, i.e. old habits, represent a possible barrier that blocks all arrows. In the diagram it is the largest because of graphical reasons, but also because Kollmus and Agyeman want to draw attention to this aspect. They believe that old habits form a very strong barrier that is often overlooked in the literature on pro-environmental behaviour. Research findings by Paul Maiteny [40] concur with their observation.



[Adapted from Kollmus & Agyeman, 2002 [34]]

Causal model of behaviour

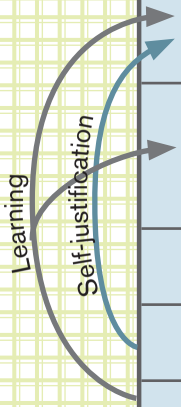
The causal model [33, 41, 42] describes environmentally relevant behaviour as the end result of a long casual chain involving a variety of internal and external factors. In the figure, variables at each level of causality have the potential for direct influence on variables at each lower level. Sometimes, the most important effects skip levels of causality. For example, many external conditions (level 7) influence behaviour mainly through their direct effects on behaviour-specific knowledge, attitudes, and beliefs (Level 3).

There are also feedback loops that operate in the reverse direction. For example, the learning that takes place from observing the effects of one's own behaviour (level 0) influences behaviour-specific knowledge and beliefs (level 3), and the self-justification that can reinforce general attitudes, beliefs and personal norms (level 4) after the behaviour has taken place (level 1) [42]. We believe that there are other important feedback-loops, such as the influence a change of environmental worldview (level 5) can have on a person's values (level 6), or the influence of one's behaviour (level 0) influences external factors (level 7).

The framework implies that for behaviour to change in a pro-environmental direction, several conditions must be favourable, and the absence of any is likely to prevent behaviour change [33, 43].

A causal model of environmentally relevant behaviour

Level of causality	Type of variable	Examples
8	Social background and socialization	Race, socio-economic status, religion, education, culture
7	External factors	Prices, regulations, technology, convenience, recent events, incentives, institutional structures
6	Basic values	Hedonism, power orientation, benevolence, traditionalism, altruism, connectedness
5	Environmental worldview	Belief that environment is fragile or resilient
4	General attitudes, beliefs, and personal norms regarding environmentally relevant behaviour	Belief that recycling is good for the environment, sense of personal obligation to help prevent global warming
3	Behaviour-specific knowledge and beliefs	Knowing which packaging is biodegradable, knowing how petition legislators, beliefs about the personal and environmental costs and benefits of particular behaviours
2	Behavioural commitment, attention	Decision to travel by bus, remembering to act.
1	Environmentally relevant behaviour	Automobile purchase.
0	Observable effects	



Adapted from Stern & Oskamp, 1987 [41]; Gardner & Stern, 1996 [33]; Stern, 2000 [42].

Internal factors

There are many internal factors (psychological factors within the individual) that have been found to have some influence, positive or negative, on behaviour. In the coming section we will give a brief overview of the following factors:

Motivation, values, environmental worldviews, connectedness with nature and others, perceived responsibility, attitudes and beliefs, perceived cost, commitments, the strive for consistency and the trap of decision making, sustainability awareness, emotional involvement, psychological defence mechanisms, locus of control, behaviour specific knowledge and skills, and multiple intelligence.

Motivation

The term motivation is often used when discussing behaviour, both on a scientific level, and on a day-to-day basis with questions like: What is it that motivates you? or, What were his motives?

Motivation can be defined as the reason for behaviour or a strong internal stimulus around which behaviour is organized [34]. Motivation is shaped by the following three components that determine which behaviour is chosen from all the possible options. [36]:

- Direction: what a person is trying to do.
- Effort: how hard a person is trying.
- Persistence: how long a person continues trying.

The question of what it is that shapes motivation is highly complex and cannot be easily answered; motivation is influenced by other internal factors. What we do know is that motives for behaviour can be conscious, such as a person's perception of the barriers and benefits of certain behaviour, or unconscious, such as a person's underlying fear of negative personal consequences.

It is also possible to distinguish between extrinsic motivation, performing an activity to obtain an external reward or avoid punishment, and intrinsic motivation, performing an activity for its own sake, because you find it enjoyable or challenging [36].

Values

Values are responsible for shaping much of our intrinsic motivation. They are our beliefs about what is good or desirable in life and make up long term guides for our choices and experiences [44]. Values are fairly stable, and often strongly held, even if we are not completely conscious of them, and are therefore difficult to change [39, 45].

There are three sets of values that are especially interesting from a sustainability perspective because they have a large impact upon how we relate to the world around us: altruistic values, biospheric values, and egoistic values [43, 46]. Altruistic values are characterized by an unselfish concern for others, biospheric values are characterized by a concern for plants and animals, and egoistic values are characterized by a concern for oneself. More information about the potential impact of these values can be found in the section about 'connectedness with nature and others' (see below).

Environmental worldviews

Environmental worldviews is not often mentioned as a seperate factor in behaviour theories and frameworks. One reason might be that most theorists do not distinguish environmental worldviews from basic values since they are highly connected. We do however assume that environmental worldviews can have such an major influence on values, attitudes, beliefs, and ultimately behaviour that we choose to describe this factor seperately.

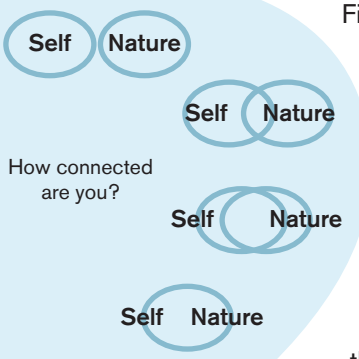
For instance, imagine the difference between a person who believes the natural world to be extremely fragile and one who believes that it is extremely resilient. The different worldviews is likely to effect the person's values, as well as attitudes and beliefs which shape his intentions to behave in certain ways [42].

Like values, environmental worldviews are hard to change; but they can change. Polls show that the global public becomes more worried about environmental problems every year [47] which indicates that peoples' perception of the state of the world is changing.

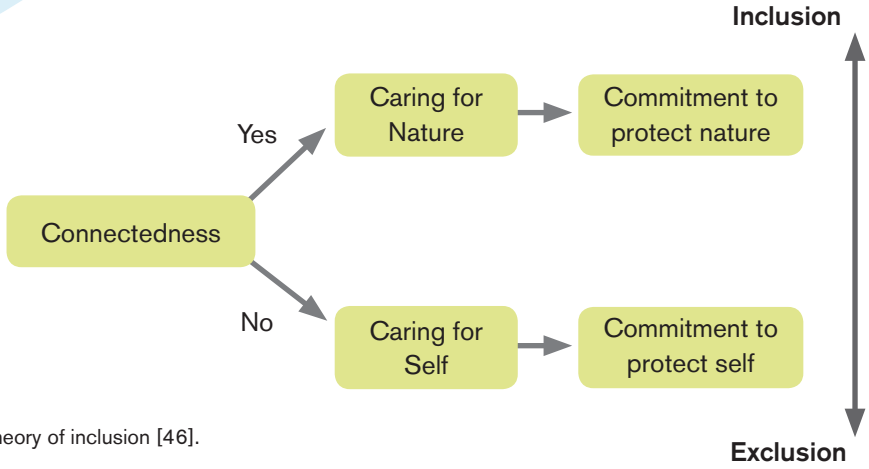
Connectedness with nature and others

The psychology literature surrounding sustainability is full of references to our relationship with nature, such as; being in touch with, connected to, or part of nature. Connectedness refers to the extent to which an individual includes nature within his cognitive representation of self [48]. The term self is used to refer to a range of constructs, but for our purpose, self is a person's thoughts and feelings about who they are.

There are many theories and research findings implying that the individual's level of connectedness with nature and also with others is highly important from a sustainability point-of-view.



First, in his theory of inclusion, Schultz [48] argues that the only sure path to a truly sustainable society is through connectedness with nature. He argues that connectedness leads to caring and concern for nature, and that caring leads to a commitment to protect nature. If the individual does not feel connected to nature, he is only likely to be concerned for himself in an egoistic way which may prevent sustainable behaviour. The more connected the person is, the more likely it is that the person is concerned for others (altruistic concern), and for the biosphere itself (biospheric concern, i.e. the trees, plants, animals, etc.) [46].



Theory of inclusion [46].

Secondly, Opotow [49] has argued that our views of nature, and our behaviour toward nature, are influenced by our scope of justice. Scope of justice refers to the psychological boundary within which the individuals' concerns about rights and fairness apply. If instead, a person or object is outside of our scope, then moral considerations do not apply. This means that a person who perceives himself or herself as highly connected with nature and dependent on others is more likely to consider moral issues concerning nature or others.

Third, Chawla's [50, 51] work shows that emotional involvement and connectedness, seems to be very important in shaping our beliefs, values, and attitudes towards our surrounding environment. In her research, Chawla has interviewed numerous profes-

sional environmentalists. She also analysed many studies about the experiences and people who shaped and influenced their decisions to become environmentalists. Not surprisingly, she finds that there is no single experience that sensitises people's awareness but a combination of factors. Among the most frequent mentioned (decreasing in relevance) are:

1. Childhood experiences in nature
2. Experiences of environmental destruction
3. Pro-environmental values held by the family
4. Pro-environmental organizations
5. Role models (friends or teachers)
6. Education

Finally, in line with the philosophy of 'deep ecology', Elizabeth Ann Bragg [52] hypothesizes that if individuals would consider themselves connected to, and part of, all life and earth itself, there would be no need for 'environmental ethics', 'altruism', or 'self-sacrifice' for the sustainability cause. This is because when there is no separation between self, others, and nature, enlightened "self-interest would motivate people to act on behalf of the larger, ecological self, rather than the biographical, personal self."

Perceived responsibility

The responsibility the individual perceives himself to have is important, because responsibilities tend to be prioritised. Our feeling of responsibility is shaped by our values and attitudes, and is influenced by our locus of control and degree of connectedness, among other things. Another factor that is important when it comes to responsibilities is the influence of public commitments (see below, p. 63).

Attitudes and Beliefs

Attitudes are defined as the enduring positive or negative feeling about some person, object, or issue. Enduring means that attitudes are, most of the time, evolving slowly, and with a steady pace [44]. Closely related to attitudes are beliefs, which refer to the information (the knowledge) a person has about a person, object, or issue [53].

Attitudes and beliefs are related to values, but differ in terms of time perspective, stability over time, and focus. Values are long term guides for the future, while attitudes and beliefs are based on past experiences. Attitudes and beliefs are also less stable, more likely to change, and more specific than values. They are directed towards specific targets, while values are general guides [39].

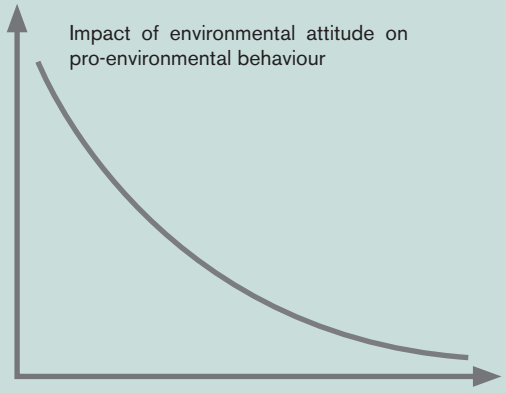
The gap between attitudes and behaviour

Attitudes are often believed to be the primary determinant of behaviour, but vast amounts of research indicates that attitudes only predict behaviour to a modest degree [54]. The gap between attitudes and behaviour varies depending on circumstances. There have been many attempts to explain this gap and the research points out a number of factors that help explain why the attitude-behaviour relationship is strong in some cases and weak in others. Passer and Smith [36] explain three of the most essential reasons for the gap:

- *Attitudes have a greater influence on behaviour when we are aware of them and when they are strongly held*. This relates to the concept of attitude strength, which includes: the amount of certainty people feel about their attitude, the importance of the attitude to them, how intensely they hold the attitude and how knowledgeable they are about it [39].
- *General attitudes are best at predicting general classes of behaviour, and specific attitudes are best at predicting specific behaviours.* That is, in order to find a high correlation between attitude and behaviour the researcher has to measure the attitude towards that particular behaviour. For example, comparing attitudes toward climate change and driving behaviour usually shows no correlation. Even people who are very concerned about climate change can drive a lot. This is because the attitude toward climate change is not closely related to the behaviour (driving) [34].
- *Attitudes influence behaviour more strongly when counteracting situational factors are weak and when there are few external conditions affecting the ease of engaging in the behaviour*. For example, even if we have a positive attitude towards composting, we are not likely to compost if there is no infrastructure to support it where we live.

Perceived cost

The perceived cost of a behaviour is likely to have an effect on the individuals choice of behaviour. Diekmann and Prisendoerfer [55] propose that people choose the pro-environmental behaviours that demand the least cost. Cost in their model is not defined in a strictly economic sense but in a broader sense that includes, among other factors, the time and effort needed to undertake a pro-environmental behaviour.



Diekmann & Prisendoerfer, 1992 [55]

Commitments, The strive for consistency, and The trap of decision making

In the 40s, Lewin initiated the work on commitment, highlighting the extraordinary efficiency of influence strategies based not on persuasion or authority (promising rewards or punishments), but on obtaining acts freely decided upon, including decision acts. Lewin explained this difference by proposing that the link between motivation and behaviour is not direct. He believes there is intermediate link: the act of decision [56].

Once the decision to behave in a way has been made, it can eliminate any other options and leads the individual to maintain his decision. This is the notion of freezing effect. Once a decision is made, justified or not, individuals tend to maintain or repeat it, even if it has unsuspected effects. The freezing effect depends on the act of decision, not on the reasons which motivated that act [56].

The freezing effect is linked with the notion of consistency, which is an important character trait [57]. In their book on community-based social marketing, McKenzie-Mohr and Smith [32] point out a large amount of research showing that regardless of circumstance individuals tend to have a consistent behaviour, and that publicly made commitments increase the chances of an individual to perform a certain behaviour.

Here follows one example of how a commitment can have a large impact, i.e. how a simple insignificant “yes” can influence us to behave in a totally different way than we would have otherwise. In 1975, Moriarty [58] made an experiment where the experimenter is on the beach, alone with a transistor. He goes for a swim without talking to anyone (control condition), or having previously asked his neighbour to keep an eye on his belongings, or simply asking for the time (commitment condition). An accomplice comes to steal the transistor. In the control condition 20% of the individuals will act to stop the burglar. In the commitment condition (b), it goes up to 95% !

The understanding of the effect of commitments can be used to better engage individuals. By asking for a public commitment or influencing the individual to make a decision, behaviour can be significantly reinforced or altered.

There are two other aspects that have been found to influence the effectiveness of commitments that we wish to describe in detail. First, it is important that the commitment or decision is made voluntarily, from a feeling of freedom [32, 56]. A commitment or decision that is forced is not likely to be as strong or lasting, while a voluntary commitment or decision decreases internal resistances against the thing that is to be done. (see also air, p. 88)

The second aspect is the difference between commitments in non-problematic versus problematic acts. A non-problematic act is an act that the individual would be likely to perform anyway, while a problematic act is an act brought about by the commitment.

