

# Shaping Choices in the Digital World

From dark patterns to data protection:  
the influence of ux/ui design on user empowerment



# EDITORIAL

People live with all kinds of digital objects. These range from social networks to cutting-edge connected objects. They are now a fully-fledged part of our aesthetic relationship with the world, on a par with architecture or decorative art. A certain widely distributed and highly standardised aesthetic of digital media has been created, producing strong brands in users' minds. Users are barely aware of this aesthetic, which is well thought out. Conditioning through design pre-empts everything that the individual handles or sees in the digital world.

In the wake of Bauhaus, where design is based on the search for functional aesthetics, digital technology has become a relevant field of application in problem-solving. For, beyond the desire to avoid ugliness that "does not sell", to quote Raymond Loewy, the digital promise is so broad that the functions provided by design seem endless, giving the key players that own them the expectation of a substantial return on investment.

Web giants have understood this by competing to attract users, customising their experience, influencing – as subtly and as substantially as possible – their behaviour, in all fields, from leisure to politics. They stand as a compass to navigate the abundance of content and the anxiety of the non-optimisation of time.

But this model is no longer followed. Maybe because it seems to "take advantage" of individuals, their "malleability" and tendency to become accustomed to simplicity. Concerns regarding personal data are a strong signal of the discomfort felt by users themselves.

In this regard, the General Data Protection Regulation (GDPR) is a major response and a first essential milestone towards greater transparency and a reaction to the crisis of confidence. It offers regulators several legal and technical instruments to make users the focal point of the data economy.

But, to fight the model of individuals who are "objects of technology", design can act as a rampart and deploy its firepower.

The aim is not only to make objects beautiful but to propose an aesthetic to support another digital project. This project is not simply functional but humanistic, targeting sustainable goals that users can master; a project more imbued with common sense regarding the real needs of users taken in all their complexity.

Prosaically, the aim is not to be deceived, to fully consent to the effort that companies want to relieve us of and ultimately say "yes" together. To do that, in practical terms, the interface is far from cosmetic.

Design then reaches its full meaning, that of aesthetics to support humanity. It is beautiful as it is rooted in that humanity.

This publication therefore aims to project some ideas to build this digital aesthetic. It addresses the entire digital ecosystem by giving some operational recommendations to strengthen the control and choice to which users are entitled. The CNIL intends to participate in this and considers the attention taken with design solutions as a potential framework on which to build its legal and technical expertise and better fulfil its mission to protect freedoms.

May this document allow readers to be more reactive to digital tools, beyond an exclusively instinctual reaction. May this document lead to a virtuous circle restoring the validity of usage, in everyone's interests. May this document convince that the beauty of objects or forms is nothing unless we look at them with our eyes wide open.

In the industrial age, design had established that technical progress should support everyone, through the serial production of objects useful to individuals' everyday lives. It now needs to help build a "digital aesthetic" for all, allowing individuals to find their rightful place.

**Isabelle  
Falque-Pierrotin**  
Président of the CNIL



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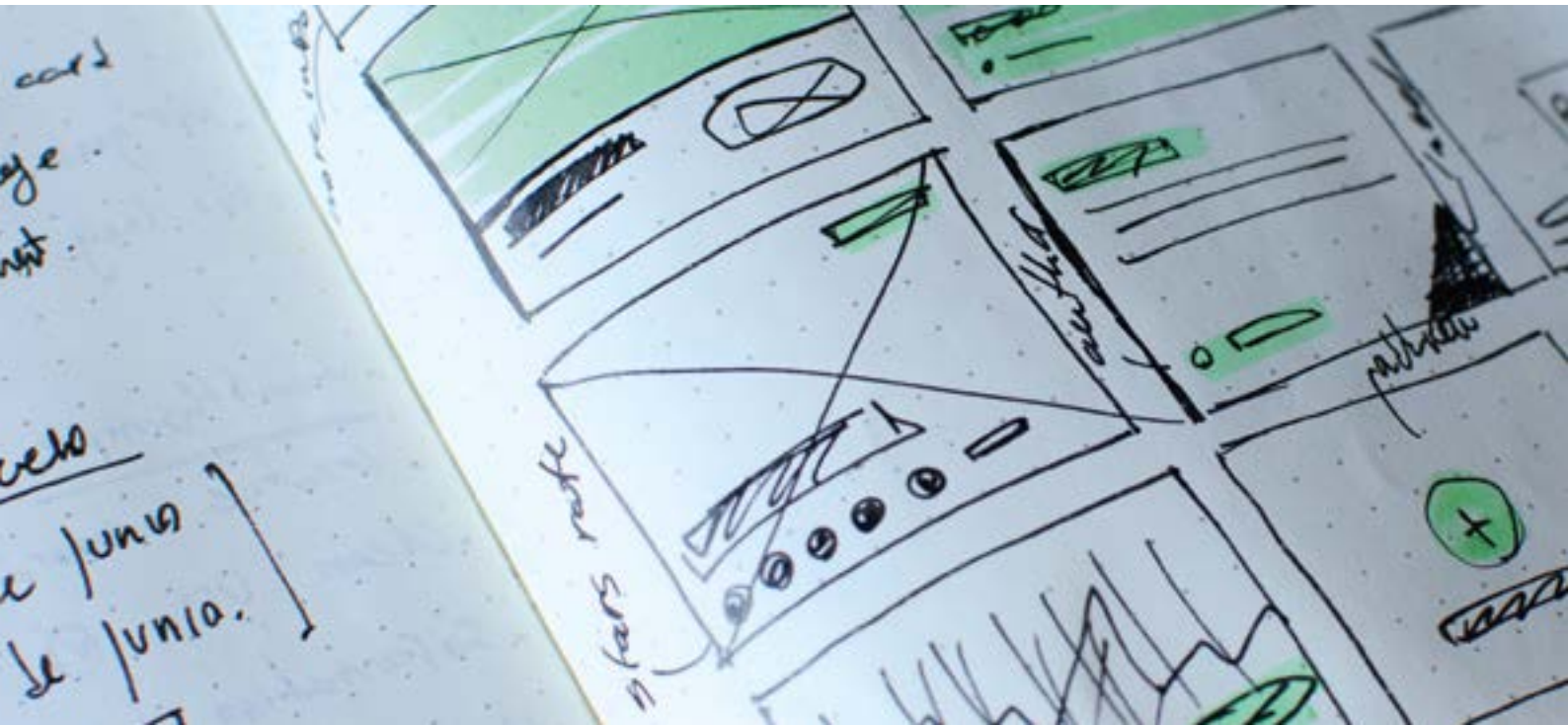
# What links between interaction design, interfaces and data protection?

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*“But where there is the peril,  
also grows the saving power.”*

*Patmos, Hölderlin*

# What links between interaction design, interfaces and data protection?



For better and for worse, digital tools have become our everyday assistants: ordering food, determining a route or even finding a soul mate, they propose, in the words of Dominique Cardon, the possibility of “relieving humans of the more mechanical aspects of their activities, freeing them for higher, more complex or more ambitious cognitive tasks<sup>1</sup>”.

Facilitating the work of humans is only ever the definition of a tool: a means to an end that would be difficult or impossible to attain for an individual. Why in the digital domain, would this function have such revolutionary consequences? What’s so special about these objects to bring out issues that differ so greatly from those raised by a hammer, a car or a pair of glasses?

Technology has never been neutral. It is “a kind of relationship with the world”, as Heidegger wrote. He believed its essence lay in the unveiling: technology brings a hidden potential of the world for the individual to grasp<sup>2</sup>. In other words, technology corresponds to a reconfiguration of possible outcomes, born of the encounter between the creative work of an object and its hand-over to individuals. The design of tools is not a trivial process, inert in terms of users and society. Tools shape us as much as we shape them.

<sup>1</sup> Dominique Cardon, *À quoi rêvent les algorithmes*, Seuil, 2015

<sup>2</sup> Martin Heidegger, *La question de la technique*, 1954

## FROM INTERFACES TO INTERACTIONS, WHAT ARE WE TALKING ABOUT?

Almost everything is an interface. The skin allows us to react to our environment. A pen can visually express an idea from hand to paper. A smartphone screen lets you browse and modify digital reality. Although almost invisible because they are rooted in our everyday lives, these interfaces are essential to our perception of the world and our ability to act in it. In the broadest sense, they can be defined as common areas with different entities, systems or sets, including physical or sensitive characteristics allowing them to share and interact through common representation modes.

In the digital world, interactions between reality and virtuality are mediated by human-machine interfaces (HMI). These are the fruit of the joint work of engineering (which defines its action and reaction capacity) and design (which determines the representations - visual, architectural, verbal, etc. - guiding users in their interactions with machines).

The ability to implement these interactions effectively is of prime importance for the use of these interfaces and the systems that underpin them. The cognitive psychologist, Don Norman, has stressed the importance of the “discoverability” of technical objects: it is essential for potential users to be able to easily determine the actions they can perform with them - for example, instinctively knowing which way a door opens<sup>4</sup>. This principle is based on two key levers:

- **indicating to the user interactions** that are possible with the interface, through affordance, i.e. all of the potential interactions between an interface and the agents in relation to it; signifiers, i.e. indicators showing how to operate the interface; and constraints, i.e., the limitations of possible actions.

- **allowing the user to conceptually represent the system** by revealing the logical links between an action and its effect on the system through the mapping of these links and feedbacks informing the result of the action taken.



José Alejandro Cuffia on Unsplash

The advent of digital technology especially changes the scale at which this shaping is liable to take place: tools can be disseminated very broadly and quickly, furthermore they can finely (and discreetly) adapt to their users. Thus, they have all the characteristics to be able to transform society in depth.

Our goal is to identify key areas in digital tools and services where these influence dynamics are focused. The design of human-machine interfaces, far from being a simple matter of ergonomics, comes with crucial issues in terms of the ability to act and configure possibilities of choice, so it is essential to focus on understanding to better control them.<sup>3</sup>

<sup>3</sup> Agency: ability to act independently and make their own choices 4 Donald Norman, *The Design of Everyday Things*, 1968

<sup>4</sup> Donald Norman, *The design of Everyday Things*, 1968





Once these principles established, HMIs do not act alone, but jointly within interface ecosystems, which can, for example, mix virtual (graphic interface) and physical (smartphone). Thus, a virtual interface specific to a digital service is always constrained by the affordances of the equipment on which it is instantiated.

Take the example of an instant messaging application for smartphones. The interface specific to the service allows the user to communicate with its contacts. This application provides a set of features whose interactions are determined by the affordance of the interface (e.g., tapping with the finger on certain elements), constraints (such as the hierarchy of content accessibility), and finally its use is guided by signifiers (such as icons or colours). All this has to intervene in the constrained hardware space of the smartphone (the size of its screen, the fact that it is touch sensitive...).

These paradigms are expressed as the different complementary practices of the design professions. Thus, the fact of telling the user what they can and cannot do falls within the user interface design (or UI) which strives to build a coherent visual language. It is built through the design of interactions or IxD, i.e. how the interface interacts between the system and the user, to enable it to achieve its objectives. The concept of user experience (or UX) has recently emerged; it includes an expanded version of the design of interaction focusing on the user journey as a whole, focusing on the emotional quality of experience and the commitment between a service and its users.

With this toolbox and through their ability to coexist and factor in the affordances of these different interfaces, designers and service developers design tools and digital pathways of users in search of the ideal interface.

## UBIQUITOUS, CUSTOMISED, SEAMLESS: THE DEFAULT INTERFACE

The quality of the user experience has become the magic word in the design of any digital service or product. This underlying ideal in the development of interfaces is embodied in a set of principles and tools that aim to improve the experience proposed by combining simplicity, customisation and multi-modality.

This quest begins with the search for simplicity: “less is more” proposed by the architect Ludwig Mies van der Rohe, taken over by the concept of “design is as little design as possible” of Dieter Rams, and theorised by John Maeda in his laws of simplicity are still references. In HMI, this results in a race to smooth, seamless and frictionless user experiences to achieve greater efficiency that is considered preferable by many stakeholders in the sector. Simplicity is seen today as a way of supporting the principle of efficiency, the dominant paradigm of our society, so that users do not waste time and quickly perform what they want through the interface. This axiom has become an iron law of web design, formalised by Steve Krug in his book, *Don't make me think*<sup>5</sup>: “I should be able to understand what it is and how to use it without straining to think about it”. These laws, axioms or principles are often considered indisputable and permeate through the best practices of professionals.

