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CHAPTER 1

Installation
A Synthetic Theory to Explain How Humans Construct Systems That Support and Format Individual Behaviour

This book addresses the question of how societies empower and control individuals to behave in a 'correct' way.

It describes *installations* in which, even though they are creatures of free will, humans are induced to behave in an overall predictable and standardized manner. Restaurants, escalators, shoe shops, cinemas, family dinners, basketball matches, toilets, voting booths, intensive care units and open-plan offices are some examples of installations. They have a momentum of their own. They elicit, frame, channel and control individual behaviour. The chapters show how to analyse installations, how they work, how they are constructed, how they evolve and how to change them.

Installations have been partly described in social science under various names: behavioural settings, 'dispositif', frame, etc. Installation theory is their first systematic analysis from the pragmatic perspective of design and intervention.

The book provides a simple and robust framework, grounded in extensive empirical analyses of real cases.

This first chapter introduces the problem with some simple examples (air travel, road traffic). It then clarifies our research questions (how humans manage to accomplish complex tasks in society, how social regulation is implemented in practice). It also provides an overview of the book's content and an outline of each chapter.

Let us start with a mundane experience many of us share.

I travelled by plane recently. I arrived at the airport and queued to check in. On demand, I showed documents to get my boarding pass. Then I was channelled through customs, security and the boarding area, through corridors, signs and the instructions of specialized personnel. Finally, I walked

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into the plane through the jet bridge. Then I sat at my assigned seat. I fastened my seat belt. I stayed seated for the whole flight.

You know the process, don't you?

What happened in fact? I executed a series of complex action sequences, in a succession that enabled me to be transported to a faraway place and empowered me to fly over the oceans at hundreds of miles per hour. Still, my contribution and agency in the process remained limited, even though I acted willingly. I came with the goal of my final destination, and some embodied competences about travelling; the rest was provided by the context. Many actions were executed by other components of the system (e.g. flying the plane). And my own behaviour was guided and controlled almost all the way. The choices I made myself were few, and I was actually given only a few alternatives, e.g. the choice of drinks the flight attendant offered me.

I was not the only one to behave like this. There were other fellow passengers, of diverse age, gender, nationality, etc. But although they all were – I assume – creatures of free will, each and every one of them behaved in a manner similar to my own, regardless of their individual final purpose, values, biological characteristics, cultural origin, dispositions and socioeconomic specifics. Each may have had a different personal psychological *experience* of the flight, different desires and emotions; each may have given a specific meaning to this journey. In the detail they may each have acted according to their own biographic peculiarities. But, roughly, our outward *behaviour* was very similar, and our acts towards other persons and objects were conventional and predictable. We all were, willingly, funnelled, scaffolded and controlled to *behave as airline passengers*. The strange part is that I had never been to that specific airport or used that airline before; but even though that specific context was new to me I had no problem behaving efficiently.

How is it that we, creatures of free will, despite our differences, despite our biographic differences, all comply to 'behave' in society as expected? And how is it that we manage so easily to behave adequately even in new contexts?

As the following chapters explain in detail, as I travelled, I was channelled through specific local 'installations' that framed my behaviour: the airline website, the check-in counter, the waiting line, the customs post, the security area, the waiting lounge, the corridors, the plane, etc. These settings are not just spatial places; they are populated with other actors or agents and they are ruled by institutions. The combination of these components is a cultural reactor that predictably produces 'appropriate' behaviour (we shall clarify that term), simultaneously empowering and

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controlling participants: it regulates[1] behaviour with feedforward and feedback loops. From airport to airport we were channelled and empowered by culture and society all the way; in the end we all cooperated and 'did the right thing'. Each of us acted differently, but overall these differences remained in the detail.

That predictability is a functional condition for cooperation: should a passenger arrive late at the plane door, the whole flight would be delayed. Interestingly, the status of will and freedom in such situations is ambiguous. We do act in a certain way because we want to reach the end goal, but what we do to reach it we do not necessarily do happily (e.g. boarding a crowded train to reach the airport); we are free to think what we want, but not free to act as we would prefer.

In this channelled state, which is neither fully automated nor deeply reflexive, the question of free will is not really relevant; it is rather a means–end issue. As a matter of fact, the 'decisions' in such a state are not merely an individual process, but rather the result of a distributed process in which society has framed the situation and guides individual choice along a narrow range of alternatives only. When I pass a test, when I board a train, when I queue for my bowl of soup, when I undress for the shower, I behave in installations; sometimes I follow my own will, sometimes I don't. Most of the time my freedom addresses only some aspects of the process. In large-scale societies, we spend a substantial part of our lives in such channelled states, as creatures of bounded free will, enjoying the semi-freedom that is the price of getting the benefits of society.

This channelling phenomenon is the central topic of this book. We shall study in detail the nature, structure and dynamics of the devices that regulate human activity in society at local levels. Let us call them ***installations***. In passing, we shall see how they constitute a behavioural backbone architecture for society.

