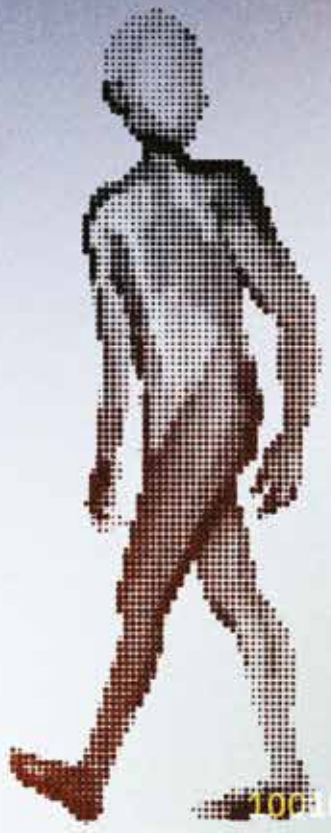
IP REPORT

INNOVATION & FORESIGHT

N°10

Our Data After Us

From Digital Death to Immortality, Uses and Issues of Post Mortem Data



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Editorial

For several years now, and particularly due to the acceleration of the digitisation of our activities, a new phenomenon has emerged: our posthumous presence in the world of data. Our digital footprints, whether they be online profiles, messages, photos or activity history, do not disappear with us. Without action from us or our beneficiaries, these traces remain, sometimes indefinitely, thus prolonging our existence beyond death. This raises legal, ethical and societal questions with which the CNIL is regularly confronted.

In a world that tends to preserve everything, who decides what we should forget? While the right to erasure or to be forgotten is meaningful for the living, what about those who can no longer express their wishes, especially since the General Data Protection Regulation does not apply to the data of deceased persons?

The French legislator provided some of the answers in 2016, with the Law for a Digital Republic, by introducing the possibility of giving instructions on the management of one's data after death. However, this provision remains little known. It raises questions when implemented: how can these individual choices be reconciled with the rights and needs of loved ones, but also of society as a whole, when it comes to preserving memory?

In this Innovation and Foresight report, the CNIL explores the different facets of these new forms of posterity, from practices associated with digital death, for commemoration or mourning processes, to new solutions made possible by the development and democratisation of artificial intelligence systems. Today, tools promise a digital afterlife, or even digital immortality, to users who feed and train chatbots with data from the deceased. Sometimes called "deadbots", they promise to interact post mortem with lost loved ones.

This work aims not only to take stock of the current situation, but also to look ahead and open up a societal debate at the crossroads of law, technology, ethics and privacy. This report questions our relationship with death, but also with life, memory and identity.

The CNIL wishes to contribute to this debate in a rigorous and sensitive manner. Considering the future of post mortem data also involves contemplating a society that is more aware of the significance of its data, as well as its rights and freedoms.

Marie-Laure Denis
CNIL's Chair

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Post mortem, the law differs

Data relating to deceased persons, although it allows individuals to be identified directly or indirectly, is not considered «personal data» within the meaning of the General Data Protection Regulation (GDPR). However, this data, which we will refer to as post mortem data, does not fall into a legal vacuum: it is governed by national legislation in France and elsewhere, not only from the perspective of data protection, but also from that of privacy protection and inheritance rights.

The shared experience of confronting digital death does not therefore translate into a shared vision of what should be done with these post mortem remains. The subject has been a recurring theme at the CNIL since its creation.

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A prescriptive but non-binding European framework

In Europe, when it comes to personal data, it is most often the General Data Protection Regulation (GDPR) that applies. However, the right to data protection is primarily a right of the living. Indeed, Recital 27 of the GDPR specifies that it "does not apply to personal data of deceased persons". However, the text opens the way for Member States to "provide rules on the processing of personal data of deceased persons". It should be noted that Convention 108+ (Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data) of the Council of Europe[1] is aligned with the GDPR and "applies to living persons: it is not intended to apply to personal data relating to deceased persons". However, it specifies that "this does not prevent the parties from extending protection to deceased persons".

In 2022, the Member States of the European Union signed the European Declaration on Digital Rights and Principles for the Digital Decade[2], a non-binding text intended to serve as a reference framework for citizens and a guide for the EU and each Member State in their "journey towards digital transformation". In its section on the right to privacy and control over one's data, Article 19 states that "everyone should be able to determine their digital legacy, and decide what happens with their personal accounts and information that concerns them after their death."

Opinion No. 4/2007 of the Article 29 Working Party (G29)[3] on post mortem data should also be noted. It considered that, in certain cases, the data of deceased persons may benefit from indirect protection: when the data controller is not informed of the death; when the data of the deceased person also concerns one or more living persons (with the example of hereditary diseases: "information revealing that the deceased person X had haemophilia indicates that his son also suffers from the same disease, given that it is h d due to a gene contained in the X chromosome"); when data relating to the deceased person is protected by provisions under legislation other than that relating to the protection of personal data.