In broad terms, a commitment in a non-problematic act makes everything related to the act – that is the behaviour itself, attitudes, beliefs, etc – more resistant to change. A commitment in a problematic act leads at least to a modification of internal factors related to the behaviour in the direction of a rationalisation of the act, i.e. the individual becomes more likely to adapt the behaviour later on [56, 59].

In their book on community-based social marketing, McKenzie-Mohr and Smith [32] gives a checklist for using commitments:

- Emphasize written over verbal commitments.
- Ask for public commitments.
- Seek group commitments.
- Actively involve the individual.
- Don't use coercion. Commitments must be freely volunteered.
- Combine commitment with other behaviour change techniques.

Research has also found support for a number of notions that relate the freezing effect and commitment [56, 59]:

- ***Escalation of commitment*** describes the tendency of individuals to "stick" to one initial decision, a series of "yes" leading to being very committed to one decision even if it has clearly been questioned by facts.
- ***Sunk-cost*** is a phenomenon when one stays on a strategy in which he has previously invested (time, money, energy), to the detriment of more advantageous ones.
- ***Entrapment*** describes a similar tendency of sticking to actions even if they become unreasonably costly or unable to reach the objectives.

Sustainability awareness

For our purpose, we define sustainability awareness as 'understanding the impact of human behaviour on the human environment'. Sustainability awareness has both a cognitive, knowledge-based component and an affective, perception-based component (discussed in the section on 'emotional involvement'). Because of cognitive and emotional limitations, the negative, unsustainable, effects of our behaviour easily elude our attention.

Cognitive limitations of sustainability awareness include that [34, 60]…

…ecological destruction often is very slow and gradual, and there is often a long time delay between the damaging behaviour and the effects of the behaviour (e.g. the release of CFC's and climate change).

…many ecological problems have low visibility (e.g. ozone layer destruction and

chemical leakage from everyday products).

…ecological problems are often very hard to trace back to a single act or a single source of behaviour. There are often many players involved and responsibility is widespread.

…most ecological problems are intricate and complex and therefore hard to understand.

These cognitive limitations are highly connected to the different kinds of social dilemmas described in the section about the 'tragedy of the commons'. They are also one reason to why people often underestimate the number of destructive everyday behaviours (such as driving our cars, or buying excessive packaging) and overestimate the occurrence of rarer, more dramatic ones (such as oil spills, or nuclear reactor meltdowns) [32].

The emotional constraints on sustainability awareness have mainly to do with how we handle the emotional reactions we may experience when we face threats such as environmental degradation or social injustice.

Emotional involvement

Much research has been done in the fields of ethics, psychology, and sociology to explore what it is that makes us care. Why is it that some people care and others do not? The answers to these questions are diverse and complex. One factor that seems to influence this is the kind of emotional connection to nature and others that is discussed in the previous section on connectedness. Like Kollmus and Agyeman [34] we define emotional involvement as the "extent to which we have an affective relationship to the natural world." Furthermore, emotional involvement is the ability to have an emotional reaction when confronted with environmental degradation.

Below we give a few explanations to why we can be emotionally involved in one thing, but not in another. It is important to remember that these explanations in no way do justice to the vast amount of work that has been done to explore this issue.

Emotional non-investment can be caused by [34]:

- ***Lack of knowledge and sustainability awareness*** (as discussed in the previous section). However this does not mean that providing this knowledge and awareness is sufficient to create emotional involvement.
- ***Resistance to non-conforming information***. In his theory of cognitive dissonance, Festinger [61] states that we unconsciously seek consistency in our beliefs and mental frameworks, and therefore selectively perceive information. Information that supports our existing values and mental frameworks is readily accepted while infor-

mation that contradicts or undermines our beliefs is avoided or not perceived at all. The theory implies that we tend to avoid information about environmental problems because they contradict or threaten some of our basic assumptions about quality of life, economic prosperity, and material needs.

- ***Emotional reactions.*** Even if we experience emotional reactions to environmental degradation, we might still not act nor get emotionally involved. This is because of psychological defence mechanisms (see below) which can move into place to relieve us from negative feelings experienced when faced with environmental degradation or social injustice. Another important factor for action is locus of control (see next page).

Psychological defence mechanisms

When faced with the effects and long-term implications of environmental degradation or social injustice most of us experience emotional reactions depending on our emotional involvement. The emotional reactions can have various outcomes, and all of them do not end in a more sustainable behaviour. When faced with threats such as environmental degradation we can feel fear, anxiety, sadness, pain, anger, and guilt. These primary emotional reactions are distressing, and can, depending on how we cope with them lead to secondary psychological responses aimed at relieving us from the negative feelings. These secondary responses can be distinguished as various defence mechanisms that often prevent us from changing our behaviour in a positive direction [34]. Many people live with these defence mechanisms built into their daily behaviour in order to cope with negative feelings [62].

Here are a number of normal defence mechanisms [34, 62].

- ***Denial*** is the refusal to accept reality.
- ***Apathy and resignation*** are often the result of a person feeling pain, sadness, anger, and helplessness at the same time. If the person has a strong feeling that he cannot change the situation, he will very likely retreat into apathy, resignation, or sarcasm.
- ***Delegation*** is a mean to remove feelings of guilt by delegating the blame to someone else. This is also known as “scapegoating”.
- ***Rational distancing*** is the explaining away or excusing behaviour by prioritising other behaviours.
- ***Escaping*** by busying ourselves with daily activities of jobs, homes, and families while shifting our attention away from disturbing environmental news.

Locus of control

Locus of control represents an individual's perception of whether he has the ability to bring about change through his own behaviour [34]. It is a very important factor since it determines to a high degree how an individual deals with changes and threats in his environment.

A factor that is a part of locus of control is perceived self-efficacy which relates to the individuals perception of his ability to actually perform a specific behaviour.

More information related to locus of control can be found in the section about 'empowerment' and 'facing threats' (see p. 84-85).

Behaviour specific knowledge and skills

For an individual to be able to perform a specific behaviour it is essential for him to have the necessary knowledge and skills to perform the behaviour [63]. If the individual doesn't have the necessary skills or knowledge, he must learn them before the behaviour can occur. This is one internal factor which may seem obvious, but it is very important, and often overlooked.

Multiple intelligences

This section will not only mention some characteristic of each individual, it will also present a factor that can explain the different reactions of various individuals to the same stimuli.

For a long time humans were thought to posses only one type of general intelligence measurable with the IQ scale. Emotional intelligence, which represents "the ability to validly reason with emotions and to use emotions to enhance thought," has gained popularity over the last decades [64]. Alongside with this development, Howard Gardner has developed his theory of multiple intelligences which suggests that as a species human beings have a larger set of relatively autonomous intelligences [65]. These intelligences are highlighted here, because they influence us as individuals; our way of thinking, behaving, and perceiving the world. The intelligences of the individual are especially important to consider when tailoring an engagement approach to a specific individual or group of individuals.

Gardner defines intelligence as "the human ability to solve problems or to make something that is valued in one or more cultures." And the criteria an intelligence should fulfil are:

- Is there a particular representation in the brain for the ability?
- Are there populations that are especially good or especially impaired in an intelligence?

- Can an evolutionary history of the intelligence be seen in animals other than human beings?

Gardner also introduced three distinct uses of the term “intelligence”:

- A property of all human beings. All of us possess these intelligences.
- A dimension on which human beings differ. That is, no two people—not even identical twins— possess exactly the same profile of intelligences.
- The way in which one carries out a task in virtue of one's goals. Different individuals will use their own set of intelligences to achieve their goals.

Initially Gardner identified seven intelligences in his 1983 book Frames of Mind [66]. Since then, other scientists have begun to build on the theory, and the list of potential intelligences is growing. We have however chosen to only present the original seven.

The original Seven Intelligences [67]

Linguistic intelligence: a sensitivity to the meaning and order of words.

Logical-mathematical intelligence: ability in mathematics and other complex logical systems.

Musical intelligence: the ability to understand and create music. Musicians, composers and dancers show a heightened musical intelligence.

Spatial intelligence: the ability to ”think in pictures,” to perceive the visual world accurately, and recreate (or alter) it in the mind or on paper. Spatial intelligence is highly developed in artists, architects, designers and sculptors.

Bodily-kinaesthetic intelligence: the ability to use one’s body in a skilled way, for self-expression or toward a goal. Mimes, dancers, basketball players, and actors are among those who display bodily-kinaesthetic intelligence.

Interpersonal intelligence: an ability to perceive and understand other individuals – their moods, desires, and motivations. Political and religious leaders, skilled parents and teachers, and therapists use this intelligence.

Intrapersonal intelligence: an understanding of one’s own emotions. Some novelists and or counsellors use their own experience to guide others.

External factors

There are many external factors (that lay outside the individual) that have been found to have some influence, positive or negative, on behaviour. In the coming section we will give a brief overview of the following groups of external factors: physical, economic, social, and cultural.

Physical factors

Many behaviours such as recycling, taking public transportation, and buying organic products can only occur if the necessary infrastructure is available. If they are not available, the behaviours cannot take place, and the poorer such services are the less likely people are to use them due to the increased effort, discomfort and cost of the behaviour [34]. These barriers to action can primarily be removed by developing the necessary infrastructure. When it comes to designing an approach to promote or discourage certain behaviour it is important remember the influence of the physical context. It is often easier and cheaper to influence individuals by changing the physical context of the behaviour to make it more, or less "costly," than to try to convince the individuals using information to alter their perception of cost.

Economic factors

Economic factors can have a strong influence on individual's decisions and behaviour. Economic incentives can influence individuals to take certain actions and prices can prevent behaviour, or influence individuals to invest. We have not specifically looked for information in this field, but we can say that economic factors are especially important when it comes to designing new policies and strategies aimed at changing behaviour.

Social factors

Social norms

There are a number of theories that include social norms as one of the potential determinants of behaviour. Social norms are shared expectations about how people should think, feel, and behave in various circumstances [36].

According to the theory of planned behaviour [37, 38], perceived norms have an extremely large impact on how individuals behave (see p. 52-53). One reason has to do with the fact that humans beings are intrinsically social creatures who value their relationships with others because those relationships help make their lives meaningful. This reasoning is in line with the work of Abraham Maslow [68] and Manfred Max-

Neef [69] who point out belongingness, or in Max-Neef's case, participation, as a fundemental human need that motivates us. Considerable research backs this up, and indicates that "the need to belong is a powerful, fundamental, and extremely pervasive motivation" [70].

It is important to realize that human choice is not a straightforward mechanical process of calculating what is best for the individual, and that other people can have a significant impact on our behaviour. An individual can be affected more by a friend's experience than an expert's judgement, by neighbours' expectation more than by personal inconvenience or cost.

Social diffusion

Norms can be used to engage individuals, but they can also make up actual barriers to behaviour change depending on the nature of the norm, and how important the norm is to the individual. Other people's behaviours provide important information for communicating appropriate action and people frequently change their behaviour as a result of social diffusion – they do as others around them do. Everyone has probably experienced this in one way or another. One of the most prominent examples is the influence other people have on our choice of clothes and other consumer goods. Fashion and trends influence us strongly. But there are many other examples; for instance, studies have shown that the best predictor of whether people purchase solar equipment is the number of acquaintances they have who currently own such equipment [71].

Understanding the principle of social diffusion is important when it comes to influencing the behaviour and thought of individuals by working with others. In The Tipping Point, Gladwell [15] points out three types of individuals that have rare social gifts which make them very appropriate for bringing about social change through word-of-mouth epidemics (i.e. social diffusion). The three types of individuals are Connectors, Mavens, and Salesmen.

- ***Connectors*** are "social animals" who know a lot of people in various social settings, subcultures, and niches. They are experts at spreading information.
- ***Mavens*** possess vast amounts of knowledge that they wants to share and trade with others more than anything. The word Maven comes from the Yiddish, and it means one who accumulates knowledge.
- ***Salesmen*** have the skills to persuade us when we are unconvinced of what we are hearing.

In other words: Mavens are data banks, they provide the message. Connectors are social glue, they spread it, and Salesmen convince us of the message.

Social roles and part personalities

Closely related to social norms is the concept of social roles. A social role consists of a set of norms that characterizes how people in a given social position ought to behave [36]. There are many different social roles in society and a single person can have many social roles at the same time. There are, for instance, different expectations on how a person ought to behave as a professional, a boss, a colleague, a parent, a consumer, a homeowner, or a sports fan. Most of the time, these social roles have non-overlapping activities which allows them to be separated in time and space, but sometimes they overlap, and this can cause problems for the individual.

This is a dilemma that can be found in many situations related to sustainability. A person might for example buy organic and fair trade products for his or her family, but totally disregard ethical aspects in favour of purely financial aspects when purchasing goods as a professional.

The importance of fulfilling the expectations upon one's social role(s) differs between individuals. We assume that for some loyalty is very important, while others are influenced by their culture or live up to expectations to gain some sort of external reward or recognition.

The power of social roles is illustrated by what is known as the Stanford Prison Experiment carried by Zimbardo in 1971 [72].

> On Sunday morning, Aug., 17, 1971, nine young men were "arrested" in their homes by Palo Alto police. The arrestees were among about 70 young men, mostly college students eager to earn $15 a day for two weeks, who volunteered as subjects for an experiment on prison life that had been advertised in the Palo Alto Times. After interviews and a battery of psychological tests, the two dozen judged to be the most normal, average and healthy were selected to participate, assigned randomly either to be guards or prisoners. Those who would be prisoners were booked at a real jail, then blindfolded and driven to campus where they were led into a makeshift prison in the basement of Jordan Hall. Those assigned to be guards were given uniforms and instructed that they were not to use violence but that their job was to maintain control of the prison. As Brady and Logsdon describe it, "the outcome of the experiment was quite dramatic and unexpected by researchers. (…) Designed to last two weeks, the experiment was terminated after just six days." One of the reason being severe psychological symptoms from some prisoners, most certainly due to the guards' treatment of the prisoners, such things as forcing them to clean out toilet bowls with their bare hands and act out degrading

The Stanford Prison Experiment cont.

scenarios, or urging them to become snitches. Quoting Zimbardo: "It was no longer apparent to most of the subjects (or to us [researchers]) where reality ended and their roles began. The majority had indeed become prisoners or guards, no longer able to clearly differentiate between role playing and self. There were dramatic changes in virtually every aspect of their behaviour, thinking and feeling. In less than a week the experience of imprisonment undid (temporarily) a lifetime of learning; human values were suspended, self-concepts were challenged and the ugliest, most base, pathological side of human nature surfaced".

Cultural factors

> *« Culture is to society what memory is to individuals. In other words, culture includes traditions that tell "what has worked" in the past. It also encompasses the way people have learned to look at their environment and themselves, and their unstated assumptions about the way the world is and the way people should act. »*
>
> Triandis, 1994 [73]

Culture influences the way we are, how we perceive, categorize, believe, and value things in our environment, and by doing so, it influences our behaviour. Culture is one of the things that shape us as individuals.

When examining cultures various patterns emerge. These patterns are expressed differently in each culture, but have general characteristics that apply to all cultures, these are cultural syndromes. "A cultural syndrome is a pattern of beliefs, attitudes, self-definitions, norms, and values that are organized around some theme that can be identified in a society" [73].