Apart from airports, from the cradle to the grave, which ultimately are also situations in which our behaviour is tightly framed and restricted, we find ourselves to be actors in a multitude of relatively standard sketches, of 'repisodes' (see Glossary): 'the Elevator', 'the Haircut', 'a Beer at the Pub', 'Checking E-mail'. Some sketches we experience hundreds of times ('an occasional drink' might turn out to be quite frequent), some a single time (baptism and rites of passage), some a few times only, perhaps in different roles (as a child, then as a parent; as a learner, then as a teacher), but always we conform to a socially and culturally attached script. We chain

[1] Regulation is here taken in the generic sense rather than in the legal sense.

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and weave such small behavioural sequences that tend to constitute an essential part of the fabric of our daily lives: think about your day today and consider how little of it escapes such scripts. . . .

Of course, humans are not robots, and installations do not rule *every* aspect of life; they mostly rule *the functional aspects of behaviour,* especially those that matter for practical cooperation. For example, at a family dinner, the content of the conversation or the nature of the menu (potatoes or beans?) may not matter for the functional result of the family being fed, with a fair distribution of food available and reinforcement of family cohesion. Such aspects (conversation, menu) will vary in content. But many other aspects of the dinner as a script in that specific family will remain similar from one dinner to another. This permanency makes the meal a predictable activity and enables cooperation of participants.[2] In the same vein, 'a lecture' or 'an exam' in a given university tends to follow one of a few scripts only, in a very standard manner, even though the content matter might be very different (e.g., philosophy or marketing). Installations account for the normative aspects we observe in these activities.

For each of these standard scenes, our society and our culture have prepared and provided the appropriate stage, with its actors and props, but also the execution skills (each actor knows his role) and the script. Those constitute the frame of the experience, the scaffolding and engine of any social activity and the conditions for performance without which we could not behave satisfyingly. *An installation encapsulates all the components that produce such a scene. It is the functional entity for a segment of activity.* That is why it is a relevant unit for analysis and intervention regarding behaviour. We are here specifically interested in the installations that support the standard scripts of ordinary life. If we want to manage and change them, it is necessary to understand how such installations operate *in detail* (at physical, psychological and social levels): how they are constructed, how they endure and how they evolve.

The etymology of the word *installation* is to put someone in position.[3] This process involves situating a person simultaneously in a geographical location, in a psychological state and in a social role and status. As did

[2] That is why, when one dinner diverges massively from the standard practice, which does happen, it will be considered 'exceptional' to that norm by the participants. In some way, it does not count as a 'normal' dinner; it cannot be used as a reference for future practice and expectations.

[3] Originally, the word designated the process of solemnly inducting an ecclesiastic into office by seating them in an official stall (from medieval Latin *installare*); this was generalized to the installation of a political or military dignitary, or of oneself; then to ship apparatus set-up and home furnishing;

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many words ending in '-ation', built on verbs in the participle past, 'installation' came to designate the process as well as the product of this process.[4]

A key intuition of installation theory can be traced back to Stanley Milgram's comment describing his famous obedience experiment (Milgram, 1963). In that experiment, ordinary people were induced to give massive electric shocks to other people, supposedly to help them learn. Most participants did inflict the maximum shock, a (literally) shocking result. In his 1965 film, *Obedience*, describing the experiments at Yale University, Milgram comments:

> Many people not knowing much about the experiment claim that subjects who go to the end of the board [the maximum, 480 Volts shocks] are sadistic. Nothing could be more foolish as an overall characterization of these persons. The context of their actions must always be considered. ***The individual*** upon entry in the laboratory ***becomes integrated into a situation that carries its own momentum***. (Milgram, 1965: 39'12"–39'30"; emphasis added)

Just as Milgram's installation induced subjects to perform behaviours beyond their will (Milgram, 1963, 1974), many mundane installations within society *frame and induce* our behaviour. Such installations account for a large part, possibly the majority, of our daily activities.

Let us be clear: first, not *every* behaviour is channelled by some installation. And even in installations people may behave atypically: thirty-five

coming to the contemporary general meaning of setting things in place in a proper arrangement (Littré, 1885).

[4] *Installation* is a term often used in the vocabulary of art, referring to three-dimensional set-ups designed to induce a specific effect on the spectator who enters it, and where the spectator is part of what he or she observes. The art installation includes physical components, but it also plays on the interpretive systems of the spectator.

'We do not really know what installation art is or agree on what we are talking about when we speak of installation art, even as we create works that bear its name … Upon entering an installation, one not so much suspends reality, in the common phrase of the arts; rather one enters an entirely new world of the artists' own making. A reality of its own exists in the work of art and a world that, through the act of entering it, one becomes a part of. For the time one is within an installation, this is the world and the world is it. The essence of this sort of installation art is that, unlike a painting for instance, one not only looks at it but actually enters it, travels through it' (Bestor, 2003). As Cicourel (personal communication, 2016) notes, 'installation', in art, is a fleeting usage in which an undocumented phenomena, or more complex conceptual thought or activity, is represented as an abstract visual/auditory, perhaps imaginative presentation by a unique, temporary, real time performance that can include hypothetical, material, auditory and/or machine or human performance for a fleeting audience. The installations we describe in this book are very different in construction, nature and intent, although they share something with artistic installations in that they are multilayered devices that, deliberately, locally create some cognitive attractor, inducing intended effects in the participant/spectator.