1 Conseil de l'Europe, Convention pour la protection des personnes à l'égard du traitement automatisé des données à caractère personnel

2 Déclaration européenne sur les droits et principes numériques pour la décennie numérique 2023/C 23/01

While proposing a general framework, European legislators and states have, until now, left it up to each state to decide what to do with post mortem data and to enact legislation at the national level. As we shall see below, the different choices made in Europe and elsewhere in the world reflect two distinct approaches: one based on inheritance or succession considerations, and the other on extending the protection of the rights of the deceased. The legislative landscape thus reflects these different concepts.

What (who) needs to be protected?

Data protection or privacy protection?

To understand the issue of post mortem data, we need to return to the difference and nuances between personal data protection and privacy protection. As we point out in our 8th IP Report[4], these two concepts fall under separate legal frameworks, and their scopes differ. In France, the case law of the Constitutional Council has not separated the protection of personal data from that of privacy, whereas in Europe, the Charter of Fundamental Rights of the European Union separates the two concepts. Article 7 enshrines respect for privacy, while Article 8 establishes the protection of personal data as a fundamental right.

Furthermore, personal data protection legislation applies to any data that can be used to identify a person, either directly or indirectly, through cross-referencing or inference (deduction).[5] The GDPR therefore does not apply strictly speaking only to data relating to private life and privacy, but also to "public" data or data that has been made accessible.[6]

This distinction between data protection and privacy protection can be found in the management of cases relating to the data of deceased persons. While data protection will sometimes regulate these issues locally, privacy protection can be extended after death to allow heirs to claim an invasion of their privacy, reputation or honour. In an article published in 2018, Lucien Castex, Edina Harbinja and Julien Rossi[7] offer a comparative French-American perspective on the genesis of legislation on both sides of the Atlantic, and see this extension as a form of "indirect protection". This can therefore be considered an extensive application of the law, in the form of "family privacy", which would justify protecting a person's privacy after their death, for a limited period of time.

It should be noted that such cases will be subject to a balance between the right to privacy and the right to information, as specified in Article 85 of the GDPR: "Member States shall reconcile, by law, the right to the protection of personal data under this Regulation with the right to freedom of expression and information, including processing for journalistic purposes and for the purposes of academic, artistic or literary expression."

Inheritance rights or post mortem privacy?

The management of post mortem data can be approached in several ways, depending on whether it is considered as an asset that can be passed on to heirs or as an extension of the individual's right to data protection[8].

In the United States, the issue was initially approached from a succession perspective, with data being considered as digital assets accessible to heirs. This was the case in the 2004 lawsuit between the family of Justin Ellsworth, a soldier killed in action during the Iraq War, and Yahoo!, which had refused to grant them access to the deceased's email account, citing its terms and conditions of use, which were designed to protect the privacy of its customers. The judge ruled that the company had the right not to disclose the former soldier's login details, but ordered it to provide a copy of the content, first in the form of a CD-ROM, then as a printed copy of the emails (after a second complaint from the family).

Since 2005, some 20 states have adopted laws allowing heirs default access to the data of deceased persons, without recognising the right to privacy after death, thus following the logic of inheritance rights[9]. In 2012, a bill proposed by the US Uniform Law Commission – a private body whose proposals are non-binding – was launched to harmonise the rules across the United States: the Uniform Fiduciary Access to Digital Assets Act[10]. In 2015, major US platforms, notably Google and Facebook, attempted to push through a federal law on expectations and choices regarding privacy after death, aimed at blocking access to data by heirs by default[11]. Although they did not completely succeed, certain changes were made to the law, providing access to agents – persons designated in the will to execute the wishes of the deceased – to the catalogue of the deceased's data only, and not to its contents. Only the prior consent of the deceased or a court order allows access to the contents.

In France, the debates that accompanied the drafting of the Law for a Digital Republic (2016) reflect the tension

3 Avis n° 4/2007 - Le G29 réunissait les autorités de protections des données européennes avant la mise en application du RGPD

4 CNIL, Cahier IP8, Scènes de la vie numérique, avril 2021, p.11

5 CNIL.fr, L'anonymisation de données personnelles

6 À noter qu'en 2024, la CNIL publiait des recommandations pour les réutilisateurs de données publiées sur Internet.

7 Castex, L., Harbinja, E. et Rossi, J. (2018). Défendre les vivants ou les morts ? Controverses sous-jacentes au droit des données post mortem à travers une perspective comparée franco-américaine. *Réseaux*, n° 210(4), 117-148.

8 Ibid.

9 Harbinja, Edina, Post mortem Privacy 2.0: Theory, Law, and Technology (February 22, 2017). International Review of Law, Computers & Technology, Vol. 31, No. 1, 2017.

between two approaches[12]: inheritance and patrimonial considerations, promoted in particular by the High Council of Notaries, on the one hand; the desire to extend individual rights and preserve the privacy of deceased persons, in particular through the right to control the future of their data during their lifetime[13]. The 2016 text reflects a balance between these two approaches.

Differentiated territorial approaches

In France, a specific legal framework

The Law for a Digital Republic of 7 October 2016 amends the Loi Informatique et Libertés (French Data Protection Act)[14] to include provisions governing "the processing of personal data relating to deceased persons".