A second guarantee of a quality experience is the customisation of services to the user, by a user-centric design and by the algorithm. This is supposed to define the real needs of users by conducting a set of searches on them and their environment, to understand their problems, what irritates them, their way of acting and thinking in order to define the principles of uses and interactions of the service. The processing of users' personal data aims to anticipate their needs, to show one thing rather than another. The customisation trend does not prevent an increasing standardisation of experiences and user pathways: instead, it supports it. The multiplication of systems design is an obvious symptom. The interfaces are increasingly standardised in terms of their elements, their structures and their behaviours. No wonder: the customisation of the interface will be more

effective if it is based on user codes distributed across all services and already established among users in a sort of digital interfaces' grammar, a lingua franca of user experiences.

Finally, today's experience has to be multimodal. With recent developments in ubiquitous digital technology, a service can no longer settle for being accessible through a single medium; it must multiply them while ensuring continuity and consistency across experiences. Smart voice assistants are an example: named Alexa, Siri, Cortana or Google Assistant, these assistants are available on our smartphones, our computers, connected speakers or our vehicles<sup>6</sup> and gradually take over all the objects in our environment. The proliferation of media allows the emergence of new means of interaction. Called natural user interfaces (NUI), these new modes of interaction claim to be revolutionary by a supposed spontaneous understanding and the gradual learning curve they offer their users. Besides fluid interactions, these interfaces also open the door to experiences that increasingly focus on emotions, as we will explore in a series of articles on LINC.cnil.fr.

*“ The customisation of the interface will be more effective if it is based on user codes distributed across all services and already established among users in a sort of digital interfaces' grammar, a lingua franca of user experiences. ”*

<sup>5</sup> Steve Krug, *Don't make me think*, 2005.

<sup>6</sup> <https://www.lesnumeriques.com/voiture/ouvrir-sa-volkswagen-avec-siri-est-desormais-possible-n80253.html>  
(viewed on 20/12/2018)

## WHY IS DESIGN CRUCIAL FOR PRIVACY?

In 2009, Ann Cavoukian, the Information and Privacy Commissioner of Ontario (Canada), proposed the formula of “privacy by design”<sup>7</sup>, a concept taken up by academic and professional productions, but rather as a general philosophy of respect for privacy - through seven key concepts<sup>8</sup> - than as a specific stance aimed at professionals designing interfaces or interactions. Here it is more of a complementary way to tackle the issue of data protection for the usual interlocutors: lawyers and engineers.

The General Data Protection Regulation (GDPR) inserts in Article 25 the concept of “privacy by design and by default”. It stresses the need to implement appropriate protective measures according to the context of processing and the privacy risks of data subjects. In parallel, the article emphasises default respect for privacy by emphasizing the importance of the active participation of data subjects in protecting their privacy by asking them to intentionally activate invasive features, such as sharing data with third parties.

While Article 25 does not explicitly seem to address designers, it allows us to look at and highlight “privacy design”, how different design techniques are used in the staging of services for - and sometimes at the expense of - the protection of individual data, especially with regard to the major principles of transparency, consent and rights of individuals. It acts as an opening to the association of design and regulation.

Interface design did not wait for the General Data Protection Regulation (GDPR) to influence our lives, and sellers did not wait for digital technology to try to guide our actions and persuade us to purchase their products. We have long been influenced in our movements and actions by architectures of choice designed and implemented by others. For example, the mass retail market has long modelled its hypermarkets so that the customer pathway is guided by colour codes or pre-established paths to maximise purchasing, from the location of water packs to sweets placed at the checkout counter. Think for a moment about the pathway taken by visitors in an Ikea store, for example...

Yet these questions take an unusual turn when they are applied to interfaces and digital services that use and abuse deceptive design methods to hook us and better collect and process our data for goals that we do not always control. The design of these services affects us all because we depend on choices made by those building them, of what is represented, and by extension also what is not (James Bridle<sup>9</sup>). If these issues relate to the contexts in which the data concerning us is processed and used, UI design and the way such interfaces allow us to make conscious decisions becomes a central point. The interface is the first object of mediation between the law, rights and individuals.

*“ The interface is the first object of mediation between the law, rights and individuals. ”*

But the techniques of playing with our attention and our cognitive biases to develop manipulative and/or misleading interfaces (see below) have a direct impact on our ability to uphold our rights. We are so influenced and trained to share more and more, without always being aware, ultimately, that we are jeopardising our rights and freedoms. We therefore need to explore how design is used in the production of digital services to understand its positive and negative uses for all of us.

The aim of this document is thus to put the design of interfaces at the centre of the regulator’s concerns, as it is already at the centre of relations between individuals and service providers.

<sup>7</sup> Ann Cavoukian, *Privacy by Design : The 7 Foundational Principles*, Information and Privacy Commissioner of Ontario, 2009. <https://www.ipc.on.ca/wp-content/uploads/Resources/7foundationalprinciples.pdf> (viewed on 07/12/2018)

<sup>8</sup> Proactivity, the default protection, protection by construction, favouring a positive analysis and not zero reasoning, end-to-end protection on the whole data life cycle, visibility and transparency and, finally, respect for informational self-determination.

<sup>9</sup> James Bridle, *New Dark Age : Technology and the End of the Future*, 2018

# Relations, individuals and services: “It’s Complicated”

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*“The Critical Engineer recognises that each work of engineering engineers its user, proportional to that user’s dependency upon it”.*

The Critical Engineering Manifesto

# Relations, individuals and services: "It's Complicated"



## DOES THE RACE FOR OUR ATTENTION LEAD TO THE MANIPULATION OF USERS?

### The hegemony of popularity and available brain time

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Digital technology has this in common with the mass media: its dominant economic model is essentially advertising. Attracting people's attention to target them with advertising is a central commercial issue of major digital players, in particular big platforms operating on two-sided markets, where consumers are less customers than products.

Patrick Le Lay, then CEO of TF1 (leading French TV-Channel), thus defined his business in 2004: "What we sell to Coca-Cola is available brain time".

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Pixel, CCO, Kaique Rocha

Nathan Jurgenson, a sociologist who works, among others, for Snap (parent company of Snapchat), recalls that “the original sin at the birth of the mass media was to tie profit to the quantification of attention”<sup>10</sup> and this sin largely pre-dates the web and its permanent measurement of attention.

The first deviation of such an economic attentional mechanism is based on his assumption that “figures measure behaviour: someone says something, if it's interesting, the figures will show, and vice versa. [...] People are starting to try to influence these figures, measurement then goes from being a means to an end. Whether on Twitter, Instagram with hearts, or for the number of clicks on a page [...] the

metrics become the conversation. Popularity is what is interesting”.

The attention economy has thus become inseparable from economic data as the raw material for all the success indicators. The consequences for individuals are therefore very different from the days when television reigned. Whereas traditional media were based on fragmentary samples (e.g. in France, the Médiamétrie panel which had a TV ratings boxes), current digital and online media now promise their advertisers increasingly fine segmentation marketing, based on the real-time collection and analysis of individuals' activity,

### Focus on...



On 27 October 1994, Wired magazine applied in its online version a first, admittedly crude, but certainly effective, attempt at deceptive design (dark pattern) aimed at its readers. A banner, an object previously unknown to users of the website, was visible on the top of the page with this inscription: “Have you ever clicked your mouse right here? You will”. Since then, as James Williams described<sup>11</sup>, computer engineers, designers and statisticians spend their days thinking about how to direct attention and user behaviours towards goals that were not originally theirs. As Jeff Hammerbacher, formerly of Facebook, says: “the best minds of my generation are thinking about how to make people click ads, and that really sucks”.

<sup>10</sup> Annabelle Laurent, “Sur les réseaux sociaux, le contenu n'existe que pour maximiser les likes”, Usbek & Rica, <https://usbeketrica.com/article/reseaux-sociaux-contenu-existe-maximiser-chiffres-nathan-jurgenson> (viewed on 18/12/2018)

<sup>11</sup> James Williams, Stand Out of Our Light, Freedom and Resistance in the, Attention Economy, University of Oxford, 2018

Because these techniques are combined with a constant search to capture attention, platforms are encouraged to act on their psychological mechanisms in order to benefit from them.

Exploring the economy of attention through the data prism therefore amounts to questioning the consequence of this race to capture attention. Creators of services only show the positive effects: the consumer would ultimately be practically rewarded for viewing content which must be ever more interesting to obtain their approval. The advertising to which consumers is exposed would be so relevant that they would correspond to services provided and not be an annoyance.

This analysis however ignores what behavioural economics and analysis tell us about the strategies and practices of economic players. Platforms do not only seek to capture the attention, but sometimes, in this way, they divert from the underlying economic model ... As noted by sociologist Dominique Boullier, "Marketing knows how expensive it is to gain customers and how important it is, therefore, to keep those we already have. For that, it is necessary to fight attention-hopping, against this permanent infidelity

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**FOCUS ON...**

**LINC, exploration partner  
"For retro-design  
of attention" of the FING**

LINC is a partner of the exploratory project "for a retro design of attention"<sup>12</sup>, launched in January 2018. This project aims to analyse (or study) how our attention is captured by interfaces and to suggest new avenues for responsible attention. The results will soon be published on the Fing website. Throughout the project, summary articles are published on Internetactu.net (#attentionbydesign).

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encouraged by the alert policy and that the same marketing services and media implement to attack competitors' customers". He comes to the following conclusion: "the whole point of this struggle to capture the available brain time is to reduce to the extreme any hesitation and conscious arbitrations, to create a form of naturalness which poses no problem, which will seem very economic at the cognitive level. Capturing attention becomes the ultimate form of loyalty, which will protect the customer from aggression by competing attention sensors in an immunity bubble.

The aim is therefore not only to capture attention innocently by being the best and providing the most interesting or useful content. It is a

vicious struggle to control attention and its economic, social and cognitive mechanisms. The methods used by those building content - nudge, dark patterns or deceptive design - which we present in the following section, not only act on the attention of individuals but also on their behaviour and agency. These effects have a direct link with the protection of rights of individuals and their personal data, as they may have to share more and more without being necessarily conscious about it.

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<sup>12</sup> <http://fing.org/?Pour-un-retrodesign-de-l-attention&lang=fr>

## Focus on...

## Our hypervigilance as the first breach of attention

Interviewed by InternetActu, the neuroscience researcher and clinical psychologist, Albert Moukheiber repositions our reactions to demands for attention over a longer period, linked to the very nature of the human being: "Our hunter-gatherer ancestors had to deal with dilemmas. When they heard a noise in the forest, they had to judge if it was the wind or a predator. There was a benefit in making one choice rather than the other. Missing an alert was costlier than raising the alert for nothing. We developed hypervigilance ... preferring to make a mistake rather than die. And this hypervigilance reflex has stayed with us". Humans instinctively make the choice of processing information quickly and responding to visual and sound signals, like

smartphone notifications. Our attentional hypervigilance explains why we are startled at an unforeseen event or why we continue to focus our attention when faced with weak signals. This is the foundation of the error management theory updated by David Buss and Marie Haselton, stressing that it is costly to integrate all the details of our environment while remaining fast and accurate, which explains why we prefer to take the less costly mistake. For these reasons, we always tend to give into the call of the platform when it emits a signal, warning us of a change, of a novelty; which by innate reflex, we do not want to miss. This the platforms have understood.

### Cognitive biases at the centre of attention

Taking advantage of all cognitive biases, those faults in our rationality that hinder our free decision-making capacity, is one of the fundamental levers in the race to capture the attention of Internet users. Various work, including that of psychologists Daniel Kahneman and Amos Tversky in the 1970s, questions the model developed in the 1920s by Edward Bernays<sup>13</sup> of homo oeconomicus: an individual acting perfectly rationally according to their interests and objectives and on which classic economic theory was based. From various experiments, they show that our perceptions and behaviours are largely guided by our physical, social and cognitive development and, consequently, we mostly take apparently irrational decisions. Cognitive biases, those mental structures that limit our rationality, have subsequently been identified in many areas.