We are not interested here in artistic installations, but rather in mundane and ordinary installations; the spirit of inducing the person entering into a specific mindset is the same, however.

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per cent of participants did *not* fully comply in Milgram's seminal experiment; while driving, many people do not strictly conform to traffic regulations. So individuals do keep some leeway; we will come back to this.

Nevertheless, these breaching behaviours remain the exception. And, in practice, most of our daily behaviours are scaffolded and constrained by such installations, which we hardly even notice. As Alfred Schütz noted,

> [T]he member of the in-group looks in a single glance through the normal social situations occurring to him and … he catches immediately the ready-made recipe appropriate to its solution. In those situations his acting shows all the marks of habituality, automatism and half-consciousness. This is possible because the cultural pattern provides by its recipes typical solutions for typical problems available for typical actors. (Schütz, 1944: 505)

As we shall see, installations are more than the cultural patterns in Schütz's sense, but Schütz's remark about automaticity and half-consciousness is essential.

Then, in making decisions, individuals sometimes operate some rational choice between the alternatives given to them. Economics, and especially microeconomics, tries to model these decisions with a rational *Homo economicus* who would attempt to maximize expected utility by computing and comparing the value of alternatives. There have even been attempts to force *every* decision into that rational framework; Gary Becker's 'expanded theory of individual choice' is an extreme example (G. S. Becker, 1996).

Recently, behavioural economics attempted to reintroduce the other aspects of *Homo sapiens* with a more realistic perspective than the *Homo economicus* model, and indeed closer to the projects of the founders of economics (Smith [1759] 1976); it studies the heuristics used by humans in such choices (e.g. Kahneman, 2011; Kahneman, Slovic, & Tversky, 1982).

The approach we take here is more social and cultural; it is complementary: we shall study how the choices presented to individuals in their everyday life are framed by society – so to say, upstream from behavioural economics, which studies the choices within these given frameworks. Looking in more detail at how humans behave in these socially framed settings, we will also be able to account for behaviours for which 'economic' calculation comparing expected utilities is not realistically applicable: how to behave at a dinner, while driving, at the dentist, etc. As we shall see, in many situations the choices left to the subject are quite limited.

Installations are not a marginal phenomenon: in large-scale societies, as mentioned earlier, we spend most of our life in these systems that make our behaviour so amazingly predictable. Sometimes, as with the example

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of air travel, we are simply chaining sequences of action in successive installations. Often the succession is less automatic and leaves more space for personal initiative: the Bedroom, the Bathroom, the Kitchen, the Street, the Bus, the Elevator, the Office, the Cafeteria, the Meeting Room, etc. are all installations that frame successive episodes in one's workday, but the actor has some leeway; for example, one might ride a Bicycle instead of the Bus, or walk up the Stairs instead of taking the Elevator. Nevertheless, in each installation, the behaviour will be predictable, at least in broad terms.

The freedom to use installations differently has some limits. In prisons, in hospital traumatology departments, in some mental institutions, one will meet people who encountered problems in attempting, willingly or not, to behave a bit too far outside of the path of culturally appropriate behaviour. For example, not following the appropriate behaviour in road traffic may soon lead one to a hospital ward or jail – installations in which, by the way, participants' behaviour is then especially restricted.

Society works because everyone plays their role. This seems so natural to us that it goes without saying; but it does not happen by chance. That people know what to do in every mundane circumstance, that they are actually able to do it and that the context affords and supports it – all that is the result of massive preparation by society, of an 'installation' of these behaviours.

In many aspects, we are here dealing with what is the nature of 'Culture' and 'Society'; these structured and quasi-stable ways of locally organizing the interactions of humans with their environment (including other humans). Of course, there are major cultural differences between different societies, and within 'one' society there are many different subcultures. Installations will naturally, by construction, differ substantially in form and content across culture and history, just as the style of houses changes in different areas, but the generic principles of their construction and operation are assumed to remain similar.[5]

In this field of research we can find monuments of science: 'capital-T' Theories that stand as landmarks to account for behaviour, socialization, social thought, cultural practice or social construction. Among many prominent authors, think of the works of Durkheim, Dewey, Piaget, Lewin, Parsons, Mead, Schütz, Moscovici, Bourdieu, Berger and Luckmann, Goffman, Bateson, Bruner, Geertz, Vygotsky, Giddens, Tomasello, Morin

[5] Nevertheless, this theory has been constructed from observations, experiments and interventions in large-scale industrial societies only; its validity in small-scale societies remains untested.

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or Latour.[6] And there are many others. The very multiplicity of these landmarks and the fact the reader will probably be surprised not to find his or her own favourite on the aforementioned list[7] show the problem remains open, even though considerable progress has been made already.