Article 85 of the French Data Protection Act provides that any person may define guidelines for the storage, erasure and communication of their personal data after their death. These guidelines may be "specific" when they concern a particular data controller, in which case they are recorded directly with that controller. They are subject to the specific consent of the individual and result from the approval of the general terms and conditions of use of the service. As we describe in detail in section 4 (p.24), the major social networks have quickly implemented solutions to manage the accounts of deceased persons.

When they cover all of an individual's personal data, they are referred to as "general" directives. These can be registered with a trusted third party certified by the CNIL and, where applicable, entered in a single register. Although the absence of implementing decrees relating to these articles currently prevents these directives from being entered in a single register, it is still possible for individuals to contact other trusted third parties, such as a notary, to record such directives.

In the absence of directives, it is the heirs of the person concerned who may access certain data, for example data that would be useful for the liquidation and distribution of the estate. They may also receive digital assets, such as files, sounds, videos or data "akin to family memories, which may be passed on to the heirs". Finally, they may "close the deceased's user accounts, object to the continued processing of personal data concerning him or her, or have such data updated". In the specific case of health data, the 2022 Law on Patients' Rights[15] specifies that "medical confidentiality does not prevent information concerning a deceased person from being disclosed to their beneficiaries, insofar as it is necessary for them to know the causes of death, defend the memory of the deceased or assert their rights, unless the person expressed a contrary wish before their death".

Other texts may also apply in cases where the data of deceased persons causes harm to third parties. Personality rights, in particular the right to one's image and the right to privacy enshrined in Article 9 of the Civil Code, may enable third parties to defend themselves against any use of the deceased's data that would cause them harm. This may be the case, for example, if the memory of the deceased and respect for their death are violated. In some cases, copyright may be invoked by the beneficiaries for data belonging to the deceased that could be protected as intellectual property (photographs, videos, etc.) and used without their consent.

In Europe, various forms of integration into data protection laws

As we travel across Europe, we see that the legislative landscape varies from country to country.

Some Member States have not amended their national legislation to include provisions concerning the data of deceased persons, notably Germany, Luxembourg, Malta and the Netherlands. In the latter case, it should be noted that the data protection authority drew the attention of the Dutch parliament to these issues in December 2024 and called for an examination of the extent to which the GDPR should apply to the data of deceased persons. Looking at the European continent as a whole, the United Kingdom has not adopted any specific framework in its national law.

Eleven Member States, on the other hand, have adopted specific provisions relating to the data of deceased persons after the entry into force of the GDPR, with varying approaches. Denmark, for example, extends the scope of the GDPR for ten years after the death of the person[18]. In Estonia, the choice was made to extend the consent of individuals "for 10 years after the death of the data subject", unless the data subject has decided otherwise; for 20 years if they were a minor at the time of death. During this period, data processing may be consented to by the data subject's beneficiaries, or if the data is processed on another legal basis. Slovenia has adopted a similar system, whereby "the data controller must provide the personal data of a deceased person to their spouse, partner, children, parents or heirs at their request", unless the person expressly prohibited this during their lifetime or other legal bases apply. In Ireland, the legislator has focused

10 Uniform Fiduciary Access to Digital Assets Acts – UFADAA

11 The Privacy Expectation Afterlife and Choices Act – PEAC

12 Ibid.

13 Autodétermination informationnelle

14 CNIL.fr, La loi Informatique et Libertés, art. 85

15 Loi n° 2002-303 du 4 mars 2002 relative aux droits des malades et à la qualité du système de santé

– Focus –
Data relating to death, a special case

Every month since 1970, the INSEE (national statistics bureau of France) has published a file of deceased persons, compiled from information received by local authorities as part of their public service mission. It includes all deaths known to INSEE, including data on previous deaths, if the information was received late. Each monthly file also contains deaths that occurred abroad. An annual file and a ten-year compilations are made available.

These administrative documents are published in accordance with the Code of relations between the public and the administration[16] and are accessible as open data on the INSEE website and on the Data.gouv.fr platform[17], which also provides access via API (application programming interface that allows a service or software to be connected).

Among those reusing this data, the MatchID project, initially launched by the Ministry of the Interior as part of the Entrepreneurs d'intérêt général (Entrepreneurs of Public Interest) programme, offers a search engine covering "27 million deaths since 1970". Some entries have been enriched with information on public figures, using data from Wikidata or external links

on data security, extending the scope of Article 32 of the GDPR[18] to deceased persons, which requires the implementation of "appropriate technical and organisational measures to ensure a level of security appropriate to the risk", in particular by ensuring the availability of and access to data.

The choices made by Italy and Spain are comparable to those made by France. In Italy, the Personal Data Protection Code was amended by decree in 2018 to allow the right of access (Article 15 of the GDPR)[19], but also the right not to be subject to an automated decision (Article 22 of the GDPR), to be exercised by persons with a "legitimate interest" or "acting on behalf of the deceased person as a representative, or for reasons of family matters deserving protection". This concept of representative can be compared to that of a third party under French law. Individuals may also, during their lifetime, prohibit any communication of their data: "in the cases provided for by law or where, in the context of the direct offering of information society services, the data subject has expressly prohibited this by means of a written statement submitted to or communicated to the data controller", provided that this prohibition does not "have any adverse effect on the exercise by third parties of property rights arising from the death of the data subject, or on the right to defend their interests in court". In Spain, Article 3 of the Organic Law on the Protection of Personal Data and the Guarantee of Digital Rights of 2018[20] provides for similar conditions for access, rectification and deletion of the data of deceased persons by heirs or persons with family ties, unless the deceased person expressly prohibited this during their lifetime, without this affecting the right of heirs to access patrimonial data. Individuals may designate persons, but also institutions, that may have access to their data.