Here are some cultural syndromes that might be useful to consider [73]:

- ***Complexity:*** For example, in complex societies one finds subgroups with different beliefs, attitudes, etc. whereas in simple societies individuals are in considerable agreement about their beliefs and attitudes.
- ***Tightness:*** Tight cultures have many rules, norms, and ideas about what is correct behaviour in each situation; loose cultures have fewer rules and norms.
- ***Individualism and collectivism:*** Triandis suggests that individualism emerges in societies that are both complex and loose; collectivism in societies that are both simple and tight. For example when Americans were asked to recall what made

them angry they remembered mostly events that happened to them personally; when Chinese were given that task they remembered mostly events that occurred to other people. This self-focus versus other focus is an important contrast between individualism and collectivism.

- ***Vertical and horizontal cultures:*** Vertical cultures accept hierarchy as a given. Horizontal cultures accept equality as a given.
- ***Active – passive cultures:*** In active cultures individuals try to change the environment to fit them; in passive cultures people change themselves to fit into the environment.
- ***Universalism – particularism:*** In universalist cultures people try to treat others on the basis of universal criteria; in particularist cultures people treat others on the basis of who the other person is.
- ***Diffuse – specific:*** Diffuse cultures respond to the environment in a holistic manner (e.g. I do not like your report means I do not like you).
- ***Instrumental – expressive:*** People may more heavily sample attributes that are instrumental (e.g. get the job done) or expressive (e.g. enjoy the social relationship).
- ***Emotional expression or suppression:*** The free expression of negative emotions can disrupt relationships, so collectivists tend to control such emotions. Individualists are often high in emotional expression.

AIR - Understand how change happens

The illusion of ”information → attitude change → behaviour change”

How does an individual change?

Unfreeze → Movement → Freeze
Precontemplation → Contemplation → Preparation → Action → Maintenance
Security → Anxiety → Discovery → Integration
Innovation-Diffusion Theory and The Amoeba Process

When is change likely to happen?

Perceived value difference
Facing threats
Empowerment

What promotes a lasting change?

Types of commitment
Change brought from a feeling of freedom

The illusion of "information → attitude change → behaviour change"

As described in the section about 'determinants of behaviour' there are many theories and frameworks that have been developed to explain and understand human behaviour. In the 1970's the models for explaining environmental behaviour where very linear and very simple. They built on the simple idea that information could be used to create awareness and knowledge, shape attitudes, and by doing so bring about behaviour change. Attitudes were considered as the prime cause of behaviour.

These models were soon proven wrong by research that showed that in most cases increases in knowledge and awareness did not lead to pro-environmental behaviour. In spite of this fact, it seems like most NGO's (non governmental organisations), businesses, and governments still base their communication campaigns and strategies on the simplistic assumption that more knowledge will automatically lead to more enlightened behaviour [34, 32, 33].

This does not mean that attitudes and awareness are not important. Indeed, information can be a very useful tool, especially when it takes principles of effective communication into consideration. And there are many studies showing that changes in attitudes can lead to significant behaviour change. But they are not the only factors that have influence upon the individual. There many other factors that can be influential, as shown in the section about 'determinants of behaviour', and 'internal' and 'external factors'.

Change happens when internal and external factors are in favour change, and when there are no significant barriers to change. What this means in reality depends on the individual and on the situation. There are no simple recipes to give.

How does an individual change?

There are many theories and models that address the process of change. These have much in common with the psychological theories explaining the relationship between various factors and their influence upon behaviour. The models we present are also compatible with each other and while each theory tends to offer unique concepts and insights, differences seem to be more a matter of emphasis, focusing on different aspects of behaviour, rather than complete contradictions.

In the following section we present three theories that conceptualise behaviour change. All of the theories describe change in terms of a cyclical process through which individuals move in stages. No one of these theories is right or wrong. Rather, it is a matter of deciding:

a) Which theories and/or concepts have most relevance and usefulness with respect to a given issue or question.

b) At which stage of the overall change process will the various theories and concepts have most meaning and application.

We chose those three models because they seem to have support from empirical research, and also because they express change in slightly different ways that might be interesting as food for thought for anyone who wishes to engage individuals. One question that is good to consider when viewing the models is: "how interventions to change behaviour can be matched to the state of readiness of the individual?".

The three theories are:

- Unfreeze → Movement → Freeze
- Precontemplation → Contemplation → Preparation → Action → Maintenance
- Security → Anxiety → Discovery → Integration

We also present a fourth model – the Amoeba process – which builds upon innovation-diffusion theory and gives a description of how change happens in the social system, and how individuals play different parts in social change.

Unfreeze → Movement → Freeze

In the 1940s, Kurt Lewin developed a change theory in three phases through which the change agent must proceed before the planned change becomes a part of the system. The theory is described from the perspective of the change agent, the one who wishes to engage others to bring about change. It is summed up in the table below [74]:

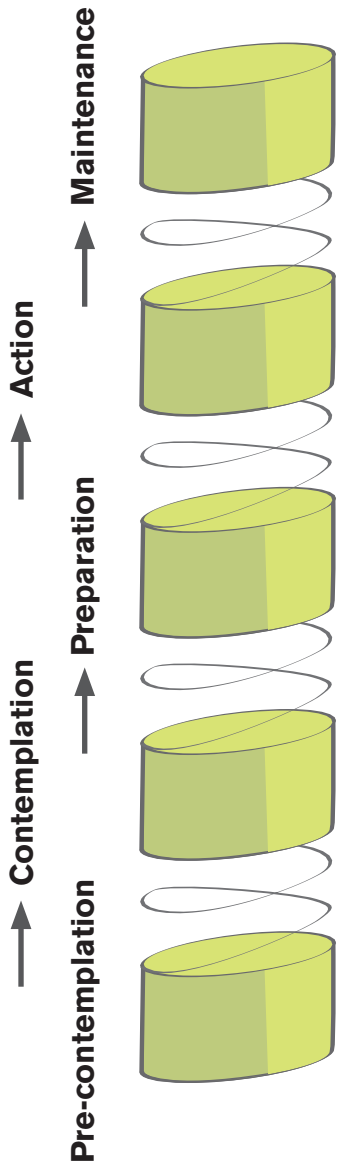
3 phases	*Description*	*Responsibilities of the change agent*
Unfreezing	- Recognize the need for change by identifying driving and resisting forces. - The change agent unfreezes forces that maintain the status quo. People often become discontented and aware of a need to change. Before change can occur, they must believe change is needed.	- Gather data, diagnose problems, decide if change is needed, and make others aware of this. This may involve deliberate attempts to raise the group's level of discontent.
Movement	- Change is implemented through a strategy which decreases resisting forces. - The change agent identifies, plans, and implements appropriate strategies. One must be sure that driving forces for change exceed restraining forces.	- Develop a plan, set goals and objectives, Identify areas of support and resistance. Set target dates, and implement the strategies. Be available to support others through the change. finally, modify (if necessary) and evaluate.
Freezing	- Reinforce new behaviour and be open to feedback. - The change agent assists in stabilizing the change in the system so that it becomes integrated into the status quo.	- Support others so that the change remains in place.

The activities of the change agent described by Marquis and Huston would gain in efficiency by taking into consideration the concepts presented in the Fifth Element, around systems thinking, and in Earth around backcasting and strategic actions.

Precontemplation → Contemplation → Preparation → Action → Maintenance

Prochaska and DiClemente [75] developed a transtheoretical model of behavioural change, which proposes that behaviour change occurs in five distinct stages through which people move in a cyclical or spiral pattern.

Note: Start at the bottom



Maintenance: practice required for the new behaviour to be consistently maintained, incorporated into the repertoire of behaviours available to a person at any time.

Action: people make changes acting on previous decisions, experience, information, new skills, and motivations for making the change.

Preparation: person prepares to undertake the desired change – requires gathering information, finding out ow to achieve the change, ascertaining skills necessary, deciding when change should take place – may include talking with others to see how they feel about the likely change, considering impact change will have and who will be affected.

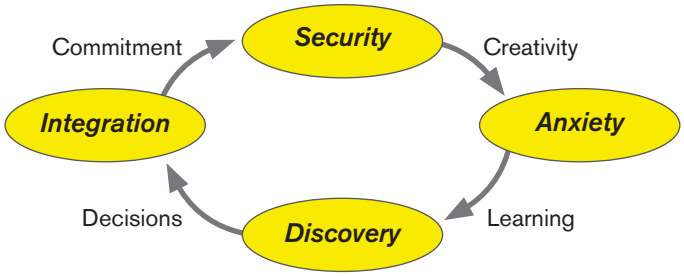
Contemplation: something happens to prompt the person to start thinking about change - perhaps hearing that someone has made changes – or something else has changed – resulting in the need for further change.

Precontemplation: changing a behaviour has not been considered; person might not realise that change is possible or that it might be of interest to them.

The BehaviourChange spiral from «What do they want us to do now?» AFAO 1996 [76]

Security → Anxiety → Discovery → Integration

In 1996, French and Delahaye [77] proposed an individual change transition model based on four phases that are connected by a series of propellants that sets the journey between the different stages in motion.



The individual change transition model starts with the individual in a pre-change mode, called the security phase. French and Delahaye recognize that it is important to examine this pre-change phase as it establishes the conditions under which an individual may or may not commence the change journey.

Phase one – security. The first phase in a change transition process is a period of security caused by the familiarity of processes, habits and patterns used to accomplish past successes.

Creativity - the first propellant. Individuals face the beginning of change from the safe, secure position of past success in familiar areas of knowledge, abilities and skills. However, the new beginning changes the basis of these old securities. This new beginning starts with a creative idea for change.

Phase two – anxiety. The second phase in the change transition process is the period of anxiety caused by the loss of old familiar patterns and processes. It is important to realize that some feelings of anxiety will occur even in self-induced change. Feelings range from mild confusion and self-doubt, to anger, panic and even feelings of numbness and immobilization. Denying the existence of this important phase: heightens resistance, can extend the anxiety phase, and limit the success of the change by encouraging a return to the security phase.

Learning - the second propellant. Learning is the modification of behaviour through interaction with the environment. Learning, according to Odiorne [78], is what moves individuals from present behaviour to the desired behaviour.

Phase three – discovery. The third phase in the change transition process is the period of discovery during which new information, skills, and behaviours are uncovered. This phase of the change transition is about exploration of new and exciting areas previously unknown. This is the energetic phase of the transition process, because it is about empowerment. Self-esteem rises as new processes and skills are discovered, it is also a stage of chaos.

Decision making - the third propellant. The one constant in change is the fact that it offers choices. The choices include ignoring the need to change, modifying goals, modifying strategies for achieving goals, or adopting all the requirements of the change procedure, but choice is mandatory. Even not choosing indicates a choice.

Phase four – integration. The fourth phase in the change transition process is the period of integration, during which the new information, skills and behaviours are used to develop new practices and processes. Decision making provides the movement that integrates the new behaviours into current processes. The integration phase is the action phase of the change transition. Integrating all the parts of the change into a whole is an exciting phase of the change process. The new behaviours that are built on new values and beliefs are adopted and integrated into accepted behaviours. Other values, beliefs, and behaviours may be rejected.

Commitment. As the commitment to new behaviours is built, a new form of security and understanding is developed that remains until future change transitions require some modification or disruption.

At last the transition process is complete, the old behaviour has been abandoned, the new behaviour discovered, implemented and evaluated. This is not about compliance, rather a commitment to something believed in through the individual pain of loss, the joy of discovery, and the excitement of achieving.

Innovation-Diffusion Theory and The Amoeba Process

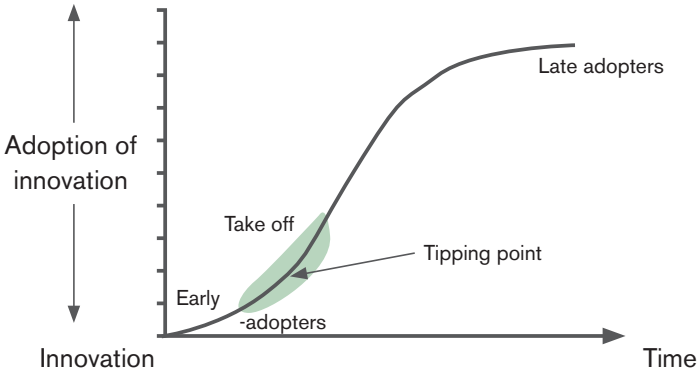
AtKisson [79, 80] has developed a model called the 'amoeba process' that describes how new ideas, technologies, or values spread through an entire culture. The process is highly related to the much trusted innovation-diffusion theory that was pioneered by Rogers [81]. The 'amoeba-process' was developed as a game to introduce and illustrate innovation-diffusion theory, it is because of its clarity that we use it here.

The Innovation Adoption Curve

Researchers have discovered that the adoption of an innovation in any given population follows a fairly predictable pattern [see figure below]. An innovation starts with an

innovator, often a single individual with a new idea. "New" here means unknown to the culture, even if the idea is very old. After its conception, an innovation spreads slowly at first – usually trough the work of change agents, who actively promote it – then picks up speed as more and more people adopt it. Eventually it reaches a saturation level, where virtually everyone who is going to adopt the innovation has done so [79].

The Innovation Adoption Curve



Adapted from Rogers [81], and AtKisson [79].

A key point, early in the process, is called take-off (or tipping point [15]). When the number of early adopters reaches a critical mass – usually between 5 and 15% - the process can become irreversible. The adoption rate increases rapidly as more and more people adopt and promote the new innovation.

Rogers [81] distinguishes beetween five categories of adopters of new innovations derived from their time of adoption of the innovation. The five categories are: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards.

In discussing the dominant characteristics of each category, Rogers characterizes innovators as venturesome, early adopters as opinion leaders who are widely respected in their social circle, early majority members as "deliberate", the late majority as "sceptical" about the value of an innovation, and laggards as "traditional."

Similarly to Rogers, AtKisson identifies nine basic types of people who play important roles in the diffusion of new innovations and ideas. Becoming familiar with these enhances understanding of how social change comes about, and makes it easier to make strategic choices of who to engage. AtKisson presents this in the "Amoeba of Culture" and the "Anatomy of Cultural Change." He also presents five helpful characteristics of successful innovations that have been identified through innovation-diffusion research. The following sections come directly from his 1991 article; *The Innovation Diffusion Game* [79].

The Ameoba of Culture

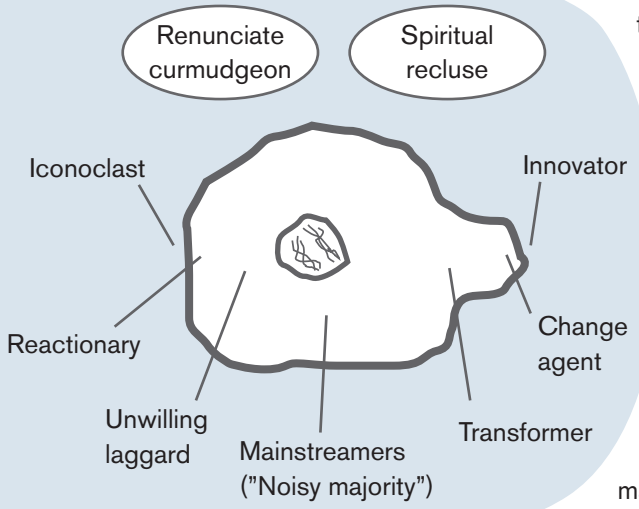
Picture human culture - or any particular subculture of it - as a giant amoeba. Individuals are like the molecules that make up that amoeba. They move around, playing different roles at different times in different parts of the organism.