We shall address the problem here with a different approach, from the other side of the mountain so to speak. Unlike some of the works cited in footnote 6, which often rely on generic, custom-built or anecdotal examples, we shall ground our analysis in a range of precise empirical material. And rather than relying on observations of individuals in the lab or on what they declare in interviews or questionnaires, we shall analyse actual *natural activity of humans in situation*, including the material, social and institutional context. In this approach, we follow the bottom-up, grounded path of microanalysis of situations (Cicourel, 1974; Hutchins, 1995a; Moles & Rohmer, 1976) rather than adopting the overarching spirit of philosophical inquiry, or using the aggregate perspective of statistics, or building on secondary analysis of literature. What encouraged me to venture on such an ambitious endeavour, and after so many intimidating predecessors, on top of benefitting from their own work as scaffolding, is that I could use new techniques providing empirical material that is more detailed and solid than that available to many colleagues.

Indeed, the analytic work mobilized a powerful data-collection technique, subjective evidence-based ethnography (SEBE). SEBE uses first-person perspective recording with body-worn video by the actors themselves, showing how they live their lives as usual, and then in-depth interviews with the participants while reviewing these recordings ('replay interviews'). So first we can see (and hear) the actual action from the situated perspective of the subjects, in faithful detail. Then we can later investigate what they thought in the moment as they re-enact it mentally, with their episodic memory powerfully cued by the recordings of their action from their very own perspective. This gives us, at last, a proper access to what people think as they act in real-world situations, an indispensable condition for analysing properly the determinants of action.[8]

The SEBE technique, described in Section 2.2, provides greater precision in the analysis of activity in natural settings. It is for social scientists

[6] Bateson, 1972; Berger & Luckmann, 1966; Bourdieu, [1972] 2013; Bruner, 1990; Dewey. 1929; Geertz, 1973; Giddens, 1984; Goffman, 1974; Latour, 2013; Lewin, 1948; Mead, [1934] 1972; Morin, 2008; Moscovici, 1961; Parsons, 1954; Piaget, 1926; Schütz, 1976a; Tomasello, 1999; Vygotsky, 1978.

[7] For example, what about Tylor, Weber, Simmel, Marx, Leroi-Gourhan, Huxley, Jonas, or Elias?

[8] That is a dream that psychology abandoned more than a century ago because of the difficulties of getting accurate and reliable data with classic introspection techniques (Wundt, 1912,149–151).

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the equivalent of what the microscope was for biologists when it was invented: a tool giving the possibility to explore phenomena in microscopic detail. This vivid, reliable and extremely fine-grained material sheds new light on old issues and enables a step forward to be taken.

The empirical data were collected over two decades and include hundreds of hours of video recordings of natural activity in homes, public places, workplaces, industrial plants, hospitals, training facilities, restaurants and shops,[9] and also from a large industry intervention, for which we constructed a whole building specially designed for natural experiments and observation; we continuously recorded, for ten years, employees living and doing their normal work and also testing and adapting to new devices or systems (Lahlou, Nosulenko, & Samoylenko, 2002, 2012).

The argument that will be developed based on these data is as follows: societies funnel their members into specific, expectable behaviours with local 'installations', specific scaffolding and regulation systems that assemble, in context, components distributed at physical, psychological and social levels. These entities bundle into behavioural attractors whose result are standardized and satisficing sequences of behaviour. Although installations do not determine the detail of the inner psychological experience of subjects and leave them some freedom to act differently, they regulate their behaviour, and in doing so they ensure the smooth operation of society and cooperative coexistence. So installations are local systems that scaffold and regulate behaviour. The existence of such systems has been described in theory (Giddens, 1984, for instance); here is now their description in practice.

Furthermore, it will be argued that installations do not only channel behaviour; they are also essential in the reproduction of society and culture because they are the very devices by which culture is reproduced through practice. The resilience of installations, coming from their redundant threefold structure, is key in socializing novices, who find themselves induced into the correct practice and therefore learn how to behave while doing so.

We shall examine how the installations endure (interestingly, practice contributes to their reproduction), how their construction reflects power

Neuroimagery is now another attempt to do the same, but the technical limitations currently exclude capture of real-world activity.

[9] Examples are policing (Phelps, Strype, Le Bellu, Lahlou, & Aandal, 2016; Rieken, 2013), consumer decision-making (Gobbo, 2015), nuclear plant piloting (Fauquet-Alekhine, 2016a, 2016b), coming home (Cordelois, 2010), industrial maintenance (Le Bellu, 2011), family education (Lahlou, Le Bellu, et al., 2015), etc.

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struggles and compromises of interests, how they evolve spontaneously and how their evolution can be channelled by deliberate design.

An idea that will be developed is that societies do not reproduce by block, but rather piecemeal, by the local reproduction of installations, which are in practice the elemental reproduction units. To take a metaphor, society does not reproduce as a whole organism, it reproduces cell by cell. Installations are these cells, or at least some of them – those that reproduce 'normal' behaviour. Installations are therefore functional *and* reproduction units of culture and society. We will get into the detail of these cells and their reproduction.

The overall picture of a society that emerges is therefore, rather than a monolithic structure, myriad local functional systems of scaffolding and regulation, overlapping, nested, often replicated from one another, but still with some degree of local independence.

This theoretical framework has been designed with real-world intervention in mind. Installation theory is intended as a tool for those who want to change the world into a better place, or more modestly to manage in a sustainable way some parts of the world: organizations, territories, big or small. It aims to provide change agents with a pragmatic tool to empower subjects for specific activities, or conversely to control or avoid certain behaviours. The framework should also help academics engaged in real-world analysis and intervention.