Data governed by different texts and jurisdictions

The data of deceased persons may be governed and protected by legislation other than that relating to data protection. This is the case in France, but also in the United Kingdom, where the Health Records Act 1991 provides for certain rights of access to the health data of a deceased person, including paper records.

In Germany, although the Federal Data Protection Act does not refer to post mortem data, there are court rulings that contribute to the development of case law on this subject, in an inheritance approach, as in the US example cited above. In a ruling handed down on 15 September 2020, the Federal Court of Justice, Germany's highest civil and criminal court, clarified the extent of access to a deceased person's Facebook account, following on from a decision in July 2018 in which it ruled that social media accounts are transferable by inheritance and that parents should have the same rights as the deceased user[21]. The plaintiffs' fifteen-year-old daughter had died after being hit by a train in unclear circumstances. In an attempt to determine whether their daughter had been suicidal before her death, her parents wanted access to her Facebook account credentials, which had already been converted into a memorial page, making it impossible to log in. Facebook initially provided the parents with a USB stick containing a 14,000-page PDF document containing the deceased's unstructured account data. After an appeal, the Federal Court of Justice ruled that "giving access" means allowing the applicants to access the account and its content in the same way as the person concerned, with the exception of actively entering content. "Access" here

16 Dispositions des articles L311-9 et L312-1-1

17 Data.gouv.fr, Fichier des personnes décédées

18 Erdos, David, *Dead Ringers? Legal Persons and the Deceased in European Data Protection Law* (May 13, 2020). University of Cambridge Faculty of Law Research Paper No. 21/2020

19 Data Protection Act 2018, article 27: 'Article 32 of the Data Protection Regulation shall apply to a deceased individual's relevant information (individual) as it applies to a living individual's relevant information (individual).

20 Ley Orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales.

means "entering the account", not simply transferring the account's content to users[22].

In an attempt to respond to these diverse approaches to the regulation of post mortem data, it is worth noting the work carried out between 2023 and 2025 by the European Law Institute to call for the harmonisation of the European framework[23]. The NGO plans to make proposals to influence European legislators to harmonise key provisions relating to the definition of "digital remains", issues of access and inheritance, and data protection.

A recurring topic for the CNIL

Issues relating to post mortem data are a recurring theme at the CNIL. The Commission was asked about these issues very early on, although they did not represent a significant proportion of requests. Back in 2012, the CNIL noted that complaints were few in number but steadily increasing, particularly with the development of social networks.

In 2024, the CNIL received a few calls per month relating to the data of deceased persons on a regular basis. Most often, these calls came from relatives of the deceased who were wondering how to close social media accounts or activate the right to be forgotten, for press articles, for example. In such cases, it is necessary to reiterate the main rules and exceptions provided for in Article 85 of the Data Protection Act (cited above). There may also be cases where individuals wish to access the person's medical records, for example if they have doubts about the cause of death. In this case, the French Public Health Code applies: "The beneficiary of a deceased person may access information concerning the deceased to the extent that such data is necessary to ascertain the causes of death, defend the memory of the deceased or assert rights, unless the deceased person has expressed a contrary wish"[24]. Sometimes, this may involve the personal data – not related to work – of deceased persons stored on their work computer in a folder marked "personal".

As we can see, the questions we receive are varied and reflect the different situations that people find themselves in. There are many practices associated with digital death, which raise legal and ethical questions for those affected.

21 Library of Congress, Federal Court of Justice Clarifies Scope of Postmortem Access to Social Media Accounts

22 It is interesting to note that this interpretation of the right of access differs from the right of access in the GDPR, which requires in Article 15 that the controller provide 'a copy of the personal data undergoing processing [...] in a commonly used electronic format, unless the data subject requests otherwise'.

23 European Law Institute, Succession of Digital Assets, Data and other Digital Remains

24 CNIL.fr, L'accès au dossier médical

Practices of digital death

The moment of death is key to the evolution of digital practices in our societies. As semiologist Fanny Georges points out, "if we cannot bury or scatter the body of the deceased, the Internet has become a place where it is sublimated, where we bury our dead symbolically and socially"[25].
The practices developed by the loved ones of the deceased at the time of death and during the mourning period have evolved in line with technological developments.

Digital life and death

From virtual cemeteries and memorials 1.0…

One of the first examples of digitisation for the general public is the US website Cemetery.org, the first version of which dates back to 1995, at the dawn of the development of the Internet for the general public. It is the first digital cemetery, offering profile pages for the deceased, where photos, videos and comments left by the bereaved can be found. The site is still online and will celebrate its 30th anniversary in 2025. Its British counterpart, Virtual Memorial Garden, created in the same year, offered similar services. According to its author, quoted by Le Monde in 1997[26], the site "is not a place of death, but a place where people can celebrate their family, friends and pets". As early as 1997, memorial sites were included in the Yahoo! directory[27], where pages dedicated to victims of war, terrorist attacks, AIDS, celebrities and anonymous individuals could be found.