An amoeba moves by sticking out a small pseudopod (false foot) into new territory. The rest of the organism inevitably comes sloshing along behind. Because of this sloshing effect, the nucleus or center of the amoeba arrives a bit late on the scene compared to the majority of the organism's molecules.

This review of basic biology provides an elementary model for how cultures change. The sloshing of the nucleus is akin to the phenomenon of the lagging center - the tendency for the mainstream (and especially the power structures) to be far from the forefront of cultural advance.

The Anatomy of Cultural Change

The main features of the "amoeba of culture" can be broken down into nine basic roles, played out in the Innovation Diffusion Game:



Innovator. The progenitor of new ideas; the leading edge researcher, thinker, or inventor; sometimes considered "fringe" or "eccentric" by the mainstream; on the amoeba's very membrane.

Change Agent. The "idea broker" for the Innovator; the promoter of new ideas, solutions, directions; the innovation marketer and communicator; found in the interior of the pseudopod.

Transformer. The "early adopter" in the mainstream; open to new ideas; wants to promote positive change; often a forward-thinking member of a mainstream organization; found near the point where the pseudopod is attached to the main body of the amoeba.

Mainstreamers. The "noisy majority," busy with the basics of life; the "average person"; neither for nor against change, often unconscious that it's happening; will change when other Mainstreamers change.

Unwilling Laggard. A "mainstreamer" who doesn't like change in general; late adopter of the innovation; changes only under pressure from the majority.

Reactionary. Has a vested interest in keeping things as they are or in moving in the opposite direction; actively resists the adoption of the innovation; sometimes has an economic or power interest in the status quo; would put out a competing pseudopod if possible; changes only if unavoidable, and then very late in the process.

Iconoclast. "A person who attacks cherished beliefs"; actually a silent partner to the Innovator; also believes things must change for the better; often a journalist, critic, artist, or social gadfly; while the Innovator pulls the amoeba from in front, the Iconoclast kicks it from behind (and keeps the Reactionaries busy).

In addition, there are two key roles that operate outside the membrane of the amoeba of culture:

Spiritual Recluse. The monk, ascetic, visionary, meditator; more preoccupied with eternal truths than present realities; often a source of inspiration to the Change Agents, Innovator, or even the Iconoclast; produces a kind of "food" for the amoeba.

Renunciate Curmudgeon. The grouch who hates society and has abandoned it; often a source of inspiration to the Iconoclast; the backwoods pioneer, solitary crank, angry punk rocker, or even the criminal; sometimes creates an antagonistic subculture.

It's important to remember that in real life, everyone plays all of these roles in different contexts. For example, you may be an Innovator when it comes to cooking, a Mainstreamer when it comes to grocery shopping, but a Reactionary when it comes to microwave ovens.

Clearly, culture is far more complicated than this analogy suggests. Nevertheless, this is a useful way to think about it for the purpose of understanding the process of innovation diffusion.

Successful innovations

What makes an innovation successful? Innovation diffusion theorists have identified five critical characteristics that may be helpful to think about in playing the Innovation Diffusion Game. Note that these are not requirements for a successful innovation; but their presence or absence could greatly affect the rate at which it gets adopted.

Relative Advantage. Is the innovation better than the status quo? Will people perceive it as better? If not, the innovation will not spread quickly, if at all.

Compatibility. How does the innovation fit with people's past experiences and present needs? If it doesn't fit both well, it won't spread well. Does it require a change in existing values? If members of the culture feel as though they have to become very different people to adopt the innovation, they will be more resistant to it.

Complexity. How difficult is the innovation to understand and apply? The more difficult, the slower the adoption process.
Trialability. Can people "try out" the innovation first? Or must they commit to it all at once? If the latter, people will be far more cautious about adopting it.
Observability. How visible are the results of using it? If people adopt it, can the difference be discerned by others? If not, the innovation will spread more slowly.

When is change likely to happen?

In the following section we present three concepts that shed some light on when change is likely to happen.

- Perceived value difference
- Facing threats
- Empowerment

Perceived value difference

In his book Believing Cassandra, AtKisson [80] presents an equation defined by Robert Gilman, founder of In Context magazine. It is a very simple formula for explaining what it takes for change to happen. Here it is [80]:

Change occurs when N-O > CC, meaning when:

Perceived Value of the New way	–	Perceived Value of the Old way	>	Perceived Cost of the Change

AtKisson helps to further interpret Gilman's equation: "In other words, for an innovation to be adopted and change to occur, the difference in perceived value between the old and the new way of doing things has to seem greater than the perceived cost of the switch."

"The key word in the equation is "perceived." It doesn't matter how beneficial the new thing seems to you, how obvious the problems of the old, or how worthwhile the switch. Other people have to see the prospect of change that way."

Facing threats

As elaborated on in the section on 'emotional involvement' and 'psychological defence mechanisms', most of us experience emotional reactions when faced with threats. An emotional reaction that arouses fear or anxiety can lead to psychological defence mechanisms that hinder the individual from adapting a new behaviour. But not everyone who experiences anxiety or fear ends up in denial or in use of any of the other defence mechanisms.

The best evidence suggests that fear also may lead people to take constructive action and not only to minimize and ignore a problem. This is depending on various factors, such as whether they believe they are vulnerable to the threat, their judgement of its severity, their awareness of positive action to take in response, and the belief that they can actually take those actions at an acceptable cost not only in terms of money, but in time, effort, and so on [33]. Similarly Rogers and Prentice-Dunn [82] express that fear will be successful in changing behaviour when they convince a person that:

- The problem is serious;
- The problem may affect the person;
- He can avoid the problem by taking certain specific action;
- He is capable of performing the behaviour required to avoid the problem.

The Norm-Activation Theory also states that an individual does not necessarily have to believe that the problem may affect him, but that there is a need for some sort of change, and that he accepts responsibility for that need [83].

In conclusion, there are two ways of handling threats, through problem-focussed coping, which focuses on creatively solving the problem, or through emotion-focussed coping, which relies more on dealing emotionally with the problem. Generally, problem-focussed coping is most likely to occur when threats are perceived to be moderately severe, probable, and when 'cost'-effective responses are known and available. A high perceived threat without the perceived ability to handle the problem leads to maladaptive responses, such as denial or unfocussed emotionality [42]. Whichever strategy is chosen, it will guide the person's behavioural intentions and certainly have some effect on the final behaviour as long as the actual external barriers are not too strong.

Social influence on choice of coping method. There is research showing that regarding global issues, such as sustainability and the enormous challenge it presents, our sense of community can be largely determine our perception of control. If we feel that we can have an impact together with others, we are more likely to act, than if we feel little common purpose [84, 85].

Empowerment

Empowerment is defined as a process where individuals are able to change from a state of powerlessness ("I cannot") to a state of self-confidence ("I can") and collective self-confidence ("we can") [86]. It is a process through which individuals and groups gain power from within themselves by understanding their situation, their own value and strength, and their own capacity to handle problems that they meet in life [87].

According to Naila Kabeer [86] such power from within cannot be given to someone else, it has to be self-generated and taken. There is however a number of different

pedagogical theories around how empowerment can be brought about. The most influential pioneer of these theories was probably the Brazilian educationalist Paoulo Freire who in 1972 published the book Pedagogy of the Oppressed [88]. Through his work Freire's focuses on individuals becoming subjects in their own lives and developing a critical consciousness – an understanding of their own living conditions and circumstances and the social environment – the result of which is taking action [89].

There are many aspects of Freire's work that are interesting when it comes to engaging individuals to take actions towards sustainability. Four aspects are identified in a review by Smith [90]:

- Freire emphasizes dialogue as a primary tool that allows people to work with each other.
- Freire was concerned with the fact that actions taken should be informed and committed to change things in the world.
- Freire argues that developing consciousness and awareness of one's situation gives the power to transform reality.
- Freire insists that educational activity should be situated in the lived experience of the individual. That means that all educational attempts should start from the experience, interest, and perspective of the individual participants involved.

It is important to realize that although we cannot empower anyone, we can help provide opportunities for empowerment. This can be done as a friend, a mentor, a facilitator, or an ally since leadership roles need to remain with the person or group that is in the process of empowering itself. The individual or group must make and own its decisions, so that they can develop and experience their own power over their situation.

In line with this and with the four interesting aspects of Freire's work, one of the most important roles of the facilitator of empowerment is to listen actively to understand the perceptions of the individual and his needs [91].

The process of empowerment has had different names over time, for instance, awareness building, consciousness raising, transformative pedagogy, informal education and popular education, and is highly interrelated to the concept of lifelong learning.

What promotes a lasting change?

We have found two factors that can promote a lasting change, that is, the type of commitment of the individual, and whether the change is brought from a feeling of freedom.

Types of commitment

A person's level of commitment to change or to take a specific actio has a direct effect on the likeliness of the person actually changing or taking that specific action. What shapes the level of commitment is a complex question that cannot be easily answered. Even though many studies have been done, no single theory has surfaced as the prominent explanation.

In his book, Art of winning Commitment, Dick Richards [92] argues that commitment can be divided into four different forms. The four forms of commitment are:

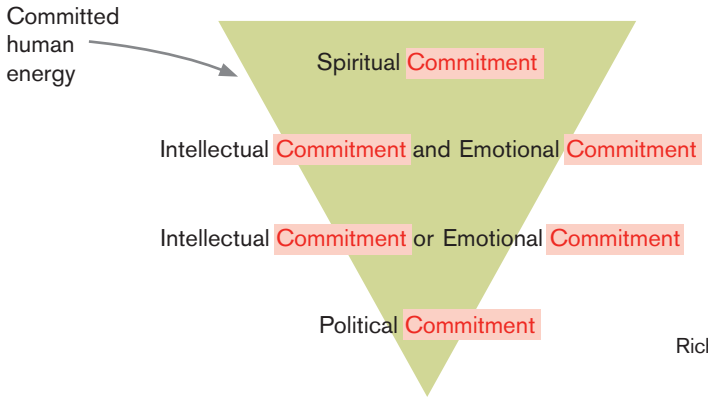
Political— commitment to something in order to gain something else

Intellectual— commitment of the mind to a good idea

Emotional— commitment that arises out of strong feelings

Spiritual— commitment to a higher purpose

Richards further argues that these four forms of commitment combine in various ways to make up a four level hierarchy as described in the figure below. Political commitment is at the lowest level, intellectual or emotional commitment at the next level, the combination of intellectual and emotional commitment still higher, and spiritual commitment at the highest level. The triangle in the figure represents the amount of human energy that becomes available as people make the various kinds of commitments. The least amount of energy becomes available when commitment is purely political, and the greatest amount of energy when spiritual commitment is inspired.



Richards, 2004 [92]

The term “spiritual” is used here not in the sense of “religious” but as a calling from some source larger than one’s self. The call may be religious, but might also be from some other source such as a community, a family, a set of ideals or values, or those who are in need.

The figure below describes the value and limitations of intellectual and emotional commitment.

Commitment	*Value*	*Limitations*
Intellectual	Sophisticated understanding of the broader significance of the purpose.	Possible inaction or halfhearted action.
Emotional	Motivation to get involved - to act on the purpose.	Lacks broad perspective on the significance of the purpose. Actions may be unintentionally off-purpose.

Change brought from a feeling of freedom

Authority is undoubtedly an efficient way to modify behaviours, and the example of the policeman on the side of the road is probably clear enough. But it is risky to count on authority, persuasion, or manipulation when looking for long term effects, or trying to have an influence on people’s behaviours and ideas.

Change that is voluntary and brought from a feeling of freedom is likely to be stronger and more lasting than compliance due to being pressured. When pressured in some way to change, most of us react in defence, and put up internal resistances to change as a result. Compliance without pressure, brought from a feeling of freedom, relieves these resistances and allows for an easier change [56].

This has been proved through many research studies from the field of psychology of commitment which studies how voluntary commitments can influence individuals to change. In the section about ‘commitments, the strive for consistency, and the trap of decision making’ we presented an example how powerful commitments can be. Here is another one:

> *One day prior to a U.S. presidential election, a sample of registered voters were approached and asked: “Do you expect you will vote or not?” All agreed that they would vote. Relative to voters who were not asked this simple question, their likelihood of voting increased by 41% [93].*

FIRE - Design an approach and perform it

Take the four other elements into account!

A few strategies to guide interventions

Three basic strategies -Promote the new, critique, facilitate the transition
Seven levers of change
Involvement of the audience
Matching interventions and barriers
Use multiple intervention strategies
Pilot, test, and continously monitor, evaluate and adjust the intervention strategy
One example: Community Based Social Marketing

Interventions

Different types of interventions - introduction
Information and communication
Principles for effective communication

Vivid, personal, and concrete information – Appropriate types of information – Threat appeals – Credible information – Framing the message – One or two-sided messages – Feedback – Modelling – Prompts and reminders – Committing actions – Cultural influences

Interpersonal interaction
Incentives
Compliance techniques

Foot-in-the-door – Low-ball and lure – Labelling – Door-in-the-face

Take the other four elements into account!

The first and foremost important thing to remember when going through this Element (Fire) is that to design an approach, the other four Elements have to be taken into consideration.

A quick reminder:

- ***Fifth Element:*** Be aware you're dealing with systems.
- ***Earth:*** Understand yourself and what you want to achieve.
- ***Water:*** Understand the other's behaviour and the influence of context.
- ***Air:*** Understand how change happens.

A few strategies to guide interventions

In this section, we cover a number of basic strategies that are good to consider when designing an approach to engage individuals:

- Three basic strategies – Promote the new, critique the old, facilitate the transition
- Seven levers of change
- Involvement of the audience
- Matching interventions and barriers
- Use multiple intervention strategies
- Pilot, test, and continuously monitor, evaluate and adjust the intervention strategy.
- One example: Community Based Social Marketing

There are also a few concepts and theories from previous Elements that can be translated into strategies that we do not present below. Empowerment is one such example (see p. 85).

Three basic strategies – Promote the new, critique the old, facilitate the transition (Strategy)

In Believing Cassandra, Alan AtKisson [80] suggests three basic strategies to motivate change. He bases the three strategies on the 'Gilman equation' described in Air (see p. 84). In short the equation states that for change to occur, "the difference in perceived value between the old and the new way of doing things has to seem greater than the perceived cost of the switch". The equation leads to three basic strategies which are:

1. ***Promote the new*** (i.e. increase the perceived value of the new idea by promoting it).
2. ***Critique the old*** (i.e. decrease the perceived value of the status quo by pointing out, either directly or subtly, its faults and weaknesses).
3. ***Facilitate the switch*** (i.e. decrease the perceived "cost" – in terms of time, money, status, inconvenience, or coolness - of the change by making it easy for people to change).

All of the three strategies are important but AtKisson singles out the third strategy as the most important and least obvious of the three. Forgetting it is one reason why many change efforts fail.

Seven levers of change (Strategy)

Based on decades of psychological research, Howard Gardner has identified what he calls "seven levers" that can have a significant impact – for better or worse – on the process of mind change. These seven levers are presented in his book Changing Minds [94]. The work is to a large degree based on his research about multiple human intelligences and the differences between individuals (see p. 67-68).