In the digital world, research has led to the questioning of the free and informed nature of choices made by individuals,

particularly in terms of sharing personal data. For many, like Alessandro Acquisti<sup>14</sup>, our cognitive biases explain the famous privacy paradox, according to which we share huge quantities of personal information online while worrying about the consequences of this sharing. We therefore decide to share personal data without taking into account all the elements of context and without being fully aware of the implications of this approach.

When we look at the individual's capacity for action and agency, the illusion of control is a cognitive bias with particularly powerful effects. Considerable work has isolated this tendency of individuals to grasp elements that give them the impression of controlling a result that nevertheless they do not initiate. Thus, a famous study showed that it was much easier to get people to donate by adding the phrase "but you are free to accept or refuse." According to the researchers behind this work (especially Nicolas Gueguen and Alexandre Pascual), the mere mention of freedom is enough to disarm the mistrust of any threat to our freedom (reactance, according to the term used in psychology).

<sup>13</sup> Edward Bernays, *Propaganda*, 1928.

<sup>14</sup> Alessandro Acquisti et al., *Nudges for privacy and security: understanding and assisting users' choices online*. *ACM Computing Surveys*, vol. 50, n°3, 2017



## Focus on...

## Cognitive biases in action: practical case

When a person reaches the middle of an article on the internet, they see a banner appear asking them to log into the site to continue to read. The required fields (surname, first name, date of birth, email address) are directly accessible. Next to a check box, a link leads them to the terms of use and privacy policy, two dense documents of ten pages each. The "continue reading" button appears in blue at the bottom right, while a "leave the site" link is featured in grey, giving the possibility of abandoning this activity.

Annoyed by the untimely interruption and interested by the article in question, the person hurriedly fills in the fields, opens the link to the attached documents, scans them rapidly, checks the "accept" box and returns to reading the article.

Several cognitive biases have come into play in this short sequence.

- **Anchoring effect:** the user has already seen this type of banner dozens of times and is used to dealing with it without paying much attention.
- **Loss aversion:** we tend to value a benefit already in our possession more than an object we could acquire. Here, the fact that the person in question has already started to read the article without knowing that it was going to be withdrawn increases their commitment to reading it. If the login had been requested beforehand, they would certainly have been less inclined to provide personal information in this case.

- **Information overload:** in the presence of an excessive amount of information, we tend to ignore it in totality rather than selecting the relevant elements. Here, the fact that the conditions of use and privacy policy are long and complex decreases the probability that they will actually be read and considered. Although the person has made the effort to open these documents when they appear, they decide not to factor them into their choice to log into the site.

- **Framing effect:** the way things are presented influences our decisions. Here, the fact that the option leading to the creation of an account is indicated in a visually attractive way (in blue) and with an incentive vocabulary ("continue reading"), while the possibility of leaving the site is visually and verbally less attractive, aims to influence the actions of the individual.

- **Hyperbolic updating effect:** we tend to pay more importance to immediate events than to those that could occur in the future. The immediate benefit of access to the article therefore prevails over future, possibly disturbing, consequences of the sharing of personal data with the relevant site.

- **Optimism bias:** in the same vein, the user tends to underestimate the probability that the fact of having logging into the site could have negative consequences for them.

## HOW DO DIGITAL SERVICES HOOK US?

### The weaponization of our habits

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Some experts are quick to tout the capacity of digital technology to transform habits into weapons, according to the expression used by Nir Eyal, the author of *Hooked: how do successful companies create products people can't put down*. This book is a practical and somewhat reflexive guide to ethical and societal issues aimed at entrepreneurs wishing to develop products that create habits, which we use without thinking. It is possible, in his opinion, to develop a virtuous circle (from the perspective of the entrepreneur portfolio) aiming at the natural use, without external stimuli, of a product or service by its user. His hook model goes through four phases that must be repeated: trigger, action, reward and investment in the service (time, money, content, equity, effort or... data).

This model is based on a number of strengths:

- **The repetition of cycles** eliminates the need for an external trigger to lead to an internal trigger: you start Instagram or Facebook even without notification.
- **Variability of the reward** is very clearly based on our "playful" brain. Feedback loops exist all around us in the design of objects: when you press the switch of a lamp, you expect it to light up. That in itself does not make us to press the button more often. However, if we get a variable reward (a new colour for lighting, a sound bonus or other surprise action), the service will be able to create an appetite, a desire...
- **User habits** become an asset to the company and give it a competitive edge. By increasing loyalty, companies gain a monopoly over the mind.

In an article, published in The Atlantic<sup>15</sup> in 2012, the video game designer and author Ian Bogost recalls how the first generation of smartphones from Research In Motion (Blackberry) had helped to change the behaviour of users, by hooking them to a little red LED that flashed when a message had been received, well before Apple or WhatsApp. The author recalls that RIM products launched a chain reaction that changed our social behaviour in ways we still do

not completely understand. Maybe in 50 years' time, current response reflexes to permanent calls for attention from our digital companions will seem as harmful and ill-considered as the relationship our elders had in the inter-war years with the social role of smoking...

### Playing with our emotions

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The ultimate goal of the entrepreneur, in Nir Eyal's opinion, would be to move from external triggers (notifications, email, etc.) to internal triggers, which cannot be seen, heard or touched, but rely on our cognitive biases, our psychological needs and emotions.

The best-known example of these endogenous triggers in the world of social networking services is the famous FOMO, or *Fear Of Missing Out*. It is the fear of missing something important, useful or entertaining. It is this fear that drives us to check our phone dozens of times to continue the never-ending scrolling of Instagram or Pinterest images, or to check our emails or look at the Twitter feed. Fear, which in this case is created by the tool, is the salve that relieves irritation of which it is the cause...

This example is far from trivial. As Nir Eyal says, "emotions, especially negative ones, are potent endogenous triggers and strongly influence our daily routines. Feelings of boredom, loneliness, frustration, confusion and indecision often induce mild pain or irritation and provoke an almost instant reflex to mitigate this negative feeling".

It is often said that the objective of designers of products, and more generally of digital entrepreneurs, would be to eliminate irritants and friction, and simplify the lives of users. In reality, their incentive is quite the opposite: create, spark, generate an irritant or discomfort to be then processed ... A pop-up that is triggered when reading the article to ask them to log into the site (as explained in our boxed item) is a good example.

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<sup>15</sup> Ian Bogost, *The Cigarette of This Century*, The Atlantic, <https://www.theatlantic.com/technology/archive/2012/06/the-cigarette-of-this-century/258092/> (viewed on 18/12/2018)

## Making us addicts?

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Addiction to screens is a debate that tops the list of concerns of the media and the authorities. Yet, like discussions that focus on video game addiction, opinions do not naturally converge towards a consensus.

For the anthropologist Natascha Schüll, a professor at the University of New York, there are clearly identifiable parallels between the mechanisms set up by the gaming industry (especially slot machines in casinos, studied in her latest book<sup>16</sup>) and methods developed on the internet<sup>17</sup>. The researcher describes, in the case of slot machines, states close to a form of trance, which she calls the "machine zone"; moments in which everyday concerns, social demands and even body awareness disappear. These states are partially applicable to the relationship with digital tools: "In the online economy, revenues are a function of the attention of consumers, as measured by the click-through rate and time spent. [...] Whether the goal is to win emojis on Snapchat (Snapstreak), scrolling images on Facebook, or to play Candy Crush (for which we explained the retention mechanisms in our IP3 Report), you are caught up by fun loops or cycles based on uncertainty, anticipation and reactions whose rewards are just sufficient to incite you to carry on". Jaron Lanier, a former computer scientist at Microsoft, agrees with this analysis when he states that "we have been gradually hypnotized by technicians whom we do not see, for goals that we do not know, like laboratory animals<sup>18</sup>".

Nir Eyal addresses the issue of risk involved in voluntarily creating addiction, a risk which he says affects only a small number of users, as individuals have an increasing ability to self-regulate with the (benevolent) assistance of companies: "companies [...] have a moral obligation and, maybe one day, a legal obligation to inform and protect users that produce an unhealthy attachment to their products".

Here we find a kind of cyber health-awareness very characteristic of Californian culture. As pointed out by Nathan Jurgenson, it is difficult to define what would correspond to healthy practices, free of signs of addiction: "The assumption is that some users are sick and others healthy. Who decides what is healthy? What do people do with their phones? At best, they talk to each other. Sometimes, admittedly, just to maximize figures. But can you be addicted to talking to people? To being sociable? I don't think so. For me, talking about "sick" and "healthy" users leads to a rather scary and conservative normalization, even though I do not believe that is the intention<sup>19</sup>".

This question of a real or supposed addiction to digital services also raises the question of its regulation, including by States. As we will see later, the digital giants already offer control tools, which carry within them more questions than real solutions.

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<sup>16</sup> Schüll, Natascha, *Addiction by design: machine gambling in Las Vegas*, 2012

<sup>17</sup> Mattha Busby, "Social media copies gambling methods 'to create psychological cravings'", *The Guardian*, 8 mai 2018, <https://www.theguardian.com/technology/2018/may/08/social-media-copies-gambling-methods-to-create-psychological-cravings> (viewed on 06/12/2018)

<sup>18</sup> Jaron Lanier, *Ten Arguments for Deleting Your Social Media Accounts Right Now*, 2018

<sup>19</sup> Annabelle Laurent, "Sur les réseaux sociaux, le contenu n'existe que pour maximiser les likes", *Usbek & Rica*, 30 September 2018, <https://usbeketrica.com/article/reseaux-sociaux-contenu-existe-maximiser-chiffres-nathan-jurgenson> (viewed on 06/12/2018)

## TOOLS THAT TRANSFORM INTO BENEVOLENT GUIDES

### Nudge as a positive vision of manipulation?

The nudge, which can be translated as a gentle incentive, is, according to Wikipedia, "a technique to encourage individuals or a target population to change their behaviour or to make certain choices without being under constraint or an obligation and does not involve any sanctions".

A topic popularised from 2008 by Richard Thaler and Cass Sunstein<sup>20</sup> as an extension to the critique of the rational economic agent, this technique consists in influencing behaviours towards what are considered to be positive objectives. In this perspective, as Norman points out<sup>21</sup>, designers should bear in mind that users of their objects are human, confronted daily with a myriad of choices and signals to be processed. The aim is therefore to act on the architecture of individuals' choices to encourage them - we often talk about gentle incentives - to take certain actions rather than others.

Architects of choices accept the fact of influencing the choices made by human beings, to induce beneficial behaviours (for the individual, the community or the planet), in a flaunted paternalistic view. To the contrary, improving the business model of a company or service is not a nudge as designers would have it, but would amount to incitement at best and manipulation at worst<sup>22</sup>.

### Relieving us of informational overload, for real choices?

Humans are cognitively used to relying on the expertise of others. You do not necessarily know how to make a musical instrument or lamp - someone else has designed these objects so that you may use them<sup>23</sup>. Interface designers and developers design the architecture of services to allow browsing and, where applicable, make choices for ourselves in a complex digital ecosystem.

Thaler and Sunstein, in particular, highlight the orientation of individual choices towards solutions that offer the least resistance: "due to laziness, fear or distraction, people will tend to choose the option that will require the least effort, or the route that will offer the least resistance" (Sunstein). Individuals will thus tend to always choose the "default" option, regardless of whether it is good or bad. Where the supporter of gentle incentive will always strive to integrate best practices in "default" versions, which falls in line with the obligation to "privacy by default" of Article 25 of GDPR, some may however be tempted to use this bias for less positive purposes.

*" Cass Sunstein compares the Nudge to GPS: it lets you go where you want to go but tells you the right or best way to do it. "*

*Hubert Guillaud, InternetActu*

In terms of data protection and respect for privacy, cognitive overload issues are equally important for our agency as interfaces that guide us in our choices. Information overload is one of the cognitive biases that lead us to make choices without controlling all the cards we have been dealt. In his book, *Choosing not to choose*, Cass Sunstein develops an ambitious political theory of choice and its architectures.