In our troubled times, where unsustainable human behaviours are driving our societies towards collapse, it is of paramount importance to understand why people behave the way they do, and how they can be funnelled into performing a different type of behaviour, e.g. to help fill the intention-behaviour gap. Another world is possible, but a better world will emerge only if we seriously work on modifying our behaviour, and this requires robust analytic tools to guide intervention. Governments are aware of the issues, so behavioural change units and policies for nudging are being created in various places; a lot of good work has been done, but so far we are somewhat lacking a systematic theoretical backbone; a lot more work is necessary. I hope this theory will contribute to the endeavour of creating a theory for 'nudging' (see Glossary).

This framework is new as a synthesis, but it builds on many previous works by scholars from various disciplines, of which the main ones are also presented in the book (Chapter 3). Some of these works come from very different philosophical and empirical filiations, as well as from different sociohistoric and disciplinary backgrounds. The final result is composite

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and has its own autonomous logic and structure based on this new unit of unit of analysis: the *installation*.

The claim of this theory is that it is applicable to real-world settings where 'everything interacts with everything else' and allows for a breaking down of their complexity into simpler units tractable for analysis and intervention. It claims robustness rather than elegance. With it, when we analyse the determinants of a given activity, we can sort out what is relevant from what is not in the forest of potential variables, tell the wood from the trees and grasp concrete handles for intervention.

1.1. In Society, Individual Behaviour Appears Standardized and Predictable in Many Situations

The notion of *installation* addresses the same phenomenon as the notions of 'behaviour setting' (Barker, 1968), 'frame' (Goffman, 1974) or 'dispositif' (device) used by Foucault (Foucault, 1975); namely, that some socially constructed device induces individuals into performing specific and predictable behaviour. It is in a direct line with Kurt Lewin's field theory and dynamic psychology, which states that a person immersed in a given environment will experience a field of psychological forces that will drive the person's actions, these forces being mediated by the way that specific person interprets the situation (Lewin, 1935, 1936). Some of the many theories addressing that issue –e.g. scripts (Schank & Abelson, 1977), or the theory of reasoned action (Ajzen & Fishbein, 1980)– will be discussed in Chapters 3 and 4. But although the phenomena are well identified, the current theories are not handy for interventions to modify behaviour.

It is obvious to anyone who has ever participated in a Religious Worship Service, a Basketball Game or an Award Ceremony (examples of behavioural settings given by Barker) that behaviour in such circumstances is usually predictable and limited to a narrow range of possibilities. Even though, in the detail, variants and combinations are infinite, the envelope is strict. Of course there can be exceptions, but in general people don't play ball during religious services or award ceremonies; the rules of basketball remain the same match after match.

In a given setting (say, a Bus Stop, a Court Session, a Chiropractor's Office) different people will behave in the *same manner* (with minor variations) whatever their age, gender, social class, religious or political opinion, personality factors, personal history, etc.

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Conversely, a given person's behaviour will vary *according to the settings* (e.g. at the Dentist's or at a Funeral) in a predictable manner. Rather than depending on the person's individual characteristics, the person's behaviour will be dictated by the situation's standing programme, and in that situation by the role endorsed (e.g. dentist vs patient).

To state it simply: *the power of such structures locally supersedes all classic psychological or sociological variables*.

This does not mean classic variables are useless. The faithful will go to religious offices, atheists more rarely. But once in a religious office the participant (even the occasional atheist) will be caught in a behavioural attractor. Indeed, in the detail, some individual dispositions will affect the style of behaviour. But the pattern of the overall behaviour in installations remains predictable. Such guidance by the context is especially the case for habitual behaviours.

As stated above, this idea is not new, and Roger Barker's work demonstrates how prominent such formatting settings are in our daily lives. In his monumental study of a small Midwest town in the United States, Barker minutely recorded for decades the behaviour of all inhabitants, thereby providing us solid statistics about mundane behaviours. For example, Barker counted (Barker, 1968: 129) that in one year the 830 inhabitants spent 1,125,134 hours in the 884 *public* 'behavior settings' of the town, which amounts to an average of 3 hours and 45 minutes per day and per inhabitant.

This includes, for example: 1,984 hours in Bus Stops; 544,449 hours in Latin Classes; 1,356 hours in Moving Pictures Shows; 26,435 in Religious Worship Services; 443 hours in Telephone Booths; 1,489 in Volleyball Games; 974 hours in church Weddings and 21 hours in civil Weddings. These figures are aggregated by type ('genotype') of setting: the 884 behaviour settings fall into 220 genotypes (e.g. there are in the town several occurrences of the genotypes Beauty Parlour and Auction Sales).

While it is difficult to appreciate the extent to which Barker's survey is exhaustive, and the amount of time spent in behaviour settings that are not public (for example, activities at home or alone at work were not counted), Barker's count shows that channelled behaviour in such constructed settings accounts for a substantial amount of our waking social life – probably the largest part. Understanding how such installations work, and how to design and change them, is therefore of paramount importance for those interested in improving the way we live.