In France, the website JeSuisMort.com, created in 2005 and still active today, describes itself as "the first cemetery on the web". Unlike the examples mentioned above, this site is dedicated to celebrities: "our gravediggers bury personalities from all over the world, from the most illustrious benefactors of humanity to the greatest criminals in history. They scour the obituaries to keep you informed of recent deaths and the birthdays of deceased celebrities." Biographical files, linked to forums, are created for each of the deceased, and there is even a rating system aimed at establishing a "Top Paradise" for those who obtain the best ratings and, conversely, a "Top Hell" for those who receive the fewest votes.

"If death is part of life and life has gone digital, it is inevitable that death will too."

Dorthe Refslund Christensen and Johanna Sumiala

Taking a different approach, the LibraMemoria website, whose first version preserved on the WayBack Machine [28] dates from 2010, offers to post obituaries published in

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25 Fanny Georges, De l'identité numérique aux éternités numériques : la mort extime. L'usage des grandes bases de données personnelles après le décès des usagers, 2018.

26 Thierry Noisette, Repos éternel sur le Net, Le Monde, 02 novembre 1997 Ieyers, G., Capitaine, B. « Engagement et relation à soi chez les jeunes alteractivistes », Agora débats/jeunesses, 2016/1, n°72, 2016, pp. 107 à 122.

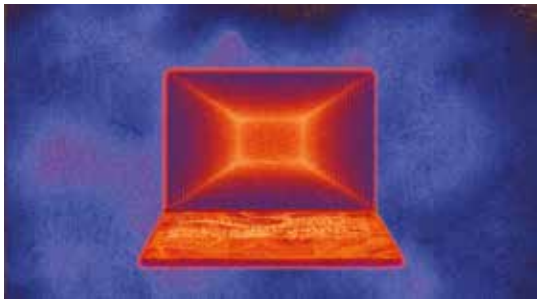
27 The first service offered by the Yahoo! portal, created in 1994, consisted of indexing sites of interest in the form of a directory, classified by category. It was not a search engine.

the press and submitted by funeral homes. Each notice is linked to a "deceased" page, where it is possible to show sympathy by "adding a star", but also to post a message of condolence, light a candle, publish a commemorative plaque, or share a thought.

… to social media and "spectacularisation"

Initially confined to family networks, close friends, or the neighbourhood, village or local press, in modern societies, people's deaths have gained new forms of visibility.

Before the democratisation of the Internet, the media coverage of death was reserved for personalities with access to traditional media, where journalists participated in shaping the collective imagination and popular culture around death. It is now accessible to everyone, especially with the development of social media and content-sharing platforms. Ordinary people, as well as influencers and various types of activists, have the means to contribute to the media coverage of death in society[29]. These new practices can go as far as live streaming on the internet and via social media of deathbed scenes and even suicides[30].



Post Mortem

The LINC and the Mon Oncle agency have joined forces to explore the imaginary world of post mortem data and invite you to discover Post-mortem.Cloud, A collection of stories (written in French) and design fictions on the themes of memory, ghosts, transcendence and heritage.

Exclusive productions can be found online at: https://www.post-mortem.cloud

Digital death thus marks the transition to a new era of digital engagement by individuals themselves, mediated by digital service platforms.

This media coverage, and the development of a digital presence for the deceased, has brought death back into people's everyday lives. Long considered taboo in Western societies, the media coverage of deaths has produced new familiarities with death that are unrelated to religion or the appearance of ghosts. These new rituals are adapted to societies that have become more individualised, valuing singularities, where death becomes an opportunity to celebrate the person, considered unique.

Finally, these practices are part of a context of great geographical mobility. On the Virtual Memorial Garden website, a woman quoted by Le Monde explained, "Now I have a place to visit: my brother is laid to rest in Florida and I am in New York." Real-time sharing and social networks thus enable people who are far away, or others with whom the bonds of proximity may be weak, to take part in commemorating the person at the time of their death and thus begin the grieving process.

Mourning: between personalisation and loss of control

After the moment of death, the mourning period itself is disrupted by digital technology. In the physical world, the process is stricter and more codified, particularly by religions or social conventions that must be followed. For example, forms of codification of mourning attire can be found in 19th-century etiquette manuals. A "theatrical staging of death" that meets "the requirement to maintain appearances, [but] does not oblige the bereaved to be sincerely grieved by the loss of a loved one." [32]

In the20thcentury, people made more individual choices to which their loved ones and society had to adapt, particularly between burial and cremation, and what to do with their ashes. The same is true of digital practices, which have made it possible to meet the demands for personalisation in mourning. As sociologist Fiorenza Gamba notes[33], it is "the work involved in the personal and social mourning process that has changed significantly"; digital technology makes it possible to "find a rhythm and a form that is right for each individual, to follow a personal path".

While becoming increasingly individualised, grief is also part of collective practices described and conceptualised by numerous authors. These include "grief on social media" (Moore et al., 2019), "networked mourning" (Brubaker et al., 2019), and even "hypermourning" (Giaxoglou, 2020).