His theory is that having a choice is conceptually seen as a positive challenge in all circumstances because it strengthens the individual-kick, when in fact true freedom is sometimes linked to the power of not having to choose. Choosing perhaps a burden, as time and attention are precious, rare resources. Choosing not to choose can be a way to increase well-being and freedom, provided you have confidence in the system set up and are consistent with its objectives; these conditions are not self-evident and need to be shared, to be transparent and clear.

<sup>20</sup> Cass Sunstein et Richard Thaler, *Nudge: Improving decisions about health, wealth and happiness*, 2008

<sup>21</sup> Ref (op cit)

<sup>22</sup> Hubert Guillaud, "Où en est le Nudge (1/3) ? Tout est-il " nudgable " ? ", *InternetActu*, <http://www.internetactu.net/2017/06/27/ou-en-est-le-nudge-13-tout-est-il-nudgable/> (viewed on 06/12/2018)

<sup>23</sup> Steven Sloman et Philip Fernbach, *The Knowledge Illusion: Why We Never Think Alone*, April 2017

## Focus on...

### Example of a nudge

Setting up nudge techniques to slow down motorists, for example by painting pedestrian crossings so that they seem raised will have no impact on the individual freedoms of motorists who will simply slow down when approaching a pedestrian crossing. But in parallel, this nudge has an essential positive impact on the safety of pedestrians who need to cross the road.

Beyond this vision and pragmatic approach, we are not always able to choose with the facts in hand, that is to say take into account all the information linked directly or indirectly to this decision. Even a full reading of all the privacy policies and terms of services that we accept (which would take at least 25 working days per year<sup>24</sup>) would only give a fragmentary view of all the ins and outs related to a service. It is therefore important to shape the information and architectures of choice so that individuals are properly guided. It is the mission of interface designers to stage these choices virtuously and not misleadingly.

If the intentions of the nudge strive to be positive and promote general interest, the very term of soft paternalism adopted by its designers raises the issue of the freedom of individuals to exercise their own choices. The issue of individual autonomy and the ability to accept or not certain injunctions must be raised whenever the goal is to subtly encourage certain actions that the individual would not have wanted to take.

Moreover, as pointed out by Célia Hodent (member of the CNIL Foresight Committee), the problem with the nudge or dark pattern stance is that they paint everything white or black, while we face many shades of grey...

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<sup>24</sup> Aleecia Mac Donald et Lorie Cranor, "The cost of reading privacy policies", Journal of law and policy for the information society, vol. 4, n°3, 2008

# Powers and freedoms in the land of interfaces

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*“The purpose of education is not to get men to admire  
ready-made legislation but to enable them  
to assess and correct it”.*

*Nicolas de Condorcet “ Sur l'instruction publique ” (1791-1792)*

# Power and freedom in the land of interfaces



## DESIGN, LEVERAGE FOR (BIG) PLATFORMS

The efficiency of design techniques, in terms of capturing the attention of Internet users and directing their behaviour, necessarily leads us to look at structures that implement

these strategies in the most striking way, the most prominent being the great data industrialists.

### Design as a tool of soft power

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The choice of platforms in terms of design of their interface and services plays an important role in defining the field of possibilities (for the available features or not), actions (which can be encouraged or, on the contrary, made more difficult) and ultimately users' preferences (since we tend to prefer what we are used to).

on YouTube. Amazon makes more than 5 billion deliveries per year. For all media content put together, in 2018, the French spent on average 4 hours and 48 minutes per day on the internet, including almost one and a half hours on social networks<sup>26</sup>.

Alongside the direct effect exerted on their users, the big platforms are also able to use their central position in the digital ecosystem to establish themselves as essential references for all of their sector, through standards used by all.

*“ These [design] tools  
are therefore capable  
of transforming into particularly  
effective soft power levers as  
they fashion the digital  
world to the model  
of big platforms. ”*

The case of the kml format (used for geolocation) created by Keyhole Inc., and acquired by Google in 2004, is an example in this respect, as it has become the norm. KML is now the most frequently used format for all geolocation tools. Google's Material Design<sup>27</sup>, meanwhile, has adopted a B2B influence strategy. On a dedicated platform, and on the basis of work carried out largely in-house, the company provides advice and tips to “support innovators in [their] area”. This project, launched in 2014, proposes to merge in a graphic and ergonomic charter “the classic principles of good design with technological and scientific innovations”. By making available various tools such as icon systems, or colour palettes, the aim is to enable the development, according to Google, of a “single base system that harmonizes the user experiences across platforms and devices”.

Made accessible to others in the form of directly usable kits, these tools are thus capable of transforming into particularly effective soft power levers, as they fashion the digital world to the model of big platforms.

Platforms' leverage capacity is particularly important when their audience is extremely broad and loyal, because they capture a large proportion of users on their interfaces. This obviously does not mean that this power is based on a necessarily manipulative use of techniques, but it is clear that the economic model of these platforms is usually largely underpinned by revenues from advertising on which partly rely - the services actually offered also explains it - on effective internet user retention techniques already described in this document.

Every month, nearly a third of humanity (2.27 billion people) connects to Facebook (for a monthly average of 18 hours and 24 minutes<sup>25</sup>) and 6 billion hours of videos are viewed

<sup>25</sup> Connie Hwang, Verto Index: Social Media, <https://www.vertoanalytics.com/verto-index-social-media-4/> (viewed on 18/12/2018)

<sup>26</sup> Thomas Coëffé, Internet Figures – 2018, Blog du Modérateur, <https://www.blogdumoderateur.com/chiffres-internet/> (viewed on 18/12/2018).

<sup>27</sup> <https://material.io/design/> (viewed on 18/12/2018)



## Warnings from the Tech Repentants

Repented Silicon Valley figures are increasingly acting as whistleblowers against attention-capturing strategies implemented by companies. For them, the technologies they helped design cause both individual and social problems which the platforms are unlikely to want to solve since they benefit from them economically.

Speaking about the “like” feature, Chamath Palihapitiya, a former Facebook executive, believes that “short-term feedback loops stimulated by the dopamine we have created are destroying the way our society works.” For him, the best solution is abstinence (which is probably unrealistic in today’s society) because he recommends not to use these services: “if you feed the beast, it will destroy you<sup>28</sup>”.

Others seek to make technology more ethical, like the Center for Human Technology founded by Tristan Harris, a former Google employee. With the objective of “realigning technology with the best interests of humanity”, this organisation seeks to raise public awareness about so-called dangers of tech; it promotes protective design against our inherent vulnerabilities (cognitive bias, etc.) and encourages policy initiatives that move in this direction. The aim is to avoid the “erosion of the pillars of our society”, i.e. “mental health, democracy, social relations and children”, which the “race for monetization of our attention” is compromising.

The stances of tech repentants should however be taken with caution as they only feed the belief of the omnipotence of companies which would be futile to attempt to regulate. When Jaron Lanier argues<sup>29</sup> for the disconnection of social networks that “bring out the worst of human nature, and make us aggressive, egocentric and fragile” rather than actually encourage the exodus, it is possible that this stance, on the contrary, promotes the impression of the impotence of users and the impossibility of controlling these platforms to ultimately let them regulate themselves... The response of the GDPR is rather to give users the means to control the use of their data, by wagering on responsible innovation rather than self-regulation.

## Try-fail-fix as a design method?

Growing concerns about the influencing capacity of platforms tend to surreptitiously result in stances on the omnipotence of the big tech companies whose strategies are perfectly orchestrated.

Yet this Promethean, if not “conspiracy theory”, narrative comes up against the realities of development models of these services, which, based on often experimental techniques, frequently reveal their fallibility. Sometimes claiming that they do not really know what they are doing or why, the big platforms also claim that they are incapable of explaining why things work or do not work as expected ... Which is not necessarily reassuring.

Some decisions taken by platforms, especially those related to how to design and present interfaces, are largely inspired and influenced by the reactions of users and their ways of taking control of the tools that are offered. Thus, the Facebook wall was initially a very limited feature. You had to go on a user’s page to view his/her wall and it was not until 2011 that the “news feed” feature was introduced. It is because users interacted, hijacked and played with the wall that it was changed. Similarly, the famous Twitter hashtag was invented by users and not by the company which happily and smartly draws the benefits of this creation. This development by trial and error is facilitated by the ability to implement life-size experiments on a large pool of guinea pig users. Access to captive panels has allowed Google to test 40 different shades of blue for its hyperlinks, or the OkCupid dating platform to measure the real impact of its “match percentage” by pretending to members that they were very compatible when they had little in common ... (see box).

These experiment strategies are symbolic of the iterative approach that characterises the big platforms. Gretchen Sloan, a Facebook spokesperson, explained in an article that it is “a very common approach [...]: launch a product / feature, see how people use it, and then improve it over time. This helps us (like other companies around us) to design and quickly implement new features that people want”<sup>30</sup>.

<sup>28</sup> Guillaume Ledit, For a former Facebook manager this “shit” “destroys the social fabric of our societies” Usbek & Rica, December 2017 (viewed on 18/12/2018)

<sup>29</sup> Jaron Lanier, *Ten Arguments for Deleting Your Social Media Accounts Right Now*, 2018.

<sup>30</sup> Rachel Kraus, “Facebook’s “Time Management” tool shows it hasn’t stopped treating users like psychological guinea pig”, Mashable, 1st August 2018. <https://mashable.com/article/facebook-instagram-time-management-psychological-tests/> (viewed on 29/11/2018)

It does not seem advisable for society to turn itself into a giant, open-cast behavioural psychological experiment working for large web companies, and this is why serene and responsible regulation is important: because we cannot only settle for corrections through new test iterations and (new) errors.

## Zoom on...

# OkCupid or the love laboratory

The OkCupid dating site received a lot of attention in 2014 for having described on its blog various experiments conducted on its users (the post in question has been removed, but studies were also reported in *Dataclysm*, written by Christian Rudder, one of the founders of the platform). Two of them attracted particular attention:

- **Manipulation of the match percentage.** To know the real impact of its match percentage (compatibility between two members), the OkCupid trademark, the platform artificially modified its values for different users. 90% compatible people showed a 30% match and vice versa. The result? When users thought they matched, they liked their discussions more and conversations lasted longer... It gives food for thought about the power of suggestion of platforms.

- **“ Love is blind ”.** OkCupid allowed users to give scores to the profiles of other members. By masking the blurb of certain profiles, which then only featured a photo, the platform realised that the description only accounted for 10% of ratings. Love is not apparently as blind as all that, at least not on OkCupid...

The author justifies this practice by claiming that “OkCupid does not really know what it is doing, nor do the other websites. It is not as if people were trying to build these things for a long time, or as if you could refer to a specific plan. Most ideas are bad. Even good ideas could be better. Experimenting is the only way to settle it all.”<sup>31</sup>

<sup>31</sup> Christian Rudder, *Dataclysm*, 2014.

## Limits of self-regulation

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In fact, today, whether for fake news or attention management, platforms are presented - or present themselves - as the perfect antidote to remedy the ills they generate.

To respond to criticism and charges of “theft of attention” or “time theft”, in the words of Tristan Harris, the major market players in 2018 launched their own time spent management tool on their different applications.

In a quantifiedself approach, the Google Android P tool offers users a dashboard that allows them to see the time spent on their phone, the number of notifications received, the breakdown of time spent per application and their hourly use. The amount of captured data is however absent from this dashboard. The application then suggests the user to set time limits for each use, with alarms, like a sort of parental control that we would apply to ourselves. Apple, Facebook and Instagram launched similar tools between June and August 2018. The benefits of these tools will be assessed over time, especially as a Thai study has shown that people most using self-regulatory tools were also the most likely to have behaviours close to addiction<sup>32</sup>.

A credible economic hypothesis is that these tools are consistent with their strategy as custodians of attention as these players are essential for advertisers, acting like tolls to access our attentional devices. We should therefore not underestimate the effectiveness of a commercial stance consisting in telling advertisers: “I know when the individual must not be disturbed as they use my attention management tools; I am therefore the only one to avoid your brand being considered as an irritation”.