Unfortunately, Barker's theory came with a taxonomic approach that limited its applicability, as we shall see shortly. Additionally, it was designed

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for description rather than for intervention and change management, which are purposes of this book. Because of this focus on intervention, installation theory is less descriptive and more functionalist than most previous theories, including Barker's. What is lost in taxonomic capacity and formalism is gained in flexibility and usability in the field: practitioners cannot always apply a strict and cumbersome formalism.

There are some important differences between 'installations' and 'behavioural settings'. Both distinguish between individual and context, but installations extend across that border: the individual subject is considered part and parcel of the installation, and contributes to it with their own agency. For example, 'a Restaurant' or 'a Family Dinner' are 'installations' for eating; each induces and supports specific eating scripts, but the participants are an *essential* part of them, they are actors and not just users.

In the literature, the sociological and psychological notions of *norms* also address the social aspects of the process of behavioural channelling that we study here. The notion of *habit* and its variants describing embodied dispositions (habitus, attitudes, etc.) address some psychological aspects of the process. But norms are only one of the layers of societal control (and, as we shall see in Section 4.4, only a part of that layer). While the notion of the norm is very relevant for our problem, it misses a crucial aspect of the process of producing normal behaviour, the role of material artefacts. The same goes for habits: although they are considered to be embodied in humans, they occur only in specific contexts – characteristics that are outside the individuals – and so habits can hardly be defined independently of the settings in which they occur. Furthermore, the notions of context and dispositions alone cannot account for behaviours; as we shall see, there is a third layer: institutions.

The incompleteness of psychological theories that focus on a single locus of control of behaviour (e.g. attitudes, social norms) partly accounts for the very slow progress in understanding how our society works. On the practical side, it accounts for the accent being placed mainly on creating new norms, by law or education, in our efforts to change society. In this respect, such a classic vision, because it misses a crucial dimension,[10] can be just as toxic as the incomplete neoclassic economic theories when they directly inform political action.

[10] Of course, the resources that practitioners have can vary; they may not be able to address all the relevant dimensions, and have to make do with what they have, or wait indefinitely to make all the changes until conditions are favourable. But often some dimensions are not even considered because they are not in the theories in use.

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1.2. An Example: Road Traffic, Showing How the Three Layers of Behavioural Determination Operate as a Single Regulation System

While installations have a functional coherence and are a deliberate production of societies, they are *distributed* in their nature and the three layers assemble only at the point of delivery of activity, just as ingredients assemble and react as in a predictable manner in a chemical reaction. The structure of installations as described by this theory is somewhat unusual in social science. It combines material (physical) components with immaterial ones, and these components are distributed over ontologically different support layers. Therefore, its study must cross disciplines; this might be another reason why installations have never been studied systematically (if we except Barker), although they are ubiquitous. To understand how installations work we must think differently from the classic subject/environment divide. The example that follows – the Urban Street – will clarify.

When I manage to cycle in heavy traffic, it is the emergent result of simultaneously using the affordances of the road, of mobilizing embodied skills and of being protected by the traffic rules that prevent cars from driving me off the road. Society has constructed the built environment (the road), trained me to embody skills (cycling, reading traffic signs) and created control institutions (police, rules of the road). Individually, none of these layers produces traffic: when I am at home reading, I still carry with me, embodied, the competence of cycling, although it is not relevant nor operant *then*.

But these three layers *when assembled locally* become an installation that produces 'traffic'. Then, on one hand, these three layers guide and scaffold my own individual behaviour, enabling me to reach my goal destination safely. On the other hand, they make me a predictable road user to others, so we finally all together co-construct a 'normal' traffic flow at societal level. The same mechanism that 'nudges' and empowers me as an individual actor is also a mechanism of control of the traffic at an aggregate, collective, level. In fact, nudge is not a strong enough word; it would be more appropriate to say that I am 'channelled'.

The Urban Street is an installation; this installation is not located within the physical world only or inside my nervous system alone; it is *distributed* in the built environment, in educated and disciplined bodies, in institutions and their enforcing agents. It is so in a systematic and intentional way. It is only when these components assemble in situ (me in the traffic) that they emerge as a coherent empowering, nudging and controlling

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set-up that funnels my behaviour by adequately pulling the strings of my psychological mechanisms.

So the three layers are linked in one single functional and intentional perspective: producing a correct behaviour. Obviously, the different layers (roads and vehicles, driving competences, rules of the road) did evolve as a single bundle, each informing the other in a gradual historical evolution. None makes sense in the absence of the others.

The composite nature of the installation, spanning across individual and context, may appear a bit destabilizing to the reader. We humans have a natural tendency to consider as an entity *something that 'goes together'* in space. For example, solid objects (a chair, a car), or a geographic area (a room) or a set moving together (a crowd, a suit). We acknowledge the existence of entities that move together spatial and material components (e.g. a person with body and mind, a society with people and culture, an organization with assets and rules), but that makes us uncomfortable in epistemic terms when we have to relate their components (e.g. body/mind) because they belong to different epistemic systems. An installation is an even stranger entity because it assembles only intermittently, when in operation, and also because it coalesces components of a very different nature in three realms: material, embodied and social. These components refer to different ontological domains: matter, interpretation and relation. But while this may appear as a problem in theory, it is not in practice: common sense considers as coherent entities such strange epistemic compounds as 'a Town', 'an Automobile Race' and 'a Dinner'.