28 The Wayback Machine is a website provided by the Internet Archive organisation to offer access to snapshots of web pages stored by the organisation (Wikipedia).

29 Sumiala, J. Jacobsen, M.H. Digital Death and Spectacular Death. *Soc. Sci.* 2024, 13, 101.

30 Sumiala, Johanna. *Mediated Death. Cambridge: Polity Press*, 2021. 180 p.

31 Reckwitz, Andreas. 2020. *The Society of Singularities*. Cambridge: Polity Press

32 Nonnis Vigilante, S. « Le corps en deuil : la mise en scène de la mémoire dans les traités de savoir-vivre. France-Italie XIX[e] et XX[e] siècle ». *Les narrations de la mort*, édité par Régis Bertrand et al., traduit par Jacques Tourrel, Presses universitaires de Provence, 2005.

33 During an interview with the LINC

In this context, each individual plays an active role by engaging, to a greater or lesser extent, in commemoration on social media platforms. In particular, they may post videos in tribute to their loved ones, as well as messages accompanied by the hashtag "#RIP" (rest in peace), thus contributing to a collective, as well as personal, moment to "ritually cope with loss". Facebook's "memorial" pages, set up in 2009, offer the possibility of transforming the accounts of deceased persons into memorial pages, which are part of these practices, reappropriated as places of shared mourning and commemoration. Participation in these digital rituals involves commemorating family and loved ones, as well as people with whom there were only weak ties, or even participating in a broader movement concerning celebrities with whom there is no personal connection.

All of these practices are becoming ubiquitous and do not require people to travel. They reflect today's society, where community and political engagement has evolved towards more occasional forms that are not separate from everyday life. In 2023, in France, the most widespread form of engagement among young people is via social media (signing a petition or defending a cause on the Internet, a blog, or a social network)[34]. There is no strict and systematic separation between private life and public engagement, between the "virtual" world and "real" politics[35]. Similarly, participation in digital mourning is generally integrated into everyday use of social media, and hashtags, memes and messages of digital mourning are shared alongside standard content[36]. The aim is to build and maintain social relationships with other mourners and with the deceased, to create a sense of co-presence with imagined audiences on the network[37].

These different practices can help with the grieving process, but they can also lead to misunderstanding, tension and even conflict between the various parties involved. The creation of memorial website accounts can bring relief to loved ones and "mark the location of the deceased", like a virtual grave. However, it can also unsettle the family or loved ones' in f it comes from people they consider "illegitimate". Loved ones thus find themselves forced to understand, or even "accept this digital survival"[38].. Facebook pages in particular can be a source of misunderstanding when they become a meeting place for various social bubbles, including family, friends and colleagues, especially when young people die and their parents do not recognise them in interactions with their friends. While access to a page reassures some people and helps them in their grieving process, others are disturbed by having to deal with the online presence of the person they have lost, such as this mother who says she finds it difficult to see her child on Facebook "when she is lying in the cemetery"[39]. This feeling can be even stronger when platform algorithms bring up content to wish someone a happy birthday, or as part of features dedicated to shared memories. It should be noted that some networks, such as Instagram, de-index memorial accounts to avoid this type of situation.

These digital uses and tools can therefore be a source of tension due to their ambivalence, as they both support the memory of the dead and prevent mourning. This makes it more difficult for some people to complete their grieving process, which, despite themselves, can be extended indefinitely, or simply to live in their own way with their deceased loved ones. The philosopher Vinciane Despret, a critic of a normative approach to mourning, seen as a process of separating oneself from the dead, wrote in 2015[40]: "Digital technology, which places greater emphasis on the activity of the dead, leaves the living less at peace."

34 Hoibian, S., Müller, J., Millot, C., Charruault A., Moral, état d'esprit et engagement des jeunes en 2023. Baromètre DJEPVA sur la jeunesse, INJEP–Crédoc, 2023.

35 Pleyers, G., Capitaine, B. « Engagement et relation à soi chez les jeunes alteractivistes », Agora débats/jeunesses, 2016/1, n°72, 2016, pp. 107 à 122.

36 Kneese, Tamara. 2023. Death Glitch: How Techno-Solutionism Fails Us in This Life and Beyond. New Haven: Yale University Press.

37 Giaxoglou, Korina. 2015. Entextualising Mourning on Facebook: Stories of Grief as Acts of Sharing. New Review of Hypermedia and Multimedia 21: 87–105

38 Brun, Victoria et al. « Quand le numérique matérialise le défunt : les données post mortem dans le processus de deuil ». Études sur la mort, 2022/1 n° 157, 2022. p.27-40.

39 Bourdeloie. (2018), " Vivre avec les morts au temps du numérique. Recompositions, troubles & tensions ", Semen, n° 45, p. 25-52. Semen - Revue de sémio-linguistique des textes et discours, 2018, p.43.

40 Vinciane Despret, Au bonheur des morts - Récits de ceux qui restent, La Découverte, Paris, 2015

– Focus –
Intimacy with the dead in video games

In video games, death is expected: the character dies as a result of a bad choice made by the player; often, they are resurrected at the last save point to retry the failed action. The economic model of early gaming machines, such as pinball machines and arcade machines, partly explains this: players had to add "credit" to continue or restart a game[41].