By leaving platforms to regulate their own shortcomings - in the tradition of communication on their own responsibility, as a form of apology - these solutions also act as a form of transfer of responsibility from structures to individuals. As said Antoinette Rouvroy in the foreword to our IP2 Report, these logics tend to make individuals entrepreneurs of their well-being, solely responsible for their bad habits, thus absolving economic players or society of their responsibilities. If you succumb to the cognitive or emotional “hooks” of designers to the point of suffering consequences close to pathological addictive states, it is ultimately something of your own fault. The proof is that we give you the tools to self-regulate!

Thus, the digital world is both the poison and the remedy according to the classic analysis by Bernard Stiegler, and this “Pharmakon” logic<sup>33</sup> has never been so explicitly incorporated into economic models. But in this case, it is in a logic essentially assigning to the individual the responsibility of finding doses that separate one from each other, with the supposed kind help of behavioural crutches produced by the very people that build attentional traps in the first place.

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<sup>32</sup> Vikanda Pornsakulvanich, “Excessive use of Facebook: The influence of self-monitoring and Facebook usage on social support”, *Kasetsart Journal of Social Sciences*, <https://www.sciencedirect.com/science/article/pii/S2452315116300819> (viewed on 07/12/2018).

<sup>33</sup> In ancient Greece, the pharmakon refers to both the remedy, poison and the scapegoat. <http://arsindustrialis.org/pharmakon> (viewed on 07/12/2018).

## WHEN PERSONAL DATA COLLECTION BECOMES BIASED

### Bad design, dark patterns and personal data

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When the different previously presented techniques are implemented with the aim of accumulating more data on individuals, customers or citizens than necessary, they do not only pose questions of ethics and the responsibility of digital services with respect to capturing attention. They also confront the basic principles of the GDPR that gives individuals greater rights on the use that is made of their data.

Several authors have addressed this issue, as well as Norwegian consumer protection associations (see below), and of course the CNIL. As we have seen, individuals are confronted with biases that can have various instruments - something that certain players have understood - and these can have significant impacts on data protection. Woodrow Harzog ranks these practices into three categories, each of which can contravene the regulations, but at varying levels for users!

- **Abusive design** : uses the limitations and cognitive biases of individuals to get them to perform actions over which they have no control. Whether through dark patterns (see below), attention retention techniques, or even the use of difficult to understand jargon, vague terms or double negatives, all are “magic” techniques that will be used to influence or manipulate users.

- **Deceptive Design** : refers to practices aimed at representing elements in such a way as to mislead the individual. For example, the use of privacy protection indicators, such as specific logos, icons or badges, without the service actually being virtuous or secure. It also refers to deception by omission, when an application collects certain data without the user being aware of it.

- **Dangerous design** : this corresponds to methods that will make us vulnerable, either directly or indirectly.

Another approach is the one put forward by Harry Brignull in 2010 with the concept of dark patterns: in their search to

capture individuals' attention and collect even more of their personal data, platforms and interface designers of digital services have created deceptive models for individuals which act on psychological phenomena specific to each one of us. From the perspective of the protection of privacy, there are several types of users traps and abusive design, described in several works including those by Harry Brignull<sup>34</sup>, Norwegian consumer associations (in their report entitled *Deceived By Design*<sup>35</sup>) or Lothar Fritsch (University of Darmstadt).

The onus lies with us to propose a non-exhaustive typology of these practices, which have a direct impact on data protection, which you will find on the next page.

These practices can affect the ability of individuals to effectively protect their personal data and make conscious choices. In addition to privacy policies that need to be complete and in compliance from a legal perspective, it is important not to overlook the implementations and staging of the different moments in which interface designers seek to influence individuals. We cannot be satisfied with the words, “non-contractual photograph”, like wording featured on food packaging. Packaging this time has a direct impact on the rights of individuals and should be taken into account in assessing compliance of the entire service: we will discuss such proposals in the next section...

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<sup>34</sup> <http://darkpatterns.org/>  
(viewed on 07/12/2018)

<sup>35</sup> Forbruker radet, *Deceived by Design – How Tech Companies use dark patterns to discourage us from exercising our rights to privacy*, <https://fil.forbrukerradet.no/wp-content/uploads/2018/06/2018-06-27-deceived-by-design-final.pdf>  
(viewed on 07/12/2018)

## A NON-EXHAUSTIVE TYPOLOGY OF POTENTIALLY DECEPTIVE DESIGN PRACTICES

We classify these practices into four categories (and columns) from a data protection perspective for which different design tactics can be implemented: enjoy / seduce / lure / complicate / ban. Some of these practices may comply with the GDPR but, depending on the time, manner and data in question, they can raise ethical issues and even be non-compliant.

### PUSHING THE INDIVIDUAL TO ACCEPT SHARING MORE THAN WHAT IS STRICTLY NECESSARY

#### - SAFETY BLACKMAIL [ENJOY]

At the login, requesting additional information to what is strictly necessary for the service in situations where users are under pressure, when they have just entered or renewed their password, updated their profile information or placed an order. The user is engaged in a process that they rapidly want to conclude and will tend to accept anything without taking the time to analyse the request, especially if it is tied to a (real) need for security. For example, getting the user to believe that giving their phone number will be used for delivery, or two-factor authentication, when it is only used for telephone prospecting purposes.

#### - JUST BETWEEN YOU AND US [SEDUCE]

Requesting additional and not strictly necessary data for the execution of the service with the promise that such data remains "invisible" and under the user's control or will allow a better service, for example when a social network asks you to complete information on your past life, the school you attended or sports club in which you were enrolled.

#### - FALSE CONTINUITY [LURE]

Asking the user to give their address in order to read the article (title) without giving enough clear warning that this is actually a subscription to a newsletter (or in such small writing it cannot be read).

#### - IMPROVING THE EXPERIENCE [SEDUCE]

Using the customisation and improved user experience argument to encourage the user to share more data.

#### - DEFAULT SHARING [ENJOY]

Pre-checking information sharing options, which will not always be unchecked when signing in.

### INFLUENCE CONSENT

#### - TRICK QUESTION [LURE]

Writing a question in such a way that quick or inattentive reading can lead you to believe that the answer option produces the opposite of what you think you are doing. For example, use of a double negative can lead to accept a refusal ... For example, the button accept is subtitled "Yes, send me the food programme" when the refuse button said "No thank you, I do not like delicious food."

#### - LAST MINUTE CONSENT [ENJOY]

Seeking consent for the collection of data at a specific moment where we know that the individual is in a weak position because in a hurry or impatient to finish. For example, integrating a prospecting opt-in with partners in the final stages of the confirmation of an order..

#### - ATTENTION DIVERSION [ENJOY]

Drawing attention to a point of the site or screen to distract you from other points that could be useful. For example, working on the colour of a "continue" button while leaving the "find out more" or "configure" button smaller or grey.

#### - COMPARISON OBFUSCATION [COMPLICATE]

Making comparisons difficult: between one service and another, or when there are changes in the settings or rules. For example, changing the formulations on content privacy / advertising settings on a social media so that the user does not easily adopt a permanent routine to reduce the visibility perimeter of these publications.

#### - WRONG SIGNAL [LURE]

Using a "universally" understood graphic code to mean the opposite, thus creating a confusion for the user about the choice they are making. For example, adding a padlock to a not especially secure interface.

## CREATING FRICTION ON DATA PROTECTION ACTIONS

### - **BLAMING THE INDIVIDUAL** [ENJOY]

Make the user feel guilty about their choices, by the words used. This is very often used for example by media whose business model is based essentially on advertising, when a user refuses advertising tracking or uses an ad blocker.

### - **IMPENETRABLE WALL** [BAN]

Blocking access to a service by a cookie wall or account creation while it is not necessary to use the service as such (also called take it or leave it). No alternative without tracking is available.

### - **MAKING IT FASTIDUOUS TO ADJUST CONFIDENTIAL SETTINGS** [COMPLICATE]

Facilitating consent by a simple action and making the process of data protection longer and complicated. For example, allowing simple continuity to accept all opt-ins (a "continue" button) while the advanced options and settings involve a winding alternative path, consisting of "find out mores" and scroll bars.

### - **REPETITIVE INCENTIVE** [COMPLICATE]

Insert incentives, during the user experience, on data sharing requests to repeatedly interfere in the pathway.

### - **OBFUSCATING SETTINGS** [COMPLICATE]

Creating a deliberately long and tedious process to achieve the finest settings or make them so fine and complicated that they will encourage the user to give up before reaching their initial target.

## DIVERTING THE INDIVIDUAL

### - **BAIT AND CHANGE** [LURE]

A setting or a choice made by the individual produces a different result than desired. For example, giving acceptance value to a button with a cross, which in users' minds is synonymous with "close and move on." This method has for example been used by Microsoft to "encourage" users of the previous version of its Windows OS to switch to Windows 10. Due to public reactions, Microsoft acknowledged it had made a mistake and backtracked<sup>36</sup>.

### - **CHAMELEON STRATEGY** [LURE]

A third party service takes on the style and vision of the website where you are browsing to make it a natural continuation of a process. For example, a service is added to an onboarding or train ticket ordering process to tie in a car rental with a trading partner. These strategies are also found in software installation...

### - **CAMOUFLAGED ADVERTISING** [LURE] :

Advertising is disguised as another type of content or element of the interface, in the hope that the user clicks without knowing that it is advertising.

## Consent, a free will that is far from illusory

The advent of the GDPR and the over-valuation of consent in the way it has been presented have created the emergence of strong criticism of the notion of consent.

The psychologist Barry Schwartz had theorised the paradox of choice (*The Paradox of Choice*, 2004): “even though autonomy and freedom of choice are fundamental human values, too many choices and too much control can overwhelm us and lead us astray.”

Helen Nissenbaum, professor of information sciences at Cornell Tech, goes further by pointing what she calls the farce of consent that lulls users into a false sense of control: “Even if you wanted to create totally transparent consent, you could not”. In her view, even the best-intentioned companies do not know what happens to the data they collect. While it is true that the consent is not always informed, the problem with this criticism lies in the fact that it can disempower companies with respect to the data they process. Yet the GDPR is clear: they are duty-bound to know how data is used and required to set up protection means for individuals, mapping and securing data as well on the management of the data life cycle. Giving consent does not amount to signing a blank cheque to a company or organisation, but rather imposing on it certain rules of respect for the rights of the individual.

On the link between interface designs and the choice of individuals, Woodrow Hartzog<sup>37</sup> stresses that if we do not pay sufficient attention to the design of technologies and interfaces, we could bring all the consequences of design choices to bear on individuals alone. The fetishisation of control is, in his opinion, one of the major weaknesses. Some companies will ostensibly give their users all possible settings options to then claim that the design of the interface is privacy and user friendly. The accumulation of choices can overwhelm us and distract us (from the essentials). Choice “then becomes an illusion of empowerment and is transformed instead into a burden”. The researcher thus criticises excessive focus placed on the manufacturing of consent, taken up by platforms - including GAFAM - for whom all privacy protection problems could be solved by giving more control to users,

when real control does not grow in proportion to the multiplication of possible choices and where consent is not a sort of joker among data protection principles allowing them to do anything.

However, the aim is not to throw the consent out with the bath water, firstly because it is not the only legal basis for data processing, but also and mainly because consent always occurs, despite what Nissenbaum and Hartzog say, in a constrained space. The real risk is not that of consenting in itself but to believe in and to uphold a principle of absolute informational self-determination in which each individual would be in control and, in particular, responsible for all their

actions. Consent, if it must be freely given, specific, informed and unambiguous (according to Article 4 (11) of the GDPR), nevertheless remains constrained in its scope and its related legal obligations. Some speak of reasonable approximations, or reasonable fiction, but it would be preferable to talk about consistent scope of responsibility and control by individuals. The consent given by an individual does not exempt a service provider from complying with all applicable rules, including security, loyalty, transparency, limitation of outcomes as well as all user rights.

*“ Giving consent does not amount to signing a blank cheque to a company or organisation but rather imposing on it certain rules of respect for the rights of the individual. ”*

Free consent is for the user a weapon to protect their rights, insofar as it remains a legally binding principle: it is possible to argue, debate and decide on the validity of how it is collected... As such, the fact of using and abusing a strategy to divert attention or dark patterns can lead to invalidating consent.