The key is to interact in a format–and through the levers–that are most appropriate for the audience you seek to change. He also states that the more of an individual's intelligences you can appeal to when making an argument, the more likely you are to change a person's mind, and the more minds you are likely to change. We found a similar thought in Gladwell's book The Tipping Point [15], namely the "stickiness factor" which relates to how well a message sticks to your memory once you have encountered it.

The seven levers are:

Reason	Making logical arguments.
Research	Presenting factual data.
Resonance	Connecting with an individual's or group's emotional or spiritual core.
Representational redescriptions	Presenting the same idea in multiple formats, reflecting our various intelligences.
Resources and rewards	Offering positive or negative reinforcement.
Real world events	Leveraging happenings that are out of your control.
Resistances	Identifying and countering longstanding contrary beliefs.

In general, a mind change is most likely to come about when the first six levers operate in concert and the seventh lever – resistances – is relatively weak. But various levers certainly take prominence depending on the person or group you are targeting. For example, Reason and Research are most important for those involved in intellectual argumentation, such as two policymakers debating a political issue. Resonance comes to the front in intimate relations, such as a wife trying to appeal to her husband's emotions or his love of family to get him to quit smoking.

The seventh lever is very much about understanding the individual whom you wish to engage. By identifying and finding out about the traits, dispositions, and favoured mental representations of the person whose mind you are trying to change, you can tailor your approach and improve your chances of success. For example, if the person in question cares about logic, consistency, directness, and verbal argument, you would treat that encounter very differently than you would with another who is concerned about emotion, respect, subtlety, and nonverbal forms of communication.

Gardner suggests a systematic approach to change minds including how to use the seven levers that we include here since it gives some ideas which can be helpful when designing and planning an engagement approach.

- Determine the current content: what idea, concept, story, theory, or skill is presently reigning.
- Define the mind change you seek to bring about.
- Identify the counter-content: what ideas will have to be overcome in order for the new idea to take hold?
- Assess your audience: what type of idea and approach work best depending on the size and type of the audience whose minds you are seeking to change?
- Determine the most effective format to convey the new idea.
- Decide which combination of the seven change levers will best help you reach a tipping point with your audience.

Involvement of the audience (Strategy)

In order to engage an individual and to influence his way of thinking and doing things, it is good to understand the factors that hinder the individual from changing and what might motivate the individual to change, i.e. Water and Air. Only then can interventions be designed to effectively engage the individual. It is also important to realise that the factors vary over time, between individuals, depending on situation and with the targeted behaviour [33]. It is dangerous to presume that you know what the barriers and opportunities are without investigating them.

Every situation should be considered as unique which makes it necessary to do some primary research. Doug McKenzie-Mohr and William Smith [32] recommend a three step approach.

1. Review relevant articles and reports.
2. Following the review, conduct qualitative research involving focus groups and observational studies.
3. Building on the information from qualitative research, conduct a survey with a random sample of residents. The survey can provide valuable in-depth information about the factors hindering change as well as the target groups perception of the benefits and barriers of the requested behaviour.

A more participatory approach where the target group / individual are involved in the development of the engagement strategy allows for flexibility and faster feedback, sometimes at the cost of scientific rigour. Another great benefit from involving the target group / individual is that trust, satisfaction and even participation levels can increase. This is especially true if the target group members who are involved include important members of various subgroups [33]. If the target group gains ownership of the engagment process and are the ones who are leading and creating it, then the role of the engager becomes to facilitate the process to whatever extent it is needed.

Matching interventions and barriers (Strategy)

After identifying potential barriers and opportunities, when moving on to designing the engagement approach, it is essential that the tools and interventions you select are matched to those barriers and opportunities. For example, if the individual does not have enough sustainability awareness, you might consider including information and other tools in your approach to raise that awareness. If the awareness is there, but not the motivation to act, you might consider trying to develop or leverage social norms, use incentives, or ask the individual to make a commitment. There are many actions and tools that can be used, the trick is to tailor them to the barriers and opportunities of the specific context.

It helps to think of changing behaviour in the same way a gardener, or a farmer, thinks about the growth of plants. In terms of limiting factors, a gardener recognizes the importance of things such as sunlight, water, good soil, and a number of nutrients. Given less than ideal amounts of any of these factors, plant growth slows down or even stops. Providing what is missing will increase growth, until some other limit is reached. From this point of view it is the gardener's or farmer's job to diagnose the situation, that is, to find the limiting factors, and then to supply them. It is more or less the same for behaviours. Approaches that assume that the absence of a behaviour always has

the same cause and that the same type of intervention is always needed – whether it is incentives, education or something else – are likely to be ineffective most of the time [33].

Use multiple intervention strategies (Strategies)

In their book *Environmental Problems and Human Behaviour*, Gardner and Stern [33] analyse a number of successful intervention programmes and come to the conclusion that the greatest degree of behaviour change occurs when different strategies are combined. They give three main reasons to why multiple intervention strategies are generally more successful than single intervention strategies:

- Limiting factors to behaviour change are often numerous (e.g. motivation, attitudes, behaviour specific knowledge, economic factors, convenience, etc);
- Limiting factors vary with actor, situation, and over time; and,
- Limiting factors affect each other in a complex manner.

Because of these reasons Gardner and Stern [33] recommend that intervention strategies are combined to deal with the diversity of barriers, situations, and individuals, and to help overcome the difficulty of knowing which is the optimal intervention type for any specific situation.

Pilot, test, and continuously monitor, evaluate and adjust the intervention strategy. (Strategy)

It is important to pilot and test an engagement approach before performing it, and then to monitor, evaluate, and adjust it continuously [15, 32, 33]. Basically, you need to test your intuitions since the world might not be in accordance with them. It is difficult to know in advance what is the best combination of interventions for a specific situation because of:

- The difference between situations;
- The need to see the situation from the individual's perspective; and,
- The fact that it is not likely that the approach will be perfect from the beginning.

There is a saying that "an ounce of prevention is worth a pound of cure." We assume that this is true in the case of intervention strategies as well. Making mistakes when trying to engage individuals can be costly in more than financial terms. Mistakes can irreversibly damage the possibility of engaging the individual successfully by reinforcing barriers or damaging the relationship to the individual. By careful preparation, big mistakes can be avoided and the chances of success increased.

One example: Community Based Social Marketing (Strategy)

Community based social marketing is a fairly new concept addressinghow to achieve behaviour change, and a good example of a strategy to engage individuals using some of the concepts described above. It has gained a lot of attention in recent years for its promising development. It is based upon research in the social sciences that demonstrates that behaviour change to be most effectively achieved through initiatives delivered at the community level. Initiatives that focus on removing barriers to an activity while simultaneously enhancing the perceived benefits of the activity [32].

Community-based social marketing involves four steps: 1) Identifying the barriers and benefits to an activity, 2) Developing a strategy that utilizes "tools" that have been shown to be effective in changing behaviour, 3) Piloting the strategy, and 4) Evaluating the strategy once it has been implemented across a community [32].

Among the tools that community based social marketing research has found effective in changing behaviour are: seeking commitments, using effective communication, highlighting and developing community norms, using social diffusion, personal contact, using prompts that remind people to act, and providing incentives that encourage the individual to act. Information related to these various tools and techniques can be found in the section below about various intervention types, and in the Elements of Water and Air.

Some possible interventions:

There are many different types of intervention that can be used to engage an individual to act strategically towards sustainability. In this Guide, we don't address interventions that focus on removing external barriers, such as physical or infrastructure related issues; this would require a separate guide. We would like to remind you that external barriers often have to be removed for behaviour change to be possible. A short overview of the interventions we focused on is presented below.

Information and communication are essential to bring about change. In the subsection about principles for effective communication we explore what it is that makes information work. Important concepts such as modelling, prompts (visual or auditory signs that act as reminders), feedback, and commitment are explained, and a few examples of how culture can influence communication are presented.

We briefly explore ***interpersonal interaction***, a few interpersonal communication techniques which can help avoid and solve conflicts, and increase communication effectiveness. With regard to interventions dealing with external factors to the individual, we give a short overview of the otherwise very broad concept of ***incentives***.

And finally, ***compliance techniques*** are commonly used in marketing and allow people without power or ability to pressure to influence other individuals into performing an action they may not normally. The essence of compliance techniques is that they influence the individual to act freely based on their own ideas and values, which reduces resistances within the individual. A few of the most common techniques are described and illustrated with examples of how they have been used successfully.

There are of course many other techniques and types of interventions than those we describe here, for instance, the use of laws and regulations or participatory techniques such as appreciative inquiry. We did not include more of them due to lack of resources and time. We hope that information and research findings about these can be added and shared in the future by us or by others who are interested in the subject of better engaging individuals to act strategically towards sustainability.

Information and communication

Information is probably the most common pillar that programmes and approaches to engage individuals rely on. Most of these information interventions are based on the assumption that by increasing the knowledge of the individual, one can change the individual's attitudes and finally his behaviour. As discussed above (in Water, p. 62) the relationship between attitudes and behaviour depends also on other factors that have to correlate in order for attitudes to influence behaviour.

However, this does not mean that information is useless. Information will remain one of the most important tools to engage individuals. But information can be designed and communicated with varying degrees of success. In the following section we present a series of principles for effective communication.

It should also be said that the above statement about the effectiveness of informational interventions can be viewed differently from a long time perspective. In the short run, information is usually not sufficient for change to happen, but long-term educational strategies can be critical in building the public support and awareness over time. Long-term educational strategies are likely to have a major impact, but it is fairly hard to measure with certainty because of the long time spans, and the difficulty of determining the true cause of behaviour. However, remember that no single strategy is likely to be sufficient by itself. The key issue is not how much can be accomplished by information alone, but what place it should have in a comprehensive strategy of behaviour change.

Principles of effective communication

What makes some informational programmes succeed where others fail? An effective communication strategy is not necessarily one that offers better or more information. This section discusses aspects of communication that have been found influential for getting information used. The main things to consider are how to:

… attract people's attention by using vivid, personal, and concrete information,
… use the appropriate type of information,
… use threat appeals,
… make the information credible to the audience,
… use appropriate amounts of information,
… frame the message,
… use one-sided or two-sided messages,
… provide feedback,
… use modelling,
… use prompts and reminders,
… use committing actions.
… account for cultural influences.

Attracting people's attention by using vivid, personalized, and concrete information.

All communicaton begins with capturing attention. Without attention, communication is impossible. One of the most effective ways to capture attention is to present captivating information and images that are vivid, concrete and personalized.

Vivid information is information that creates clear images in the mind of the receiver. Vivid information is likely to stand out against all other information that is competing for our attention, increasing the likelihood that a message will be attended to initially, as well as recalled later. It can be done by using language, pictures, graphs, sounds, or any other forms of communication. Mastering the art of using vivid information is to be a master storyteller, using striking anecdotes and images.

Vivid information can be used to illustrate and clarify things that are unclear to the target audience due to cognitive limitations discussed in the section about 'sustainability awareness'. One example of vivid information is the concept of ecological footprint that can make it easier to grasp and understand the human impact on our planet and the unequal distribution of resource-use and wealth. Another example is the description of the results of a home energy audit as "the equivalent of a hole the size of a football in your living room wall." [95]. An increased number of people were persuaded to do home energy improvements when the above description was used than when insulation efficiencies were described more abstractly.

Personalized information. Information also works better when it is personalized, that is, when it relates specifically to the interests of the individual [96]. The individual's interest is in whatever touches his personality, experience, imagination, and ideals [97]. The individual also has to be able to relate to the information with his own personal experience and knowledge. Yet another reason highlighting the importance of understanding the target audience.

Clear and concrete information. The information should also be as clear and concrete as possible. Especially, requests and instructions need to be clear so that they are easy to remember. To have a long-lasting impact upon either attitudes or behaviour, it is important to make a message easy to remember [32]. To counter the human trait of forgetting, the message can also be repeated and prompts can be used to remind the individual; this will be further explored below (p. 104).

There are several other factors that can affect the attention of the target audience. The timing and place of the intervention as well as the source need to be considered [33]. The source delivering the information is especially important if the receiver has old habits of dealing with the information from this source. For instance, many never read the information that comes with the telephone or electricity bills. In such cases, the

information has to stand out even more. It might even be helpful to make an additional mailing modified from the usual information in terms of format and layout to capture the attention of the target audience.

Using the appropriate type of information

A message loaded with logical arguments and facts that appeal to the intellectual side of the target audience can be very persuasive with some, while failing completely with others. One reason for this is that people process information in different ways.

Some enjoy thinking carefully about the message while others rely more on emotional processing. According to John Cacioppo and Richard Petty [98] these are the two basic routes to persuasion. The central route to persuasion occurs when people think carefully about the message and are influenced because they find the arguments compelling. The periphereal route to persuasion occurs when people do not scrutinize the message, but are influenced mostly by other factors such as its emotional appeal or its attractiveness. Cacioppo and Petty [98] argued that attitude change through the central route is longer lasting and more closely associated with behaviour than through the peripheral route.

In a way, the question of how information is processed, is related to the personal learning preferences of the individual. Yet another reason to know the audience. What type of information does the audience prefer and will have the best effect? What types of intelligences does the individual possess? (see 'multiple intelligences', p. 67-68).

Richards [92] argues that the type of information and method of communication should be chosen depending on the level of commitment wanted from the individual. An intellectual and emotional commitment is more powerful than either one of the two on its own. (see 'types of commitment', p. 87).

Using fear and threat appeals

Some believe that telling the world that disaster looms is an effective way to encourage pro-environmental and pro-social behaviour. In his article on denial, Hardin [99] proposed the use of vivid and sensational images of environmental damage to overcome any tendency people might have to deny problems they haven't personally witnessed. The idea is to use images so that people can relate to something which they have not personally experienced. However, voluminous research on the use of vivid imagery and fear appeals should make communicators cautious of using this strategy [42].

As discussed in the section about 'pyschological defence mechanisms' and 'facing threats', too much fear can bring about many defence mechanisms such as denial or rational distancing which act as barriers to change. But the right amount of fear increases the effectiveness with which people process information [100] and can serve as a motivational factor to change [82].

The amount of fear depends not only on how scary the message is, but also on other factors. Fear alone is not enough. One has to convey, or get the person to believe that [82]:

- the problem is serious;
- the problem is likely to affect the person;
- he can avoid the problem by taking certain specific action; and,
- he is capable of performing the action required to avoid the problem at a reasonable cost in terms of time, effort, and resources.

Making the information credible to the audience

The credibility of the information and the source can have a dramatic impact upon how it is perceived. In general, the more credible the audience's perception of the source delivering the message, the more influence there will be on the audience [101].

Credibility has two major components: expertise and trustworthiness [36]. The trustworthiness of the communicator depends mainly on whether the communicator (person or organization) has a record of honesty and whether the message is truthful and presented in an unbiased way. For the audience to really be able to decide whether the message is thruthful, they have to be able to check the validity of the information.

It is important to understand, as pointed out in an interview with Göran Carstedt [102], that the communicator's credibility can also be different depending on the context and topic. A person or organization may be very credible in one situation, as experts in a given topic, but not credible at all in another situation. Hence it is important to choose a communicator that fits the situation and the purpose one wants to achieve.