Video games allow players to confront ghosts. In car racing games (Mario Kart, Gran Turismo, etc.), translucent vehicles may appear on the screen, representing the race with the best score or the last game played. They can sometimes play a role in mourning. In his book *Persistance du merveilleux*, Nicolas Nova recounts the story of a player who, ten years after his father's death, found him in a console video game they used to play together, because he had the best score. He then replayed the game many times, without ever overtaking him, so as not to risk losing him (by getting the best score).

Video games give rise to a multitude of examples and forms of online mourning, as listed in an article in Vice magazine[42]. Multiplayer games, particularly MMOs[43], illustrate the porosity between "digital" and "real" life, especially when they allow players to choose, create and embody their own avatar. The community aspect creates closeness between individuals, and the virtual world becomes a place for socialising like any other. This porosity is particularly evident when death occurs, for example, that of a player, leading to the end – or almost the end – of their avatar's existence.

Real-life rituals can then be reproduced in virtual worlds: the first examples of mourning in video games date back to the mid-1990s[44].. Tributes to famous personalities and celebrities have left their mark on generations of gamers – such as Robin Williams, himself a video game fan, and Stan Lee, one of the main architects of the Marvel universe. The publishers of *World of Warcraft* (WoW) created two "non-player" characters named after them in the game (a guide to memorials is even available in WoW). Tributes to celebrities directly linked to the fictional universe that inspired the video game can also be found. In the game *Star Wars: The Old Republic*, players themselves created a character in memory of Carrie Fisher (the actress who played Princess Leia in the *Star Wars* saga).

These tributes can also be to players who are particularly involved in the gaming community, people who have contributed to its creation (such as a developer) or its promotion (an eSports game commentator). In 2015, a ceremony was organised in the game Destiny to pay tribute to a player, which was captured in a video that has been viewed 900,000 times. There are also memorials in *Second Life*, such as *Remembering Our Friends Memorial*.

In 2015, *Skyrim* players even modified the game by developing a "mod" (an extension created by the community to partially change how the game works) to allow a player to meet the character of his deceased brother again. In the same year, the funeral of a YouTuber and professional *Call of Duty* player was broadcast live on the Twitch platform and viewed more than 5,000 times. The use of this type of tool (live streaming a funeral ceremony on a platform) may seem shocking or out of step with what might be expected of a ceremony – a moment of reflection, reserved for loved ones, sober clothing, etc. But as the Vice Magazine journalist notes: "the issue of so-called 'voyeurism' is only relevant in the eyes of non-gamers". Video games, as spaces for socialising, have developed their own relationship with the deceased.

41 William Audureau, La mort dans les jeux vidéo, plus qu'un échec, un art de vivre, *Le Monde.fr*, 30 mars 2015

42 Thibault Prévost, À nos frags disparus : du deuil dans les communautés de gamers, *Vice*, octobre 2016

43 Jeu en ligne massivement multijoueur (MMOG, de l'anglais *massively multiplayer online game*, parfois encore abrégé en MMO)

44 Anna Haverinen, In game and out of game mourning: on the complexity of grief in virtual worlds, *in Mediating and Remediating Death*, 2014.

The relationship between individuals and their post mortem data

Several studies carried out in France and other countries have helped to outline the relationship between people and their post mortem data.

French people and Post mortem data

The CNIL asked Toluna-Harris Interactive to conduct a survey between 20 and 26 November 2024 on French people's perceptions of the management of post mortem data.

This survey was conducted online among a sample of 2,112 people aged 18 and over, using a quota method based on the respondent's gender, age, socio-professional category, region and size of urban area of residence.

The questions focused on the relationship to memory and personal digital archives, confrontation with digital death, and the latest AI-based digital technologies and tools for replicating the behaviour of deceased individuals.

You will find figures and findings from this survey throughout this booklet, and the full results in an article on the Linc.cnil.fr website (in french).

https://linc.cnil.fr/enquete-post-mortem

A preference for deletion

The survey conducted in November 2024 by LINC[45] as part of this Report tends to show a certain reluctance among people in France to leave all their data online after their death (52% of those surveyed would prefer not to leave their data as it is on online platforms). By way of comparison, in a Japanese study conducted in 2022, 77% of respondents preferred automatic deletion to simple storage[46]. In a comparative survey conducted in 2021 in France, the United States and Japan, the addition of a "memorial" function " feature (see p.27) seems to be an alternative to deleting content, particularly for US respondents: nearly 39% prefer the memorial feature to deleting the content entirely (35%) or leaving the content online as is (26%). However, even when this memorial feature is offered, deletion remains the preferred option for Japanese and French respondents[47]. This echoes the LINC survey, according to which 26% of respondents would prefer to sort between what should remain visible and what should disappear.

Generational and gender differences

However, our survey also shows that there are significant disparities between generations: older people are the most reluctant to keep traces online (66%, or +14 points above the average, with this figure falling to 39% for 18-34 year olds, or -13 points below the average). Although not entirely overlapping, those who are most "connected" and most active on digital platforms are also the most likely to leave their data online without further intervention (27%, or +6 points).