<sup>37</sup> See: <https://news.softpedia.com/news/microsoft-admits-it-went-too-far-with-aggressive-windows-10-updates-511245.shtml> (viewed on 6/12/2018)

## Design could provide answers to these issues

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Rather than having a defeatist attitude and challenging the very notion of consent and invoking the ability for individuals to act with full awareness of the issues raised by the collection of the data, it would be better to look at how players could use solutions offered by design, not to hide, obfuscate or subtract, but rather to highlight and positively support users in understanding the mechanics of digital services.

In 2013, law professor Ryan Calo, in his article, *Against Notice Skepticism*<sup>38</sup>, proposed that design could be used and implemented to inform in a way that allows more enlightened consent of individuals. Solutions and responsibilities must not, in his opinion, always involve individuals: “You can put up posters all over the city to remind pedestrians that electric vehicles are silent, or you can ask carmakers to introduce a motor sound in their vehicles”; similarly, “you can write complete and very lengthy privacy policies that few people read, or you can design your site (or application) so that users can be on their guard when their data is collected or else be able to demonstrate how their data is effectively used”. If these two such principles should not be so categorically opposed, it is also in the user experience that information should be disseminated. This would allow users to act consciously and understand, while protecting themselves from informational overload that could lead to the temptation of the exhaustive confidentiality policy. If the latter must always be present, as a reference point, it must be accompanied by the design.

The lawyer and designer Margaret Hagan, director of the Legal Design Lab at Stanford University has highlighted the necessary convergence between legal and design issues. In an interview with Facebook TTC labs<sup>39</sup>, she said that although the law is born from human experience, it is not always thought out in terms of experience, with a focus on how people think, what they feel and understand. According to her, people want to remain strategists, understand the options they are presented and protect their rights, but too often, she believes “the legal system produces the opposite effect, people do not trust and may feel that they have no power”. This is where the designer’s work must intervene to produce, with the regulator, the methodologies that will ensure stronger trust of users. The CNIL has already started this work and we will describe it in the next section.

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<sup>38</sup> M. R. Calo, *Against Notice Skepticism in Privacy (and Elsewhere)*, 87 *Notre Dame L. Rev.* 1027 (2013), <http://scholarship.law.nd.edu/ndlr/vol87/iss3/3>

<sup>39</sup> <https://www.ttlabs.net/insight/why-law-needs-design> (viewed on 20/12/2018)





# UGUETTE & RITA

N°69 - WINTER 2030

The media that lives in the future

> 2030

## THE NEUROTARGETERS ATTACKS

"Creating desire" is no longer an expression but a reality.

> 2070

## THE ADVENT OF SUPERPOWERS

Will science make us invincible?

# ON THE NEUROTARGETERS TRAIL

*In just 10 years the digital landscape has changed drastically. Monitors and keyboards have been replaced by surfaces and voices. Following this transformation characterised by a kind of absence of devices, the advertising world has learned to overcome all barriers to make us desire on demand.*

*Here is an overview of a new practice directly connected to your brain.*

## ADA ROY: “MY ROLE IS TO OPTIMISE YOUR BRAIN’S NEURONAL CONNECTIONS.”

*In a French novel that I read as a student, a mysterious «7th language function» could give people the almost absolute power of conviction. The author had semiologist Umberto Eco say that: «the person with the knowledge and control of such a function would virtually be the master of the world. Their power would not have no limits. They could be elected to all positions, raise crowds, cause revolutions, seduce women, sell all sorts of imaginable products, build empires, obtain anything they wanted in any circumstances.». The magic of language devised by Laurent Binet in 2015 seems to be about to become reality with neurotargeting. Wishing to explore this practice on the verge of esotericism, I met Ada Roy, one of the pioneers of this discreet industry and co-founder of SKIN. Who knows what effect this so-called confession will have on you...*

BY LAURA HACHECROIX

**Although it was imaginable that targeted advertising was going to disappear with screens, SKIN is the perfect example of the opposite. How have you managed to adapt to this radical transformation of the digital ecosystem?**

*Ada Roy:* What our business has in common with the marketing and advertising professionals of the 2010s are digital tracks. The similarity ends there. While in 2010, the idea was only to target customers, nowadays we must design a product, pricing and advertising strategy for each customer!

To accomplish this, the boxes of socio-cultural and professional profiles such as «man, aged 35-45, city dweller with 2 children working in insurance, likes reggae, surfing and cooking a la plancha», generated from people’s online activities, are no longer enough. The data we now want is the one that will reflect in the digital world the subtle chemistry of consumers’ neurons. This is where we, neurotargeters, come in. We track their emotions, personality, brain activity. We imagine their brain state, and predict their dopamine and adrenaline levels. We monitor their thought patterns to instil the right purchasing trigger, at the right time. In short, we map their neurotransmitters to bring them to our client.

**Is it not rather surprising for a neuroscience Ph.D. to move to the world of neuromarketing?**

It came very naturally, following on from my research on the relation between neurotransmitters and our daily habits. I often compare my work with that of an electrician: my role is to optimise the electrical connections of your brain. In the twentieth century, marketers would buy available brain time. Today, I tend to sell available brain portions. When I say sell, let me reassure you, I mean rent and SKIN is a very discreet temporary occupier: it hardly disturbs anything, just a few connections, here and there. But each rental leaves a mark: the brain is a malleable organ, nothing that takes place there is definitive, but nothing is trivial either.

Disponible sur smartphone, ordinateur, montre et objets connectés.  
Obtenir sur: [watchdog.ai](http://watchdog.ai)



# TAMAGO TCH/IA

watches over your privacy

## PRIVATE

Tch/IA is **your** domestic artificial **intelligence**. It's there for you and you only.

## RELIABLE

Tch/IA will deal with invasive demands from other algorithms according to **your preferences**.

## SMART

Tch/IA **adapts** to all changes in your life and is constantly evolving.



**You're not alone on the highly competitive braintech market. How do you explain the huge success of SKIN against your competition?**

When I look at the progress made since the first tests when we were only inserting the client's brand colours in the graphic design of third party services, I'm surprised at all we've achieved. Our first projects were patchy, mainly aimed at impressing investors on the basis of our respective doctoral work. For example, we mounted a long project to create a sensation of thirst among consumer segments, at specific times and places: reference to heat, using specific colours to filter certain video content, discreet integration of references to refreshing drinks in written texts, change of tone of voice assistants to suggest a dry throat ... we tested everything. Nobody really knew what would work or not, but the analysis of purchasing acts of targeted people enabled us to show real changes...

One thing led to another and SKIN became like a second skin placed on all the «natural» interfaces of our clients to reach their potential consumers. It's the advertising chameleon. While many of our competitors have kept to advertising breaks on voice assistants, SKIN makes marketing invisible. Subtly, we will instil our markers directly aimed at the target's brain, at the heart of their daily digital habits. While our competitors try to spark a desire, we create an irritant, an absence, a subtle imbalance, a discomfort, almost imperceptible, but perfectly designed and controlled so that our client's product comes to relieve that itch. In this sense, we have never been designers of marketing services, but designers of neural connections. SKIN is interested in neurons and not the brain, in neuronal electrochemistry and not understanding, in reflexes and not discernment. This is the innovative heart of SKIN.

**All this is still quite abstract and feels more like a magic trick rather than science. Do you have a concrete example to explain how SKIN works?**

The magic of SKIN happens, for example, when the voice assistant utters one word rather than another. Ironically, other types of neurons that do this work: those of machine learning algorithms. They will first

break down the voice of the user as it carries their emotions. Fear, anger, stress, satisfaction, everything that is happening in our brains at the neurotransmitter level will end up as signals in our voice that are detectable and analysable. While the user innocently asks their voice assistant about the day's weather or asks them to start their favourite jazz playlist, we are able to detect fatigue, stress or happiness and prepare a nudge adapted to that state. In reality, the work of our algorithms does not stop at the simple analysis but extends to content generation. They will go through dictionaries of synonyms, semiotics essays and analyses of lexical fields to choose the most appropriate word, but will also look into tone of voice and inaudible frequencies to transmit the most appropriate message to the person's emotional context.

Today SKIN is extending to all senses, thanks to agreements signed with connected objects platforms to access their data and allow us to massively analyse faces, gestures, respiratory movements, skin temperature...

SKIN is a hunter of human signs: all tracks are good.

## NOVELTY

Techno-Luddites, get cooking! Sick of being tracked and hunted by your neural interfaces? The Critical Brain Initiative offers you a delicious way to fool them with Eat Your Brain. Through carefully prepared dishes, disrupt signals read by neural interfaces with your gut. This «neuro-recipe» book gives you recipe ideas to get your thoughts privacy back!

*Eat Your Brain*, 2026, CBI Press, €25,99



# The necessary regulation of design and architectures of choice

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*“Good design means  
that a user’s mental map  
of how a technology works  
matches reality”*

*Woodrow Hartzog*

# The necessary regulation of design and architectures of choice



## HOW TO MAKE DESIGN AND INTERFACES PART OF THE COMPLIANCE ANALYSIS

The practical implementation by service designers of the conditions needed for freely given, specific, informed and unambiguous consent raises many questions. Amid information overload and the development of manipulative tactics to support economic models driven by commitment, individuals are not always able to easily understand the ins and outs, the outcomes of data collection, and the use of their data. How to reconcile this fact with the cardinal principles of the GDPR such as the principle of lawfulness, fairness and transparency? It is indeed the whole edifice of respect for fundamental

rights of people which needs to be called into question.

The protection of personal data is traditionally analysed through legal and technical prisms. Similarly, the answers given by professionals or by regulators tend to focus on these two aspects, which although being fundamental, are not enough to rise to the challenges described in the previous sections. They do not take sufficient account of the interaction space between the individual and the machine, the exchange layer between the individual and the processing of such data.



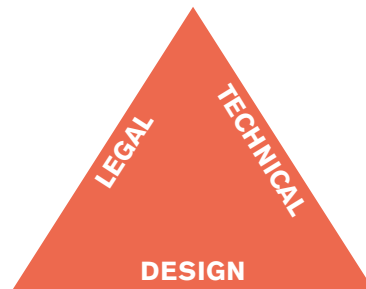
Getty Image - Oversnap

Interface design - in the broad sense of the term, from the architecture of the service through to the formatting of information and consent schemes - is an essential medium through which the actual implementation of the regulation and the conformity of services in this constrained space are played out.

As we identified in the introduction to this report, the concept of privacy by design is often too disjointed from the concerns, practices and concepts of design professionals. Article 25 of the GDPR, which demands the integration of appropriate measures of data protection “from the design stage”, however logically implies that responsibility for conformity is an issue more fairly distributed in design processes and that designers should take their rightful place and offer their expertise to the protection of users’ rights. It is through their action, accountability and better consideration

by the regulators of these rights that privacy by design will truly become an operational concept rather than a somewhat abstract methodological approach.

It is time to bring design more directly into a regulatory triangle, with legal and technical analyses. Such an approach will find its true meaning in the application of the principle of transparency, in the expression of consent and in the design of the exercise of the rights of relevant people (access, rectification, erasure, portability, etc.).



### Transparency and Information, cornerstones of fair processing

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The European regulation specifies that any processing of personal data must be lawful and fair. The fact that personal data about individuals is collected, used, consulted or treated in any other way, and the extent to which such data is or will be processed, should be transparent with respect to the natural persons concerned. The principle of transparency demands that all information and communication regarding the processing of personal data is easily accessible, easy to understand and designed in clear and simple terms.



In other words, no transparency, no loyalty. As recalled by the guidelines on transparency of the European Data Protection Board (EDPB)<sup>40</sup>, “its primary objective is to create trust in the processes applicable to citizens by enabling them to understand and, if necessary, contest the said processes.” Transparency is a legal concept eminently focused on users and not on legal aspects. In this, it often seems less practical to legal professionals, and may appear, wrongly, as a kind of general principle with little scope other than symbolic. In reality, here again, as recalled by the European authorities, it “is reflected in several articles by specific applicable practical requirements” (in particular Articles 12 to 14 of the GDPR). Overall, in terms of transparency, the quality, accessibility and intelligibility of information are as important as the formal content of information provided to the relevant persons.