Communicator attractiveness can also have an impact on how we perceive a message. Communicators who are attractive, likeable, and who have similar interests, values, and goals as us often gain a persuasive edge. This is why advertisers spend multimillion dollars on hiring attractive and likeable stars to pomote their products.

Using appropriate amounts of information

Different messages need different amounts of information. There is however an upper and a lower limit. The lower limit being when there is not enough information to capture the attention and interest of the audience, or when it is not enough to convince the audience. The upper limit is when attention and interest is lost, or when the message becomes unclear or hard to remember. Referring to this problem, Tilden [97] wrote that sometimes "you have seen nothing, because you have seen everything." The following quote by Blaise Pascal further illustrates the dilemma.

> *"Too much noise deafens us; too much light dazzles us; too much distance or too much proximity impedes vision; too much length or too much brevity of discourse obscures it; too much truth astonishes* us."*
>
> (*astonish = bewilder)

Framing the message

How the message is presented, or "framed" is important and can make the information more effective [32, 33, 36]. A message can often be presented in a positive way (You should use public transport because you will save money and time) or in a negative way (If you do not use public transport, and take your car instead you will lose money and time).

Research indicates that messages which emphasize losses occurring as a result of inaction are consistently more persuasive than messages that emphasize savings as a result of taking action [36]. We believe that the reason for this is the fear of losing something valued.

Another topic related to the framing of the message is the language used. The choice of words can have a significant impact on how a message is received by its audience [103]. This is especially important in the area of politics. Speechwriters and wordsmiths work to ensure that; their employers are understood by the public they commuicate with through the use of easy-to-understand words and issues are expressed clearly and with common-sense. The lesson to learn from this is to choose words and phrases carefully to increase the chances of success.

Using one-sided or two-sided messages

A one-sided or two-sided message describes either one perspective or multiple perspectives. Deciding on the method of communication has an impact on the effectiveness of the message [32, 36, 39]. Our research suggests that both strategies can be used succesfully depending on the context.

An analysis of research found that two-sided messages are the most effective, especially if the audience initially disagrees with the communicator's viewpoint or is aware that there are two sides to the issue. Under such circumstances a two-sided message that acknowledges different opinions will be percieved less biased than a one-sided message [36]. Presenting two sides of the issue has an additional advantage: by presenting the opposing viewpoint, and providing the counter-arguments to this viewpoint, it is possible to make the audience immune against alternative views [32].

However, if you are communicating with an audience that has little comprehension of the issue, it is likely you will be most persuasive if you present just one side [32].

Providing feedback

One approach to make information more effective is to provide feedback about what people are already doing instead of, or in addition to telling them what to do.

During the energy crisis of the 1970s in the US, psychologists began experimenting with providing high quality information about how much energy households were using instead of telling them how to save energy. It was found that in order for energy-use feedback to change behaviour, the frequency of the information is important and most effective when available immediately before and after people have done something to try to save energy. This is likely to apply to any kind of feedback use. The feedback has to be frequent enough and relate to the targeted behaviour in an understandable way. It works better if closer in time and space to the behaviour [33].

Although feedback can be a good tool to use, it has his drawbacks and only works under certain conditions. Feedback in itself only provides information about what the current status is, and not about what could be done. If the target audience does not have a clear vision of what the goal is or knowledge about proper actions to take, then feedback might cause them to only make incremental improvements rather than taking strategic measures leading in the right direction.

Another drawback, related to the last point, is that feedback only works if the target audience is interested in it and motivated to change [33]. If a family has no awareness or understanding of why saving energy is good, they will not be interested in the feedback.

Modelling

One way of dealing with the potential lack of behaviour specific knowledge and skills, and negative misconceptions, attitudes, and beliefs about a certain behaviour is to model the behaviour. Modelling involves demonstrating the desired behaviour in person, or through medias such as television, videotapes, leaflets, or webpages. In a way it could be argued that being a role model is to model desired behaviour by just going about one's life.

There are many examples of studies where modelling has been used successfully to promote certain behaviours. In a study by Winett [104] a programme was tested for reducing household energy use without having them invest in new equipment or sacrifice comfort. Two groups of participants were involved, one test and one control group. Both groups participated in a 45 minutes meeting in which they were instructed on various measures they could take. In addition, the test group received a twenty-minute videotape featuring a young couple, like themselves, demonstrating ways to save energy. For example, it showed how to use fans and natural ventilation in the evenings to save air-conditioning, how to dress in lightweight clothing, how to shift the time and place of eating and cooking, and so forth. The test group who saw the tape immediately used 10 % less household electricity than the control group, and 19 % less three weeks later.

As with feedback, for modelling to be successful the target group has to be interested in the information and motivated to use it [33].

Prompts and reminders

A prompt is a visual or auditory sign which reminds the individual to carry out a certain activity that he might otherwise forget. The purpose of a prompt is not to change attitudes or increase motivation, but simply to remind us to engage in an action that we are already predisposed to do and have the knowledge and skills to do. Examples of prompts are; "Think global, Act local," "Only You Can Prevent Forest Fires" and "Don't Drink and Drive."

Prompts can also be used to show public support of a behaviour, and by doing so supports the development of norms that influence people's behaviour (see 'social norms and social diffusion', p. 69-72). A classic example of this is the use of buttons and pins with various messages. Wearing a pin is to make a public stand for something. Another example is the "No Advertisements, Please!" signs and stickers that people in Sweden put on their mailboxes. The prompt has two functions. First, the homeowner avoids getting advertising materials through their mail slots. Second, the prompt sends a signal to neighbours and visitors that it is possible to live without all of the advertising we get delivered to our homes.

Some prompts work better than others. Even though it is hard to measure the effect of non explicit prompts, such as the ones above, it is believed that they usually have little or no direct effects (they might have long term effects). Prompts that target specific behaviours can however have a substantial impact. One example of this comes from a garbage disposal experiment. Litter receptacles serve as a visual prompt for disposal of garbage. Simply making a litter receptacle more visually interesting was found to double the amount of litter deposited in one study and increase it by 61% in another [105, 106]. Another example is from when the faculty at a university got a written request from the university president to drop-and-tilt their blinds when they left the office at the end of the day, and then reminders on their desk by the cleaning staff if they forgot to. The two simple methods increased the percentage of faculty who adjusted their blinds from less than 10% to roughly 60% [107}.

McKenzie-Mohr and Smith [32] provides a helpful checklist, based on best practices research, for how to use prompts. They argue that a prompt will be more successful if:

- The prompt is noticeable.
- The prompt is self-explanatory through the use of graphics and/ or text.
- The prompt is presented as close in time and space as possible to the targeted behaviour.
- The prompt encourages people to engage in positive behaviours rather than to avoid harmful actions (for example, encourage people to buy environmentally friendly products rather than to dissuade them from purchasing environmentally harmful products).

The possibility of using actions to create more effective communication

The last section we have chosen to include regarding how to make communication more effective addresses how linking the message with voluntary actions can boost the effectiveness of regular communication campaigns. A concept sometimes called committing communication.

The authors who developed the concept of committing communication recognize the importance of communication campaigns but see flaws in the current paradigm of how to use information and persuasion. They question whether communication campaigns today are at their efficiency optimum when the goal is to influence behaviour. The reason for their doubt comes from years of research around how compliance techniques (see p. 109) can influence behaviour. They argue that a persuasive message has more chances to have the targeted effect if it is acting in line with the message. Once the individual has taken actions, he is likely to create bonds between what he has done

and who he is, i.e. the act becomes a part of the person. Once those bonds are in place, the individual is more likely to defend or promote the behaviour as he strives for consistency in his own eyes, and in the eyes of others [108].

This relates to the concept of commitment that we touched upon in Water (p. 63). One of the aspects we mentioned that can enhance the impact of the act is to aim for it to be public so that it serves as a public commitment from the individual.

Culture and communication

Culture can have a significant impact on how we perceive information. Triandis [109] concludes that members of different cultures are likely to react on different kinds of information from their environment. Some consider the content of communications more than the context (e.g. tone of voice, gestures), whereas others do the reverse. Some consider processes internal to individuals (e.g. attitudes, beliefs) whereas others are more likely to consider processes external to individuals (e.g. social influences, roles). Some give greater weight to ascribed attributes of persons, such as ethnicity, race, religion, while others to achieved attributes, such as beliefs, attitudes, or a record of achievements. Below you will find a few examples that show how culture can influence several factors which impact the effectiveness of messages aimed at changing attitudes.

The examples mainly focus on a comparison between collectivist and individualistic cultures [110]. They revolve around four different elements of messages and their communication: the source of the message, the medium used to present the message, the structure of the content of the message, and the values of the audience. Remember that these examples are of course generalizations, and that there are differences within cultures.

- ***Best sources of messages.*** Triandis points out that, in general, collectivists respect older males and famous families while individualists are most influenced by sources that are credible, expert, intelligent and have a record of many past achievements.
- ***Medium used for presentation.*** In general, collectivists need face-to-face contact because they depend on subtle nuances of language and expression more than individualists, who are quite satisfied with written communication.
- ***Structure of message content.*** Collectivists emphasize process (what is said, done, displayed), while individualists emphasize goals (what that is supposed to get done). Individualists tend to use linear logic and structure, i.e. “fact-fact-fact-conclusion”. In contrast, collectivists often start with the conclusion, and then present facts that fit the conclusion.

- ***Values of the audience.*** Collectivists are generally more concerned with virtuous action (e.g. harmony, saving the other's face, etc.) than with the truth while individualists are more concerned with the truth than with virtuous action. Another interesting example is that in the West, and even more in East Asia, great values are placed on balance, stability, order, predictability, and routine, while in Africa imbalance, dynamics, surprise, energy, and movement are important goals in communication.

Another example is that something that is a mild emotional expression in one culture can be perceived as an emotional outburst in another.

These examples are of course just a drop-in-the-ocean of what can be said about culture and communication. The intention of this section is of course not to extensively explore and elaborate in depth, but to show that it is very important to consider the influence of culture on communication.

Interpersonal interaction

There are many interpersonal communication techniques that can help solve and avoid conflicts, and increase communication effectiveness. We wish to highlight a few of them [24]:

- ***The simplicity without reduction strategy:*** when there is resistance, think "system" and escape from the "leaves" to look for "trunk and branches". Find the basic commonalities that you can agree upon, and then see how much can be agreed on in more detailed levels.
- ***The "Yes, and" technique:*** when interacting with someone, acknowledge the other's point of view and broaden the discussion, this will help potential conflicting conversations become open dialogues. It also helps becoming a better listener, and avoids the fact that a lot of people start preparing their defence as soon as they hear "but" (in the famous "yes, but", a close relative of "no").
- ***The "Asking Advice" attitude:*** by asking advice, especially when encountering resistance, you can defuse the aggression of opponents. It reinforces the likeliness to produce an answer, and sometimes turns an opponent into an ally.

Incentives

Incentives represent environmental stimuli that "pull" an organism toward a goal. The small refund people get in some countries when returning aluminium cans to the store is an incentive. To a student, a good grade can be an incentive for studying, just as food can be an incentive for someone who is hungry [36]. Incentives can help overcome specific external barriers to action. They work best in combination with other influence techniques, and/or with actions on other internal or external factors.

Principles for designing effective incentives [33]

- Internalise the externalities. The most general principle; the idea of the incentive.
- Make the incentive large enough. This is not the same as saying that with incentives, the bigger the better. An incentive must be large enough for people to take it seriously, but beyond that point, increasing the incentive may have little additional effect. If the behaviour becomes linked to the incentive, it could even undermine people's intrinsic motives to act.
- Match the incentives to the barriers that prevent action.
- Get people to notice the incentives and the behaviour they are meant to change. Incentives work better when combined with information or when designed so as to have useful information built in.
- Make the incentives credible. Not too good to be true in the consumers eyes.
- Find politically acceptable forms of incentive. Generally, positive incentives are more acceptable than regulations, price increases, or other mechanisms that impose new costs on individuals or organizations.

This is only a very brief overview of the field of incentives and we did not touch upon related subjects such as laws and regulations that can also be used to engage individuals to act strategically towards sustainability.

Compliance techniques

Compliance techniques allow for people without power or ability to put pressure to have other individuals perform an action they normally would not [56]. They build upon the theory of commitment which is described above in the section about commitment, and in Water in the section about 'commitments, the strive for consistency, and the trap of decision making' (see p. 63).

The techniques described below are a few classic compliance techniques that are readily used in marketing and together with other communication techniques:

- the foot-in-the door;
- the low-ball and lure;
- labelling; and,
- the door-in-the-face.

Foot-in-the-door

The foot-in-the door (FITD) is one of the most classic compliance technique, and the one with the most research available. It begins with asking a person to comply with a small request (getting a "foot in the door"), often called preparatory act. Compliance with the small request enhances the probability of compliance with a larger request later [56, 111].

The technique is interesting for two reasons:

- It increases the probability to obtain the designed behaviour; and,
- Differing from seduction, authority and persuasion, the behaviour is obtained in conditions where the person who acts can only call to who he is (helpful, honest, etc.) to explain the act.

It has been proven to work very well in many cases. Freedman and Fraser [112] came to the conclusion that by using the FITD technique, the probability of an individual to agree on having a road sign placed in their garden multiplied by four. The preparatory act was to have a 20 cm2 sign on their window.

Another example is when individuals who were asked to wear a label pin publicizing the Canadian Cancer Society were nearly twice as likely to subsequently donate as those who were not asked to wear the pin [113].

Criteria for efficiency. There has been many studies around the FITD technique and several criteria have been found to influence the effectiveness of the technique. In

1999 a meta-analysis was published on the principal characteristics that the preparatory act should follow for an optimum FITD effect [114]:

- The preparatory act must be effectively realized (not just intentions).
- It is good to help the individual establish a link between what he just did and who he is using the labelling technique (internal attribution). See below for the labelling technique.
- The preparatory act must have some cost in terms of money, time, effort, and/or convenience.
- The preparatory act and the behaviour targeted in the final request share the same action identification.
- It is better to not have the same person asking for the preparatory act and the final request.
- The preparatory act must not be linked to any reward.

Low-ball and lure

The low-ball technique gets the individual to commit to some action and then – before he actually performs the behaviour – the "cost" of the behaviour is increased [36]. By the freezing effect (see p. 63) from the first decision, the individual sticks to his commitment and performs the behaviour in spite of the increased cost.

An example of low-balling would be to agree on a price of a product or service, and then raise the price just after the individual has decided to by it.

The lure technique is similar to the low-ball technique in that it also involves making two decisions, one made before knowing the real cost of the target behaviour and the other made after [115]:

- In the case of the lure, however, the decisions to be made pertain to different acts (the first pertains to the lure behaviour, the second, to the target behaviour);
- In the low-ball situation, both decisions concern the same behaviour (the target behaviour, the cost of which is simply raised at the last minute).

An example of the lure technique is to make a decision enter a shop to buy a pair of shoes marked down 40%. Once in the shop, the size is no longer available but the salesman has increased his chances to sell the shoes that are not on sale.

The lure also resembles the foot-in-the-door (FITD) technique because both involve two acts, the first of which is less costly than the second. They differ in one essential way – in the lure situation, the individual, who has already decided to execute the first behaviour, can no longer do so. It is because the first behaviour is impossible that he is offered the opportunity to perform the target behaviour [115].