The components, as said above, assemble at the point of action, and that makes description difficult. Most of the time the installation is in a *potential* state, and only at the point of delivery, which is where the actor acts, does the installation coalesce and unfold as such. Take the metaphor of a player driving a car in a video game. The road that guides the player continuously unfolds on the screen before the player, but it is continuously created as a path only by the presence of the player himself at that point. If the player takes a turn at some junction, a road will still unfold before him as he progresses. Still these roads are not the result of the player's sole fantasy or decision: they guide the player, they bring in events and tasks to be done; if the player drives off the road he is eliminated. The road is created as a path for the player by the system, but it is locally adapted to the player's situation as a mechanical result of his position and actions. Like the installation, the video game road exists all the time potentially as components, but it is constructed as 'real' only at the point of delivery, as a stage for the player's activity. I use the video game as a metaphor to show

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how installations are emerging where the subject *is*, because the subject is an essential component of installations. But such video games were created with our world as a model so the resemblance is perhaps not fortuitous. Think of the earlier example of the cyclist in traffic.

In fact, more and more of the settings that we live in, and the installations thereof, are digital, and in the future it is likely that the video game type of installation I just described will be more than an illustration and a game, but rather the standard type of setting in which we live our lives. This makes little change for installation theory: the affordances will simply be digital. But for the sake of simplicity and demonstration, most examples in this book will use material settings.

So, on one hand our society's installations appear to us, natives of our culture, as natural common-sense units (a Street, a Conference, a Shop) and we all know how to act in them; on the other hand when we want to examine them in more detail we realize their ontological structure and the way they operate are not so easy to analyse with our usual scientific frameworks and notions.

The installation is a functional unit. What gives it its meaning and unity is the activity it supports; that activity matches (in principle) the goals of its participants. The installation assembles the various components that are needed to perform the activity;[11] it does so with guidance and control mechanisms that enable and ensure correct articulation and sequencing of components. Again, not everything is an installation: when I walk in the woods, I am not in an installation.[12] But in urban life, where society cannot afford for individuals to behave erratically, installations are ubiquitous.

We are not interested here in unusual events and strange experiments; rather, we address the bulk of day-to-day life, the mechanisms that create and maintain the 'normal' operation of organizations and societies, the smooth running of everyday life: how our daily life is constructed and organized, how we manage to make some behaviours so natural that we perform them without even thinking in the 'channelled state' described earlier. A good society, a sustainable organization, are not made of continuous turmoil and invention; rather, they are a flow of millions of seemingly effortless and natural small actions that appear almost miraculously

[11] And that is why participants come, and participate willingly, into installations: to perform a given activity.

[12] Some of my students object that the Woods can be considered installations for hunting. I would not go that far.

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compatible, coordinated and expected. That is no small achievement and of course it does not happen by chance.

Installations can be massively efficient: in 2012, there were respectively 5 and 6.5 fatalities per *billion* vehicle-kilometre in Germany and France (OECD/ITF, 2014: 22). Even with a high estimation of 60 km/h as an average driving speed, this would mean a fatal accident occurs only every 2 million hours of driving. In other words, someone who spends her life driving, every day and for 8 hours per day, would statistically have a fatal accident only every 1,100 years, the equivalent of going 7,700 times round the Earth. Not even our best-built machines can claim such dependability. Such is the scale of installations' control power and efficiency.

I will attempt to put their mechanisms in a clear light to explain *how, in practice,* societies provide typical solutions to typical problems.

I know that is already a bold claim. In fact, I claim even more:

1.3. The Research Questions: How Do Individuals Choose Their Behavioural Path in a Situation? How Does Society Regulate the Behaviour of Its Members?

Installation theory is ambitious because it addresses a phenomenon that simultaneously clarifies two grand questions, sociological and psychological:

- *How, in practice, is the continuous predictability and efficient control of the behaviour of millions of individuals constructed, which in turn is necessary for smooth operation of societies?*
- *How can individual humans make sense on the fly of the rich, ambiguous and complex environments of society and take appropriate action (keeping in mind humans are cognitive misers)?*

Both problems (operation and evolution of societies; determinants of individual behaviour) have long been studied; the more they are studied the more complex they appear. Because these questions also include a dynamic question: How do societies manage to function even though they continuously change? Not only does the boat stay afloat, but it does so while changing shape.

In a nutshell, these are the core questions of the disciplines of sociology, psychology and anthropology; they should also be core questions for economics and political science. Therefore, if daring to address *one* of these questions can be considered pretentious, claiming to build a theory that addresses *both* may appear naïve – or worse.

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I did not expect to address such grand questions, but it turns out that installations link them symmetrically. *These two questions are easier to deal with together than separately, as each one enlightens the other because they are two sides of the same coin.*

Indeed, if we think of road traffic, it is obvious that both problems (individual driver behaviour and global traffic) evolved together. Their form, as well as the implements society constructed, constitutes one single fabric. Rules of the road and driver behaviour are not independent, they must be considered as a bundle because one explains the other and vice versa.