The general principle is to present information effectively and succinctly, using knowledge that the processing manager has of people on which they collect information and the specific context of the service they propose.

Naturally, as consent does not necessarily mean the use of a check box, transparency does not necessarily mean an exhaustive text. Professionals must use all possible tools, interfaces, current and future user pathways: different levels of information, FAQs, pop-up windows, conversational agents, icons, etc.

Finally, work on the user path could be put to use by data controllers. As highlighted by these guidelines on transparency issued by the CNIL and its European counterparts, processing managers are recommended to organise user tests (with representative panels, for example, or other forms of test that are recognised or even normalised, such as legibility or accessibility) with a view to raising any uncertainties on users’ actual understanding. This process of improvement, measurement, evaluation and testing can in fact aim to be an integral part of the accountability strategy of processing managers: the competent authorities could be informed of the results of these tests and assess the relevance with respect to the principles of simplicity and accessibility of information.

## Consent informed by the work of designers

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As recalled by the CNIL on its website, consent “ensures the relevant persons strong control over their data, by allowing them to understand how their data will be processed, choose freely whether to accept such processing or not and change their mind freely”.

Consent, according to the European Regulation, should be given by a clear positive act whereby the relevant person shows their agreement in a free, specific, informed and unambiguous way to the processing of their personal data. The European Data Protection Board, in its guidelines on consent<sup>41</sup>; states that the adjective ‘free’ implies a choice and real control for the relevant persons and that “any pressure or inappropriate influence exerted on the person (in different ways) preventing them from exercising their will shall invalidate consent”.

The European equivalents of the CNIL insist on the responsibility of innovation generated by this constraint to find new solutions that work according to the scope of the law and promote the protection of personal data better, as well as the interests of the relevant persons.

However, it might be considered that the unfair or deceptive design (see above) of digital services can generate various problems with consent and is sufficiently objective and demonstrable to lead to its invalidity. A person’s control of their data becomes illusory, as consent would not be a valid basis for its processing so therefore processing activity would be illicit if another legal base could not be validly invoked.

For example, the EDPB underlines that “any pressure or improper influence on the person (that may be manifested in different ways) preventing them from performing their will invalidates consent”. Unfair or deceptive design could also be seen as a desire of the processing manager to influence the person inappropriately. This influence should be read in light of the concept of balance of power, which the EDPB recalls can apply in all situations showing signs of constraint, deceit, intimidation, pressure or inability to exercise real choice.

<sup>40</sup> VSee French language guidelines on the CNIL website: <https://www.cnil.fr/fr/reglement-europeen/lignes-directrices> (viewed on 12.07.2018)

<sup>41</sup> See French language guidelines on the CNIL website: <https://www.cnil.fr/fr/reglement-europeen/lignes-directrices> (viewed on 12.07.2018)

Design and consent are tied, either positively, when design practices are aimed at improving the ability of individuals to make choices consciously or negatively, when they seek to deceive by abusive or misleading design practices.

The creation of visual grammar or design patterns conceived to meet the exclusive interests of processing managers yet rehashed ad nauseam by all players, to the point that they become a sort of standard, can also lead to distorting consent. As underlined by the EDPB, users receive several consent requests on a daily basis to which they must respond with a click or by swiping their screens. This can lead to a certain fatigue: when too often encountered, the warning effect of the consent mechanisms diminishes. This results in a situation where no-one reads consent information any more.

Indeed, the problem is not so much the creation of design standards as the multiplication of meaningless messages or calls to action for the individual. Such standardised accumulation of aberrant requests through the different services necessarily tires users out.

Consent fatigue mentioned by some players is less an excuse than an additional reason to do better and innovate in an ethically unsatisfactory situation that can ultimately lead to a legally difficult situation<sup>42</sup>.

## Facilitating the exercise of rights by the design of pathways

Individuals have a number of rights, which are also strengthened and supplemented by the GDPR: right of access, rectification, objection, erasure, portability and limiting of processing<sup>43</sup>.

The GDPR provides that organisations processing personal data must implement real practical solutions to enable the relevant persons (users, customers, employees, suppliers, etc.) to exercise these rights effectively.

But the exercise of these rights is above all a matter of user pathway and context: information on the exercise of rights must be simple, practical, and present wherever it makes sense in the interfaces between the user and the service. It is necessary not only to recall at the right time that these rights exist but provide simple ways to exercise them. This simple and practical exercise of rights is in the interest of the organisation responsible for the data: the more organised this exercise, the less complex the deadlines.

Beyond the amount of information to present to users, the very formatting of this information matters. The GDPR goes in this direction, making it enforceable. Can an information notice written in tiny characters also be regarded as “easily accessible”? Can a refusal to consent button with shades of colours and formatting making it almost invisible demonstrate valid “free and informed” consent? Could the fact that users answer positively through lassitude or by mistake to repeated data collection approval requests - bordering on harassment - be considered as a positive act by users? Is the imposition of an obstacle course for users to find where and how to claim their right of access and portability of data really compatible with the obligation to facilitate the exercise of rights?

When a designer creates a system, their design choices inevitably influence the user. Such power is necessarily a responsibility and qualifies its designers as “architects of choice” (Sunstein / Thaler)<sup>44</sup>, a sort of conceptual counterpart of the concept of processing manager “who determines the purposes and ways of processing” (as defined in Article 4 of the GDPR). The architect of choice decides (intentionally or unintentionally) the social, technical and political environment in which individuals exercise their power to choose (or not to choose). The whole architecture of choice, whether intentionally designed to affect user behaviour or not, will affect how users interact with a system.

The regulation of architectures of choice will perhaps be one of the most important regulatory fields of the digital society for the next 10 years, extending well beyond the issues of data protection and privacy. Regulators and legislators therefore need to immediately build a rigorous analysis grid of architectures of choice and of their consequences on individuals and on society, in an ethical and political approach that goes beyond both a purely legal and a simply instrumental approach to design.

<sup>42</sup> VSee for example: <https://www.beuc.eu/blog/e-privacy-and-the-doorstep-salesmen/> (viewed on 12.20.2018)

<sup>43</sup> On the subject of rights, See the website of the CNIL: <https://www.cnil.fr/fr/les-droits-pour-maitriser-vos-donnees-personnelles>

<sup>44</sup> On this subject, see: Cass Sunstein, Choosing not to choose, 2015.

## BUILDING A SHARED AND OPEN REGULATION THROUGH NEW TOOLS

### Strengthening protection authorities with third-party, integrated and/or pooled competences to the benefit of regulation of architectures of choice

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If regulators want to continue to objectify the analysis of design and interface patterns, they need to develop professional skills adapted to the rational and professional analysis of these issues. For some, these subjects seem less rigorous than law or technology, but design is not cursed with being a simple matter of instinct or taste: it covers practices that can be broken down and analysed.

To add the missing side to the regulatory triangle, data protection authorities in Europe need to recruit more skills to analyse interfaces, using ad hoc or more regular teams of designers and specialists in questions of psychology of individuals. In some cases, it might be interesting to in-source these skills and expertise, it would also be possible to establish cross-cutting laboratories, European data protection regulating inter-authorities or French regulating inter-authorities. This second scenario carries the risk of less honed applied expertise, but the probability that it will be more often shared beyond privacy protection.

This growing competence of regulators is a necessary condition for reducing the imbalanced information between regulator and regulated, and therefore a condition of the effectiveness of public action in the digital age.

### Building a non-competitive and open source approach to best design practices

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A regulator like the CNIL acts on two levels: the supportive level and the repressive level. If the controller could be led to consider design to decide on the non-compliance of certain practices, it may also help professionals create best practices. But that does not mean that creating these solutions is the job of the regulator: It must encourage it and not provide turnkey solutions. If that were the case, the regulator would exceed its role, would probably produce an inefficient outcome that would stifle opportunities for innovation and other players' creativity, whose efforts would be considered superfluous by their peers and their professional interlocutors.

Development and design professionals have codes, their own vocabulary and are complemented by a range of tools and design methods (guidelines, toolbox, design patterns, canvas) on which they usually rely. By their mass adoption, these design practices tend to homogenise forms of interaction and interfaces, which helps create grammars of interfaces that form the basis of uses and interactions between humans and digital products.

In addition to being subject to internal constraints (e.g. legal or marketing departments), the designers do not have enough tools available to formulate innovative responses to these new needs. They then fall back on their traditional tools and methods and leading UI and UX practices, which are not always appropriate (e.g. dark patterns, cookies and privacy policies that currently dominate, etc.).

The CNIL could participate in the production of such tools, in an open format and under sharing licenses, to be considered as ways to make designers consider privacy. This could result in the production of analyses to support the design of interfaces that respect the privacy of users (acculturation to data protection subjects, issues to integrate into the design process, building blocks, major principles and rules, etc.) and concrete recommendations ("do" / "don't", design patterns, typologies of transparency and loyalty mechanisms, etc.).

Such tools could allow professionals to share their practices and share their own approach to privacy issues to co-construct privacy design practice and bring together a design community on this topic.

Parallel to the publication of this IP report, the CNIL plans to launch an initial version of this toolkit, as a way of opening the process, which should be progressively built and as a call to create a responsible design community in terms of data protection.

### Focus on...

## Avenues for the regulation of architectures of choice

The subject of architectures of choice has already been raised by the cross-cutting aspect of the work of the various regulators or public authorities. Research has already laid the groundwork: according to Cass Sunstein<sup>45</sup>, the possible architectures of choice field can be summarised in a space ranging from default choice to active choice. In this space, many intermediate situations can occur, depending on the choice of tools, the selected rules or terms of implementation: simplified or advanced mode, general or customised, based on a firm rule or on nudges... Cass Sunstein lays the basic rules allowing an architect of choice to offer the “default” or active option to users, in any context, from health to privacy.

For example, non-customisable default rules will be effective in a confused, technical context or misunderstood context by users, where learning of the system has no major importance and where the user population is homogeneous. Active choice is a better solution when architects of choice are not neutral, the context is familiar and non-technical to users, when learning counts and individuals have a marked preference for being able to choose. Similarly, Alessandro Acquisti and his colleagues suggest the first “guidelines for an ethical design of privacy nudges<sup>46</sup>”.

This work must now very directly provide input for regulatory and policy tools. It is an opportunity for regulators to further integrate reflection on privacy by design and privacy by default without excessively extending their actions. Indeed, actively regulating architectures of choice may be considered extremely paternalistic and coercive. This has led some militants of soft paternalism or libertarian self-regulation to reject any idea of active regulation of these architectures by public policies. Our position is rather to develop and strengthen tools allowing regulators to explore the preferences and choices of individuals, for example by asking to have access to more robust information on different choice pathways (the actual levels of opt-out or opt-in for example) or by promoting public debate and research on these subjects.

<sup>45</sup> Cass Sunstein, *Choosing not to choose*, 2015.

<sup>46</sup> Alessandro Acquisti et al., “Nudges for Privacy and Security: Understanding and Assisting Users’ Choices Online”, *CM Computing Surveys (CSUR)*, 2017  
<https://dl.acm.org/citation.cfm?id=3054926>  
(viewed on 6/12/2018)

## Encouraging retro-engineering of design practices

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The computer security industry regularly sets up Bug Bounties, programmes allowing developers to discover and correct bugs before the general public is informed, thus avoiding abuse. These programmes are launched by the companies themselves which offer rewards for developers who will enable them to identify - and therefore prevent or remedy - security vulnerabilities. In a design version, good market regulation is expected to reveal such initiatives directly promoted by providers of digital services which would ensure their good practices by opening abusive and deceptive design feedback channels. Players in innovation ecosystems could thus set up platform retro-design programmes, similar to what Fing is developing in its Retro Design of attention exploration<sup>47</sup> and assign human science researchers and designers to dissect the process and highlight areas of improvement for digital platforms.

Companies have become fond of hackathons, rapid prototyping or sprint design. Transposing the world of compliance and the implementation of design solutions to support the rights of users is therefore an opportunity to be grasped.