Labelling

Labelling consists of putting a label on the preparatory act. It is specifically interesting in the case of the preparatory act of a FITD situation. The goal is to help the individual link what he just did (the preparatory act) and who he is. The labelling should emphasize the values corresponding to the targeted behaviour. Here is an example of successful use of labelling [56].

In 1973, households were approached and asked if they would make a donation to the heart association. Half of the individuals who volunteered to make a donation were thanked and told, "You are a generous person. I wish more of the people I met were as charitable as you," while the other half were simply thanked. One to two weeks later these same individuals were approached by another individual and asked if they would donate money to Multiple Sclerosis. Not only did more of the "generously labelled" people give money to Multiple Sclerosis, they also gave more - fully 75% more [116].

Another example is to ask somebody for the time and label the person by thanking him or saying "I would have been late", or "thank you for your willingness to help", or "thank you, you're a good person". Then, a few minutes later, return to ask for some money for the bus. By labelling the person, the chances of getting the money increases.

Door-in-the-face

This technique is based on making a request so large or important that it is rejected (the "door is slammed" in the face) before initiating the request for the expected behaviour, a request easier to perform.

The criteria for the effective use of the door-in-the-face technique are [56]:

- Importance of the initial request: it must be refused by 100% of the people because of its prohibitive cost.
- Similarity of the two requests: ideally both should differ only by their cost. In any case, they should belong to a same project, a same cause, a same action identification. Both requests should be potentially legitimised by some noble cause.
- Time delay between the two requests? As brief as possible!
- Same person for the two requests? Yes!
- Requests over some distance (like on the phone)? No, face to face is better!

APPLYING THE FIVE ELEMENTS GUIDE

We have chosen three examples to illustrate how the Five Elements, the key information and the in-depth information in this *Five Elements Guide* can be used. An easy choice would have been to comment on campaigns that were obviously not fully successful. But we decided it would be more interesting for our purpose and for the reader to look at successful initiatives. There were no specific criteria for choosing the examples, except for that we liked them, that we discovered each of them during our research, and that they are diverse and complementary:

1- *Futerra's 10 Rules of Sustainable Communication*. We present them, compare them to our *Five Elements Guide* and identify potential room for improvement.

2- *Global Action Plan.* Following the presentation of the approach, we compare how the main aspects of our Five Elements Guide are included in their EcoTeam programme, designed to help households reduce their environmental impact from energy and water use, household waste, transports and consumer behaviour.

3- *Engaging consulting companies*. This is an example where we use our Five Elements Guide to create a new approach rather than to analyze one that exists.

Futerra's 10 Rules of Sustainable Communication

Presentation of Futerra and their 10 Rules

Futerra Sustainability Communications Ltd. is a UK based co-owned company whose purpose is to "promote and participate in sustainable development" by offering "creative and strategic communications for sustainable development". [117]

Futerra's origin is described on their web site [117]:

> *"The germ of the idea for Futerra arose from the experiences of the co-founders, on the Forum for the Future Scholarship Programme in the late 1990's (www.forumforthefuture.org.uk). We felt frustrated at the lack of good communication on sustainable development, the constant glazing over of all our friends' and relatives' eyes whenever we mentioned it, and the general paucity of public understanding of what seemed to be (and still does!) the only really sensible way of thinking about the world."*

One of the co-founders mentioned [118]:

> *"I became quite frustrated by poor communication of the concepts behind sustainable development. You either have people experienced in sustainable development who aren't experienced communicators, or people who can communicate who aren't knowledgeable about the issues. There is a communication barrier."*

The idea for Futerra was born, an organisation "dedicated to establishing the best ways to communicate the overall philosophy of sustainable development to different audiences" [118].

> *"Our first few months were spent rigorously researching the communication of sustainable development and corporate social responsibility, exploring previous campaigns nationally and internationally and conducting interviews with an array of people from advertising agencies to change management consultants – in order to construct what would eventually become Futerra's 10 Rules of Sustainable Development Communication." [117]*

Futerra's approach is based on their 10 Rules of Sustainable Communication [117]:

1. ***Big picture –*** make connections, demonstrate long-term thinking, blow myths.
2. ***Technically correct –*** be trustworthy, provide transparency, give real facts.
3. ***Be cool –*** be sexy, mainstream, non-patronising, brave – stand out !
4. ***Belong –*** join a massive worldwide change, start positive conformity, join a success.
5. ***Only stories work –*** empathy and emotions are powerful, use stories to hold people's attention.
6. ***Optimism –*** sustainable development is achievable, avoid too much guilt.
7. ***Glory button –*** 'sustainable development makes you a great person, and we love you for it'.
8. ***Change is for all –*** break stereotypes, use inclusive language and images, push mass ownership.
9. ***We need more heroes –*** introduce icons to emulate – 'be like me'.
10. ***Personal circle –*** relate big ideas to everyday life, give them a familiar context.

The 10 Rules of Sustainable Communication underpin all of Futerra's work and have been adapted to create:

- "The Rules of the Game – Evidence base for the Climate Change Communications Strategy. The game is communicating climate change; the rules will help us win it."
- "10 Steps to Success" – a guide by the European Association of Communication Agencies on "How communications agencies can turn corporate social responsibility, industry's newest challenge, into business" (note: the authors of this document decided that "corporate social responsibility" was synonymous to "sustainable development).

Analysis of the Ten Rules through the lens of the Five Elements Guide

When looking at Futerra's history, we noticed the similarity between what they spent their first months of research on, i.e. the communication of sustainable development; what they want to achieve, communicate the overall philosophy of sustainable development; and our own purpose with this work, to communicate how to better engage individuals to act strategically towards sustainability. As an anecdote, we also noticed that in their communication material and in our Five Elements Guide, we both use the oriental symbol of the yin and yang.

Futerra's 10 Rules seem to be successfully used, and from what we can see, their enterprise is doing well too. Our analysis is developed with the recognition of those achievements in mind.

Our investigation of Futerra's 10 Rules for Sustainable Communication go along 3 different points structured by the Five elements:

- The purpose of the Rules – Fire, Earth and the 10 Rules
- Think 'Systems' and the Rules – The Fifth Element and the 10 Rules
- The Elements behind the Rules – Air and Water and the 10 Rules

The purpose of the Rules. When we did a cross analysis of the 10 Rules and the Five Elements, we linked all of them with Fire – 'design an approach and perform it'. The Rules' purpose is to communicate sustainable development, they are designed to create good communication: the rather exclusive link with Fire is a logical one. We also identified that the 10 Rules are developed taking into account a lot of elements that come from a good understanding of individuals and how they change. Just like what we suggest in Fire: "Take the other four Elements into account".

Going deeper into Fire, we recognize a lot of concepts from this element in the Rules. For example: the lever of change 'Research' (present factual data) obviously relates to 'Technically correct'; and 'Personal circle' relates to some of the points we have highlighted in 'information and communication'. On the other hand, there are a few points in our Five Elements Guide on which the Rules could build on. For example: the concept of linking action with communication, having people do something and not only receive information; or the importance of feedback to adapt the communication approach, and the value of multiple intervention strategies.

If we compare the Rules with Earth, 'understand yourself and what you want to achieve', it seems that the rules themselves do not mention what the communication aims to achieve. That is, to "communicate the overall philosophy of sustainable development" for Futerra, or to "engage individuals to take actions leading strategically towards sustainability" for us. Through Futerra's website and actions, we know that this is not their habit, nor their intention, but the rules as they are could be used for other purposes like "green-washing", something we tried to avoid by including a clear vision of success, i.e. the system conditions for sustainability. For Futerra, it's probably their company purpose and the content of the communication they create from the Rules that guide the use of the Rules. In our Five Elements Guide, we preferred to rely on an explicit indication of what one wants to achieve, through a clear definition of the goal, sustainability.

In addition, the self-awareness of the communicator doesn't seem to be taken into account in the Rules. Therefore we could suggest one more Rule: "Build on your strengths, Be aware of your weaknesses".

Think 'Systems' and the Rules. From the case studies we have seen on Futerra's website, it seems clear that systems thinking is not foreign to them. In the presentation of the 10 Rules, it seems also implied that the simultaneous use of all rules is expected, and not just one by one. The understanding of the system is obviously part of Futerra's approach, as shown in various rules like 'Big picture', 'Change is for all' and 'Personal circle'.

In addition, the Rules could include that there is a lot of value in looking at the same system from a different perspective, or to clearly identify the perspective of the observer. They could also benefit from highlighting the importance of determining: the best accessible leverage points to reach the expected result, the potential impact for each identified point, and the necessary resources associatedwith each.

The Elements behind the Rules. As we already mentioned, it seems clear that the rules are based on what we call Water and Air – an understanding of the individual's behaviour, his context and how change happens. For example, the rules 'Belong' and 'Optimism' take the motivation and locus of control factors into consideration. 'Personal circle' addresses the importance of culture and personalized communication. And 'Glory button' and 'We need more heroes' indicate an understanding of the importance of norms, social diffusion, and the importance of changing the perceived value difference.

What we could also comment on is the apparent absence of the external factors, of the influence of context. Even the best communication campaign will not increase the number of people who recycle if the physical system to do so is not convenient enough. Also, if the application of the Rules is imbalanced, the communication method may come across strongly as coercion. This could limit the individual from experiencing a feeling of freedom to act, which is very necessary for long-term commitment.

Conclusion of the analysis

We performed this analysis to highlight how the Five Elements can be used to study existing practices. We have mentioned the similarities and the limitations of Futerra's 10 Rules for Sustainable Communication, and proposed a few suggestions. We based our review on the Rules as presented on their website, and when we overviewed the application of the Rules Futerra used for the Climate Change Communications Strategy document, we saw that a number of our comments have already been considered.

We also recognize the biggest asset of the Futerra Rules; they are direct and simple. In the unlikely event Futerra decides to add a rule for each of our comments, there would be too many rules and the target group may be overloaded with information.

This could strongly diminish the impact and interest of the rules. Translating our comments from the comparison with the Five Elements Guide into recommendations for the Rules would require a dialogue with Futerra which we have not had the resources to attempt during this project.

From this brief and high level overview, it seems that Futerra is acting strategically towards sustainability. Through this modest contribution we have hopefully helped a little, or confirm what they already know. For now, we can say it has been very rewarding to see other people putting words into action and taking a similar approach to the one we have taken: finding out how to better communicate and engage people in the realm of sustainable development.

Global Action Plan

Presentation of the Global Action Plan

Global Action Plan (GAP) is a network of national and in some cases local organisations working for a common goal: to empower people to live increasingly sustainably. Each member organisation is an independent entity with full responsibility for designing and delivering appropriate programmes, and for its own funding and financial management.

GAP programmes are based on individual empowerment. They are delivered and disseminated through a variety of mechanisms that have developed over the past decade, for example through community programmes and schools. One such programme, designed to help households reduce their negative environmental impacts, is the EcoTeam programme.

The information for this section comes from www.globalactionplan.com [119].

Presentation of the EcoTeam programme

> *"An EcoTeam is not simply a discussion group, it is a practical workshop where words and thoughts are translated into action."*
>
> Julie Pescod, EcoTeams Programme Manager, Nottinghamshire. [119]

An EcoTeam is a group of households (usually 6-8) who commit to monitoring their habits with regard to waste, gas, electricity, water, transport and consumer behaviour [120].

EcoTeams are designed to help households reduce their environmental impact from energy and water use, household waste, transport and consumer behaviour. The aim is that, by measuring improvements, each household will be able to change its behaviour and play its part toward a cleaner, more sustainable future [120].

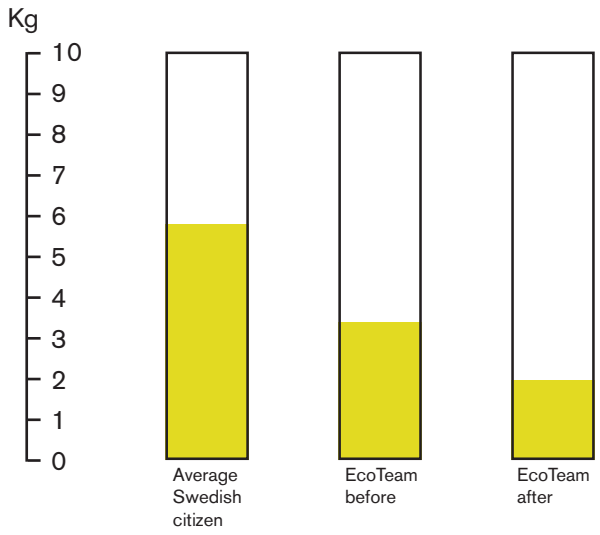
EcoTeams are built upon a few simple principles [120]. In the following paragraphs, we will refer to them as the "four EcoTeam principles":

- Nobody can do everything, but we can all can do something.
- The work is shared by a group so that members can support and encourage one another and share experiences and ideas.
- It's a step-by-step process that helps you to change your lifestyle by small adjustments that become good habits.
- By measuring resource use, improvements can be monitored during the course of the programme.

The EcoTeam programme is set up as follows: The group of households meets and discusses environmental household behaviour based on the information in the EcoTeam Workbook. To aid them they have access to an EcoTeam advisor. Between the first meeting and the coming meeting the households measure their consumer behaviour and resource use. The group then meets on a monthly basis dealing with one of the themes described above for every meeting. After each meeting participants determine which actions they want and can take in their household. These actions may range from simple actions such as turning off lamps when leaving the room to complex actions such as installing solar panels. Progress is tracked and feedback regarding for instance, potential savings, and experienced problems and benefits of actions taken, are shared within the group. At the end, there is a final meeting where the households report the final measurements of their consumer behaviour and resource use in relation to the measurements they did before they went through the programme [121, 122].

In his doctoral thesis Paul Harland [122, 123, 124] concludes that the EcoTeam programme seems to help participants break through behavioural habits, that it is very effective in changing a large number of behaviours in a pro-environmental direction, and that the changes are maintained in the long term (two years after participation).

In the figure on the next page you can see a diagram showing the amount of household garbage reductions achieved as a result of participation in the programme. There are similar diagrams for all of the themes, i.e. energy and water use, garbage, gas, electricity, transport, and consumer behaviour.



Waste in garbage can per person and week. The EcoTeam columns represent the average disposal of 1465 Swedish households in May 1996. Figure adapted from the Swedish Ecoteam workbook [121].

Analysis through the lens of the Five Elements Guide

In this analysis we decided to evaluate whether the Five Elements cover the most essential strategies and content of the successful EcoTeam approach to engagement. The reason for doing so was to gain further knowledge about the applicability and validity of the Five Elements.

To start the analysis, we identified seemingly central aspects of the EcoTeam approach so that we could see if they fit into the Elements at a later stage. We identified: the purpose to lessen the households environmental impact, the strategy of individual empowerment, the four EcoTeam principles, the public commitment of the participants, the workbook, and the availability of support by the advisor.

We will now discuss the identified aspects in relation to the Five Elements.

The purpose to lessen the participant households' environmental impact can be defined as the goal of the participants, and therefore represents Earth, "understanding what you want to achieve." This awareness is central, because it guides the actions of the participants.