In other words, this book ventures to propose a single theoretical framework for how individual behaviour is linked to societal construction. It describes the nature and function of structures that simultaneously support and socially regulate individual behaviour: 'installations'. And it attempts to do so in further realistic detail than previous approaches. Of course, the framework is connected to currents and theories that account for various aspects of the same problem: ecological psychology, activity theory, situated action, distributed cognition, social constructionism, niche construction, actor-network theory, social representations, and a few others. But although each of the aspects bundled here has, separately, been well described in the literature, each theory tends to overlook some aspects of the problem. In addition, one issue with general macrotheories[13] is that they often take as a scale of empirical study the society at large; this makes it impossible to study in detail the mechanisms of determination of action, which are by nature local. Installations are a unit of analysis at a smaller scale, where the mechanisms can be more easily unbundled.

Installation theory does not claim to be revolutionary, complete, exact or true; some parts are original, other parts simply weave existing theories together. Because it is grounded in real-world practice, the theory claims to be operational for practitioners faced with the pragmatic needs of understanding and bettering real-world systems, for those who design and run the installations (change agents, politicians, managers). What gives it its specific pragmatic value is the way it cuts the infinite complexity of reality into easily identifiable components upon which one can act, to tune the system or change it.

To support such interventions, we will explore how the principle of the natural evolution of installations can, to a certain extent, be harnessed to

[13] For example, Talcott Parsons' theory of the social system (Parsons [1951] 1964), introduces, to explain action, the interpenetration of three layers (cultural system, social system and personality) very similar to installations' layers.

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produce deliberate change, and we will illustrate this with examples from product and service design, organizational change and public policies.

1.4. This Book's Structure

Chapter 2, The Problem of Human Action and the Problem of Social Regulation: Two Sides of the Same Coin, provides a fresh perspective on the problem, one that sets the frame for the pieces of the jigsaw puzzle that are assembled in the book. *This chapter provides an overview of the theory.* **The hurried reader can read this chapter 2 and go directly for the summary of the theory in Chapter 9**.

Chapter 3, Theoretical Frameworks Grounding Installation Theory, briefly describes key theories that address our problem: ecological psychology, activity theory, social constructionism, distributed cognition and actor-network theory, social representations and shared mental models. The informed reader can skip that literature chapter and go straight to Chapter 4, where the detailed description of the new theory starts.

Chapter 4, The Structure of Installations, provides a model of installations and lays out their threefold structure. Behaviour is guided and controlled at three levels, each of which delineates 'possible' patterns for action in a situation. Appropriate behaviours are at the intersection of the three delineated zones. The model integrates the theories described in Chapter 3. It does not substitute former theories; rather, it situates them in a larger framework that clarifies which aspect of the problem each theory addresses best. Chapter 4 is full of examples.

Chapters 5, 6 and 7 address the evolution of installations.

Evolution is a combination of endurance (day-to-day reproduction) and change (modification in the longer-term). Chapter 5 addresses the first aspect (endurance), Chapters 6 and 7 the second (change).

Chapter 5, Endurance of Installations: The Reconstructive Cycle of Practice, describes the process of day-to-day reproduction of installations *without evolution*. It is essential to first understand the process of identical reconstruction to later understand the process of evolution. The mechanisms of regeneration and resilience described are essential tools for those who are interested in maintaining real-world systems – managers and politicians, for example.

Chapter 5 also shows in detail how, in installations, practice reproduces structure and vice versa. The picture that emerges unveils a solution that is at the scale of the problem – grand, and perhaps somewhat chilling in the degree of control it unveils.

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Chapters 6 and 7 address the issue of the longer-term historical change and evolution of installations. The generation and selection of changes follow a process more sophisticated than the natural selection of biological species. This complex process, 'monitored dual selection', is faster, safer and more cumulative. In dual selection, objects are selected twice, in actual practice and in 'thought experiments', with the support of external (reified) representations. This dual selection is furthermore under the control of communities. This social construction process is described in detail and illustrated with examples.

Chapter 6, Selection Mechanisms in Societal Evolution: Two Cases—Science and Industry, provides concrete examples of innovation in science and industry to illustrate typical cases of mechanisms, which is described in Chapter 7. This section shows the importance of external representations and tools in cumulative evolution.

Chapter 7, The Evolution of Installations, provides a general model for the evolution of installations, layer by layer, and the mechanisms of evolution that go across layers (drift, crossed-impact, innovation). The regulating role of institutions is explained and the function of external representations is specified.

These 'natural' mechanisms can be, to some extent, harnessed by managers and change agents to maintain or change installations.

Chapter 8, Redesigning Installations to Change Behaviour, is more applicative and addresses the 'how-to' question with four examples illustrating how installation theory can inform change in management, consumer science, design and policies. These are *illustrations*. As a note to the hurried reader, this chapter alone is not enough to grasp the theory and how-to; you need to read more of the book.

Chapter 9, Conclusion, is a summary of installation theory and includes some comments on how to use it.

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