Meanwhile, data and privacy regulators must also develop “regulation by reputational incentives” (sunshine regulation). Focusing on the implementation of transparency practices of players so that the general public may draw its own conclusions and may for example choose to leave a service showing malpractice: the reputation issue is crucial in economic models of platforms. This for example is what LINC has decided to do, by enforcing an article of the Loi pour une République Numérique (Act for a Digital Republic)<sup>48</sup> giving the CNIL a mission to promote “the use of privacy protecting technologies, including data encryption technologies”, publishing a “mapping of tools and privacy protection practices”<sup>49</sup> which references tools and services offering the ability, of different forms, of protecting the data of their uses embedded in their features or technology.

Debating abusive or deceptive design practices in public could result in “market punishment” phenomena: an effective means of encouraging players to change their methods and inform individuals of how such practices are implemented. Such a mission is not necessarily the preserve of a single regulator: academics, advocacy groups, citizens and lawmakers each have their role to play in this public debate. It is even a major issue of these additional pathways that control to better involve citizens in addition to traditional regulatory tools.<sup>50</sup>

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<sup>47</sup> See here: <http://fing.org/?Pour-un-retrodesign-de-l-attention&lang=fr>

<sup>48</sup> Act No. 2016-1321 of 7 October 2016 for a Digital Republic:  
<https://www.legifrance.gouv.fr/eli/loi/2016/10/07/ECF1524250L/jo/Text>  
(Viewed on 7/12/2018)

<sup>49</sup> <https://linc.cnil.fr/une-cartographie-des-outils-et-pratiques-de-protection-de-la-vie-privee>

<sup>50</sup> A prospect that agrees, for example, with the proposals by MP Paula Forteza, calling for “regulation by society. [...] To gain control of their online activities, users need tools, data, information: regulators must be able to provide them and become a resource platform”

## RESEARCH AND EDUCATION AS FUTURE REGULATION OPTIONS

### Funding of studies on the impacts of abusive or deceptive design

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Although scientific literature on abusive design practices is expanding, whether in the field of the economy of attention, behavioural economics, or psychology, etc., there is relatively little research work on the design of privacy. It is also recommended to encourage and support interdisciplinary university research in this field to better know, quantify and analyse concrete impacts of practices described in this document. Not only the regulator, but also the media and society as a whole might well seize the results of this work to better regulate, better inform and better respond to the demands of digital platforms.

### Supporting education in digital platforms and interfaces

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Digital literacy is an educational issue for young and old, in a world where all of our interactions tends to go through the digital and now natural interface vector (voice assistants, etc.). Each of these tools is developing its own grammar, its own language, with sometimes the desire to blur information to better influence individuals. The CNIL develops and manages the EducNum network, a collective born in 2013 bringing together diverse stakeholders from the worlds of education, research, the digital economy, civil society, business foundations and institutions to carry and support actions to promote a true digital citizen culture.

Pushing new initiatives in this way to educate in understanding platforms and interaction with interfaces will help limit the negative effects of abusive design attempts. The more vigilant people will be and able to recognise them, the fewer effects these manipulation attempts will have on internet users. Furthermore, as shown by our forward-looking scenarios, one of the most intriguing questions about the future is the effect of these tools and practices on our brains and cognitive processes. However, it is not necessary to have a merely passive vision: learning is also changing our way of thinking, solving problems, responding to situations with

a faster, instinctive and emotional cognitive mode ("system 1" to use Kahneman's distinction in his book *Thinking fast and slow*)<sup>51</sup>.

Often, in an entrenched republican tradition, digital education is thought to move towards "System 2", the more analytical, logical and ... slower system. Individuals are explained, made to understand and guided towards new behaviours or new practices. But nothing prevents us from finding - with caution - digital learning public policies more oriented towards system 1. For example, can we beef up reactance, that "psychological defence mechanism used by an individual who tries to keep their freedom of action when they believe it has been removed or threatened" (wikipedia) How to increase alertness, help people detect suspicious, sensitive or surprising points? How can we think of ways to train citizens to react instinctively to defend their rights?

In its summary report of the public debate that it hosted in 2017 on the the ethical matters raised by algorithms and artificial intelligence<sup>52</sup>, the CNIL had highlighted this great principle of vigilance: "The aim is to hold a regular, methodical and deliberative form of questioning regarding these moving objects". Strengthening our individual and collective capacity for vigilance and reflexivity appears, in the digital society of the future, to be a worthy goal for public policy, in the public interest.

Thinking about the subject also means applying the founding principles of the GDPR (informational self-determination and actual control by an informed individual, strengthening of rights, collective actions, etc.) and the 1978 Data Protection Act (in particular Article 1: "IT is there to serve every citizen. (...) Everyone has the right to decide and control the uses made of their personal data".

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<sup>51</sup> Daniel Kahneman, *Thinking fast and slow*, 2011.

<sup>52</sup> how can humans keep the upper hand? The ethical matters raised by algorithms and artificial intelligence, [https://www.cnil.fr/sites/default/files/atoms/files/cnil\\_rapport\\_ai\\_gb\\_web.pdf](https://www.cnil.fr/sites/default/files/atoms/files/cnil_rapport_ai_gb_web.pdf)

# The foresight Committee

The CNIL leads a committee of twenty-one experts with varied profiles and backgrounds to enrich projective reflections and contribute to discussions on digital ethics. Being more attentive and more open to the outside, working in partnership with the world of research and innovation are the objectives pursued by the CNIL through this Committee.

Chaired by the President of the CNIL, **Isabelle Falque-Pierrotin**, the following people sit on the committee:

## OUTSIDE EXPERTS

### **Pierre Bellanger,**

pioneer of free radio, entrepreneur and internet expert.

### **Pierre-Jean Benghozi,**

member of the ARCEP college and professor at Ecole Polytechnique.

### **Stefana Broadbent,**

psychologist, honorary professor of anthropology at University College London where she teaches digital anthropology.

### **Isabelle Bordry,**

entrepreneur, pioneer in the French digital media industry.

### **Dominique Cardon,**

sociologist, associate professor at Sciences Po Medialab Paris, member of the editorial board of the journal Réseaux.

### **Milad Doueïhi,**

philosopher, historian of religions and holder of the Chair of digital humanism at the University of Paris-Sorbonne (Paris IV), co-holder of the Chair of the Collège des Bernardins on humanity facing the digital challenge.

### **Célia Hodent,**

psychologist specialising in the application of the user experience in video game design.

### **Claude Kirchner,**

Inria research director  
Chairman of the operational evaluation committee of legal and ethical risks (COERLE)  
Inria, advisor to the President of INRIA.

### **David Le Breton,**

Professor of Sociology and Anthropology at the University of Strasbourg.

### **Titou Lecoq,**

freelance journalist, blogger, novelist and essayist, specialist in web culture.

### **Lionel Maurel,**

lawyer, librarian and author of the S.I.L.Ex blog, where he deciphers and analyses the changes in the law in the digital age.

### **Cécile Méadel,**

sociologist, professor at Panthéon-Assas University, director of the Communications and multimedia master's degree.  
CARISM researcher, associate researcher at the Centre de Sociologie de l'Innovation (Mines-CNRS)

### **Tristan Nitot,**

entrepreneur, author and speaker on the topic of digital freedoms, founded and chaired Mozilla Europe.  
He is the Advocacy VP at Qwant.

### **Bruno Patino,**

journalist and specialist in digital media.  
Director of the Journalism School of Sciences Po.

### **Antoinette Rouvroy,**

lawyer, FNRS researcher at the Centre de Recherche Information, Droit et Société (CRIDS) of Namur.

### **Henri Verdier,**

Digital ambassador, Ministry of European and Foreign Affairs.

### **Nicolas Vanbremeersch,**

entrepreneur, Chairman and founder of the Spintank agency and Le tank co-working space.

### **Célia Zolynski,**

associate professor of private law at the Law School of the Sorbonne - Paris 1 Panthéon-Sorbonne. Member of the CERNA and qualified personality within the CSPLA.

## MEMBERS OF THE CNIL

### **Joëlle Farchy,**

Professor in information science and communications at the Paris I University and researcher at the economics centre of the Sorbonne.

### **Éric Pérès,**

Member of the economic, social and environmental council.

### **Valérie Peugeot,**

researcher at the laboratory of social sciences of Orange Labs.

## Innovation and Projective collection

Within the Directorate of Technology and Innovation of the CNIL, the innovation, studies and projective team steers through research projects and explorations of emerging subjects linked to personal data and privacy. Its work is at the crossroads between innovation, technology, customs, society, regulation and ethics.

The Innovation & Projective IP collection aims to present and share work and projective studies conducted by the CNIL. The aim is to contribute to interdisciplinary and open thinking in the Information Technology & Liberties field and fuel the debate on digital ethical topics.

### This issue is the 6th in this collection:



**IP 1**  
Privacy between now and 2020.  
- Discussions by experts

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**IP 2**  
The body, the new connected object, from Quantified Self to mHealth:  
- the new territories of the world's data layout

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**IP 3**  
The data, museums and boundaries of creation  
- Reading, listening, watching and playing in the era of customisation

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**IP 4**  
Foresight committee: Share!  
- Motivations, checks and balances to self-sharing in the digital society

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**IP 5**  
The platform of a city  
- Personal data at the heart of the smart city

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Find us also on the LINC editorial space (<http://linc.cnil.fr>).



# Glossary

## ACRONYMS AND TERMS USED

**Affordance:** sometimes translated as “potential”. Relationship between the properties of an object and the capacity of an agent determining how the object can potentially be used by the agent. Also referred to as intuitive use (or the intuitive character) of an object.

**Agency:** a being's ability to act, their capacity to act on the world, things, beings, to transform or influence them.

**Call to action:** marketing term referring to any device designed to generate or encourage the immediate action of an individual (e.g. a click).

**Cookie wall:** technical device found on some websites preventing access to content until the person accepts the presence of cookies<sup>53</sup>.

**Dark pattern:** misleading user interface, carefully designed for a user to make choices without being aware of them, or which they do not want to do.

**EDPB:** European Data Protection Board.

**Experience design (UX):** design of the whole of the user pathway of a tool or service, beyond interfaces.

**FOMO:** Fear Of Missing Out

**GAFAM / GAFAM:** Google Amazon Facebook Apple (Microsoft).

**GDPR:** General Data Protection Regulation 2016/679 EU Regulation of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, revoking Directive 95/46/EC).

**Human-machine interactions (or interfaces) (HMI):** Human-machine interactions (HMI) define the means and tools implemented so that a human can control and communicate with a machine.

**Interaction design (IxD):** design of the behaviour of an interface to give meaning to the interactions of a user with a system and enable them to achieve their objectives.

**Interface Design (UI):** design of visual or sensory elements of the interface to allow the user to read and to be guided in their interactions with them.

**Legal basis:** in the GDPR, Article 6 lists six legal bases (consent, performance of a contract, legal obligation, protection of the vital interests of the person, ...) on which data processing can be based to be lawful. These are the “legal bases” of this processing.

**Natural User Interfaces (NUI):** common term used for human-machine interfaces to refer to a user interface that is and remains invisible as the user performs various interactions. The word natural is used because most computer interfaces use artificial control devices that require an apprenticeship. The reference “natural” is subject to caution in this expression.

**Nudge:** technique to encourage individuals or a target population to change their behaviour or to make certain choices without being under duress or obligation and does not involve any sanctions.

**Privacy by Design:** protection of privacy from the design stage. The concept is taken up in article 25 of the GDPR.

**Privacy policy:** contract that describes how a company retains, processes, publishes and removes data transmitted by its customers.

**Reactance:** psychological defence mechanism used by an individual who tries to keep their freedom of action when they believe it has been removed or threatened.

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<sup>53</sup> See documents concerning the revision of Directive 002/58 / EC or ePrivacy Directive. [https://edpb.europa.eu/sites/edpb/files/files/file1/edpb\\_statement\\_on\\_eprivacy\\_en.pdf](https://edpb.europa.eu/sites/edpb/files/files/file1/edpb_statement_on_eprivacy_en.pdf) or <https://ec.europa.eu/transparency/regdoc/rep/10102/2017/EN/SWD-2017-3-F1-EN-MAIN-PART-3.PDF>, (viewed on 13/12/2018)



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