The strategy of individual empowerment is related mainly to Fire, but is based on an understanding of individual behaviour, Water, and how individuals change, Air. Also, all of the four principles are guided by this strategy of empowerment.

We interpret the first of the four EcoTeam principles, "Nobody can do everything, but we can all can do something," as a principle highly related to empowerment. The principle is meant to infuse the participants with the feeling that they can affect the environmental problems by acting to reduce their environmental impact. It is a way of raising the participants' locus of control.

The second principle, "the work is shared by a group so that members can support and encourage one another and share experiences and ideas," relates to the Element Fire, and is based in the Elements of Water and Air. Fire, because the principle indicates a strategy for how the individuals become engaged. Water, because the principle indicates an understanding of factors that influence behaviour, especially the importance of social diffusion. And Air, because the support and encouragement of the group is empowering.

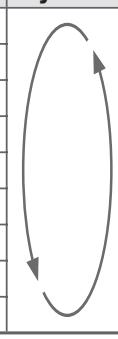
The third principle, "it's a step-by-step process that helps you to change your lifestyle by small adjustments that become good habits," is also a strategy that is based on the understanding of factors influencing behaviour and how change happens. Fire, Water, and Air.

The fourth principle, "by measuring resource use, improvements can be monitored during the course of the programme," highlights the importance of monitoring progress and feedback so that adjustments can be made. The feedback is meant to be empowering as it can change the behaviours specific attitudes, beliefs, and skills related to the feedback. The fourth principle is also a strategy (Fire), based on Water and Air.

The fact that households voluntarily commit to participate and monitor household habits suggests an understanding of the importance of voluntary public commitments and freezing effects. So, to ask participants to commit is a strategy (Fire) which is based on an understanding of Water and Air.

The workbook and the availability of an advisor are two central communication aspects (Fire) that are developed to support the EcoTeams process. It has an easy to follow format and layout, and contains some information that is aimed at raising the participant's awareness, but most of all it suggests different actions to take, how to take them, and how to track progress. The advisor and the workbook clarifies what this GAP programme is about ("understand yourself", the engager) and its goals ("what you want to achieve"), in our terms ensuring the presence of the Earth Element.

In the table below we can see a summary of all of the aspects and their relationship to the Five Elements. What that is interesting to see is that almost all of the aspects that can be put in Fire, are based in Water and Air.

	The Five Elements				
EcoTeam aspect	**System**	**Earth**	**Water**	**Air**	**Fire**
Purpose to reduce env. impacts					
Empowerment			~	~	
Principle 1			~		
Principle 2			~	~	
Principle 3			~	~	
Principle 4			~	~	
Public commitment			~	~	
EcoTeam workbook					
Advisor					

The one Element that has not been discussed yet in this example is Think 'Systems'. From looking at the table it can be seen that Think 'Systems' is a central aspect of the EcoTeam approach. All the aspects are interconnected and build upon each other to form something which is greater than the sum of its parts. It is the combination of various strategies and actions that build upon the understanding of an individuals' behaviour, of how individuals change, and how individuals become engaged, that make the EcoTeam approach successful.

Conclusion of the comparison

The comparison indicates that all of the central aspects of the EcoTeam programme fit into the Five Elements. In addition, when we evaluated the different strategies and content of the EcoTeam approach against the Five Elements, we could not identify any gaps. This comparison between a proven successful approach and our results leads us to the conclusion that the Five Elements Guide can increase the chances of creating successful engagement approaches.

If we were to question any aspect of the EcoTeam programme it would be that the actions taken to reduce each household's environmental impact are not necessarily actions leading strategically towards sustainability. The actions that reduce the use of energy and other resources are not guaranteed to lead in the right direction or provide a flexible platform. For this to be possible, the actions have to be guided by a more complete vision which is not only to reduce the impacts, but to achieve something greater, i.e. a principle vision of sustainability.

Since the EcoTeam programme seems to be successful in empowering individuals to change their lives towards living more sustainably, it could be used as a first step followed by further engagement steps including various things such as a principle understanding of what sustainability is. Maybe this could be a further development of the EcoTeam programme.

Engaging CEO's of consulting companies

Presentation of the example

This example differs from the other two since its purpose is to show how the Five Elements Guide can be used to design an approach of how to engage individuals to act strategically towards sustainability, and not to comment on one that exists. The idea for this example comes from a question posed during our master's programme: "what would you do if you were at the head of The Natural Step International (TNSi)?" For us this question became "which individuals should TNSi engage to strategically strengthen its network? And how?"

For readers who might not be familiar with TNS [9]:

> *"The Natural Step (TNS) is an international non-for profit NGO [non-governmental organisation], instituted to facilitate an ongoing dialogue between scientists on the one hand, and decision makers in business and public policy on the other. The objectives of TNS are to (i) identify such overarching principle levels of strategic planning towards sustainable development that can be agreed upon, (ii) based on such principles develop a framework for planning that can serve as a shared mental model – or language – for sustainable development, (iii) support the implementation of the framework in various kinds of firms and organizations and (iv) to study the actual results from this implementation.*
>
> *This process has led to the development of The Natural Step Framework for decision-making. It is designed for qualitative problem analysis, community building, and for the development of investment-programs in business corporations and municipalities." [9]*

In the following section, we show how the Five Elements Guide can be used to answer the above questions.

When developing this example it became clear to us that it can be beneficial to use the Five Elements in a cyclical manner rather than a linear one. So, instead of going through the Five Elements one by one when planning to engage individuals, it can be very helpful to make several successive cycles, with increasing depth. Each cycle builds on the content of all elements from the previous one.

Cycle #1 - Outlining the idea

Looking at the system around TNSi (Fifth Element), we can highlight the fact that TNSi works with organisations at a strategy level to accelerate society's evolution towards sustainability. Having more individuals and organisations using the TNS Framework is

one main leverage point that can strengthen the TNS network. We also recognize that TNSi and the members of the TNS network can not be considered among the main strategy advisors available to organisations. There are many, very large, consulting companies that focus on strategic planning, sometimes even on sustainability matters. What TNS has that makes them different from others is the use of a scientifically relevant framework that helps lead organisations strategically towards sustainability.

From the above, it seems to be interesting to look at engaging consulting companies since this could both strengthen the TNS network, and lead towards what TNSi wants to achieve in the long run (Earth), i.e. socio-ecological sustainability.

When exploring the TNS network a bit more, as Earth's 'understand yourself' suggests, it seems obvious that there are a few high level contacts who could potentially help TNSi to engage high level management of the large consulting companies. We are specifically referring to: TNS's founder Karl-Henrik Robèrt, some political contacts who have assissted TNS in the past and might be willing to do so again (for example the King of Sweden), and some leaders of the business, scientific and media world who have used the TNS Framework and/or supported TNS' growth.

By going through those two Elements, the idea grows clearer: trying to engage consulting companies through their CEOs or high level management. And from this, the Elements Water and Air raise the following questions: Who are they? How do they behave? How can they change? From a brief overview, we can probably draw easy conclusions about those individuals, they are: very busy, in a position with a certain power, under pressure to maintain their business under a competitive and very scrutinized context, and probably very dedicated to their work. Since this could quickly fall into creating a stereotype of these individuals, it is important to remember that they are also human beings who are likely to have families, value life, and hope to leave a positive image of their actions at a personal and professional level.

With all of those Elements in mind, how can we use TNSi's strengths, take into account the target audience, and reach the intended goal? How should the engagement approach be designed and performed (Fire)? When considering this, it came to mind that simple communication, such as sending basic information, might not be engaging enough, and a one week "re-education" or training programme might be unrealistic. However, inviting them for a one day workshop could be both realistic and effective enough to achieve some of the desired result. Also, the workshop could be used as a platform for future collaboration and engagement.

The second "Five Elements cycle" builds on the understanding and ideas from cycle one and elaborates an approach TNSi can use to engage CEO's of consulting companies around a one day workshop.

Cycle #2 - Refining the idea

Below we list some of the questions the individuals within TNSi could ask themselves during this cycle. We also try to provide a few answers or directions based on our knowledge of the individuals and of the TNSi organisation.

Earth – Understand yourself and what you want to achieve.

Some questions (and a few possible answers) TNSi could use to go deeper into "Understand yourself":

Q. What are our strengths as an organisation to succeed in this project?
A. TNS network has a number of good case studies, contacts, and recognitions that can be used. Many of its components also have a lot of consulting experience which should help share a common language with the target audience.

Q. What are our weaknesses?
A. TNSi could be seen as competition by the consulting companies.

Q. For each individual who would contact the target audience: what are his strengths and weaknesses in this specific endeavour?
A. TNSi has some human resources available, and with the understanding gained from the other elements, it could be beneficial to not always have the same individuals making personal contacts.

A few possible answers to "Understand what you want to achieve":
"At the end of the one day workshop, TNSi has …"

…created a platform and agreed on the next steps to take for a lasting connection between TNSi and the consulting companies. It could for instance be to train the consultants, to do research and methodology support, or to be partners on some specific missions.

…ensured that the CEOs understands the importance and urgency to orientate society towards sustainability and the added value of the TNS Framework, highlighting the connection between the TNS Framework and other concepts.

…participated in influencing the paradigm behind the advice the consulting companies give to their clients: Create, facilitate, or accelerate the appropriation of the mindset of "strategic actions towards sustainability" in all missions of the consulting companies.

Water – Understand the other's behaviour and the influence of context

Some questions TNSi could ask, and a few possible answers:

Q. What internal factors can we use that might influence most of the CEOs? What attitudes and worldviews do the CEOs come to the table with, and how can those be used/ altered to engage them?

A. It might be interesting to sketch a profile of the 'average CEO' to influence the agenda of the workshop. Elements coming from this profile will most likely indicate that there needs to be some influence on their awareness of what can be achieved, what they can do personally, as well as why actions are needed and are a win/win option.

Q. What external factors could prevent the CEOs from attending or from being engaged? What could increase the chances of this event happening?

A. Social norms and social diffusion are important factors here. The CEO's will most likely answer to invitations from people they know and value, either as personal or business contacts. Inviting them all and not just one by one could increase the attendance rate. Maybe using the approach used for the "Arlanda meeting" during the TNS launch could be helpful (in short, sending to all expected participants a "thank you for agreeing to participate" led to a high level of attendance [24]). The environment in which the workshop happens will have an influence, as well as the economic interest of their participation and future engagement.

Air – Understand how change happens

From understanding the content of this Element, it is clear that TNSi will have to bring more than raw information to achieve a lasting engagement. How can the workshop be designed to increase the chances of engagement? It may for instance help to look at the option of a three phased day based on the "unfreeze / movement / freeze" theory. Threat appeals and empowerment should be used in a balanced way. Both the workshop and the invitation process should be based on highlighting a feeling of freedom to participate and decision to act. Of course, the perceived value difference between before and after the workshop has to be clear. If obtaining a spiritual commitment might be an unlikely accomplishment, the workshop should aim to reach both an intellectual commitment ("it's a good idea") and an emotional commitment ("deciding from experienced feelings").

Fire – Design an approach and perform it

Some ideas regarding the design of the approach have already been mentioned in the previous Elements. Some other aspects of the workshop could be that:

- The workshop is one component of a larger engagement approach that includes, for example, the invitation process and the follow-up actions. How could these become successive escalations of commitments? That is, how can a small "yes" given to an invitation grow to become a bigger "yes" leading to the creation of partnerships. Treating those steps as successive parts of a Foot-in-the-door technique with appropriate labelling could help.

- The communications before and during the workshop should cover all levers of change, for example: Representational redescriptions – presenting the same idea in multiple formats, reflecting our various intelligences. It should also take principles of effective communication into consideration.
- Piloting and testing the strategy could be done by previously organizing a workshop for smaller local consulting companies to find what works best. For example, will people be more likely to attend a one day workshop, seminar, conference, retreat, or meeting?
- The invitation process could build on multiple interventions using various approaches, probably from different actors, for example not only TNSi, but some other businesses or media or organisations. Building on Earth and Water, it might be good to intentionally pair the engager and the engaged depending on the individuals: which individual will directly try to engage which CEO?

The Fifth Element – Think 'Systems'

As a result of this cycle, it should be possible to have a clear document structuring this information. This could be done with the Five level model for planning in a complex system which is included in the Fifth Element. The result of what such a structuring process could look like is summarized in the table below, at an overview level.

Level	*Overview of content*
1 – System	- Describing TNSi and its environment. - Describing the idea of a one day workshop for CEOs of consulting companies (first Five Element cycle).
2 – Success	- Defining success for the workshop, and for the overall engagement approach.
3 – Strategy	- To go through each Element (Earth, Water, Air and Fire) to analyse deeper the engagement approach. - To design an approach including at least three phases (invitation process, workshop, follow-up), one potential test event, and an organisational structure.
4 – Actions	- Perform each Element's analysis and distribute the results and answers of this second cycle in the relevant levels of this model (example: further understanding of CEO's internal factor goes into System). - The resulting actions of the engagement approach.
5 – Tools	- Five Elements Guide. - TNS strategy and presentation documents. - Primary list of contacts and of targeted audience.

Cycle # 3 - Some in-depth planning

The third cycle would have to build on some of the answers given above to go in-depth into the details. Due to the limited resources of this project we have chosen to not go into the realisation of this cycle, since we have no way of answering the questions that need to be asked. We will just say that it could include, for example:

- A one by one Earth, Water and Air analysis of the individual participants and of the contacts TNSi will use in the process.
- A rather detailed planning and content design of the invitation process, the workshop, and the follow-up phase.

The result of this cycle is an action plan that can be followed to perform what hopefully would be a successful engagement strategy.

Concluding thoughts

In this example we have done two cycles of increasing depth, outlined a third, and adapted the Five Elements when it was needed. For example, we did not go into the "perform it" phase of Fire in each cycle.

As many other guidelines and frameworks, the Five Elements Guide does not intend to give sure-fire recipes that can be applied in every situation. It offers general guidance, reminds of specific issues to consider, and is designed to allow for flexibility. This example clearly showed us that the Guide supported the design process and allowed for creativity.

While preparing this example, we confirmed the value of the interdependence and interaction between the Elements. We learnt that when working on one specific Element, it is helpful to have the others in mind and apply them simultaneously. It also became clear that it is more efficient to use the Five Elements in successive cycles done with increasing detail, rather than going through them once in a strictly linear approach. Each successive cycle builds on the information found in all the Elements of the previous cycle; it is not only a deeper look at each Element.

CONCLUSION AND ACKNOWLEDGEMENTS

Conclusion

This Five Elements Guide was made during a four month project, there are many aspects that we haven't been able to explore which relate to the subject of "Engaging individuals to act strategically towards sustainability". We also recognise that our Guide could be improved with more testing, more sharing, more thinking, etc. But this is what we have managed to do, and we believe it will help us in our quest towards sustainability.

We hope it proves to be helpful for you too, and when you wish to engage an individual to act strategically, we would like to remind you to keep in mind the five interconnected and interdependent Elements:


The Fifth Element – Think 'Systems'.


Earth – Understand yourself and what you want to achieve.


Water – Understand the other's behaviour and the influence of context.


Air – Understand how change happens.


Fire – Design an approach and perform it.

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« In a world of things, you hold on to your things.
In a world of ideas, the more we share, the more we have. »

Göran Carstedt

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