We observe other differences – notable but less noticeable in other studies – associated with gender: women seem to prefer that all their data be deleted after their death, unlike men (+10 points in our survey). These gendered dimensions of the relationship to post mortem data are also reflected in the reuse of data for other purposes, in particular to exchange, authorise or even feed an AI system representing a deceased person, either for oneself or a loved one[49] (see p.32).

45 Martin Biéri, Enquête, Les Français et les données post mortem, Linc.cnil.fr.

46 Nakagawa, H., Orita, A. Using deceased people's personal data. AI & Soc 39, 1151–1169 (2024).

47 Akiko Orita, Retain or Delete after Death? Findings from an International Survey of User Intentions concerning Postmortem Functionality of Social Network Accounts, avril 2021.

48 Orita, 2021, ibid.

49 Martin Biéri, Enquête, Les Français et les données post mortem, Linc.cnil.fr, https://linc.cnil.fr/enquete-les-francais-et-les-donnees-post-mortem

Reluctance to configure ante mortem

The literature points to a number of explanatory factors and a set of limitations in this relationship between individuals and data after death[50].

Firstly, there is a significant lack of knowledge about the mechanisms offered by major digital platforms for managing post mortem data (memorial accounts, for example). A British study from 2024 shows that less than a third (28%) of respondents say they are familiar with these services. The possibility of having control over the configuration of these services is also highlighted: researchers show that respondents may want to configure the type of services, the type of data and the type of people (spouses, parents, professional superiors, etc.) who can access the data left online. This desire for greater granularity in the choices available to individuals is reflected in a 2019[51] Israeli study, where 20% of respondents said they would like to be able to "control" these settings.

Among the various services (messaging, social networks, or personal cloud storage services), spouses are the most frequently cited persons for managing this data after death, ahead of children and then parents[52]. Brothers, sisters, and friends are sometimes cited. A significant proportion of respondents (around 20% in a British study)[53] do not wish to choose anyone. In our survey – without going into such detail – 50% of respondents said that this sorting or deletion should be done by a relative or descendant, 22% by themselves, 14% by a trusted third party (service provider, notaries) and 13% directly by the platform hosting the data.

A generational barrier to the use of tools for configuring the future of data after death, which is less easily quantifiable here, could also lie in the lack of interest among people who are, in principle, further removed from death (particularly younger people), which discourages them from thinking about and, above all, preparing for their own death.

In this context, several researchers are calling for a legal framework for the protection of post mortem privacy (see p.36), illustrating that the future of data after death is the subject of growing attention from specialists and the general public alike.

50 Post - mortem privacy and digital legacy - a qualitative enquiry, Edina Harbinja, Marisa McVey, Lilian Edwards, décembre 2024

51 Morse, T., Birnhack, M. D., Digital Remains: The Users' Perspectives (June 1, 2019) in *Digital Afterlife: Death Matters in a Digital Age* 107-126 (Savin-Baden, M. & Victoria Mason-Robbie, V. 2020).

52 Morse, T. and Birnhack, M. D., ibid.

53 Harbinja, E., Morse, T., Edwards, L., *Digital Remains and Post-mortem Privacy in the UK: What do users want?* (March 27, 2024). BILETA 2024 Conference Paper.

The digital death market

Like every other moment in life, digital death has given rise to the creation of a market. The largest platforms remain at the centre, but companies were quick to offer dedicated services for managing digital assets or social media accounts and transferring data. Beyond that, as we shall see, an entire ecosystem dedicated to the afterlife has been created.

Commoditisation of platforms

As an extension of our online lives, digital networks and platforms are also, as we have seen, a place for expressing grief and remembrance. While dedicated sites are available, it is primarily in everyday conversational spaces that interactions with the afterlife take place. In fact, as Tamara Kneese[54] points out, digital platforms, notably Instagram, Facebook, YouTube, TikTok and many others, where people now interact with death and dying, are mega-corporations and global companies, some of which are now considered very large platforms within the meaning of the Digital Services Act when they have more than 45 million monthly users in Europe. In this respect, they have increased responsibilities in terms of content management, which do not directly concern post mortem data.

Even though these platforms have implemented tools for managing and transmitting data relating to deceased persons (see p. 20), they do not aim to enter the "digital death market". Nevertheless, the activity generated by commemorations and other mourning processes feeds into economic models that are most often based on advertising. It should be noted that the tweet that received the most reactions was the announcement on his Twitter/X account of the death of American actor Chadwick Boseman[55]. Following on from the theorist of surveillance capitalism Shoshana Zuboff, some authors consider that death and its "consumers"[56] are sold to these platforms, which monetise their users' clicks, posts, likes and shares. The aim remains to collect data on these actions for the purpose of targeting advertising at the living. The end of life does not mean the end of monetisation, which explains why certain social networks were quick to offer solutions to keep the online activity of deceased individuals alive.

Generalist social media platforms are therefore positioning themselves as an extension of life rather than offering dedicated services, which are provided by an ecosystem of players investing directly in this market.

Adobe Stock

54 Kneese, T. 2023. Death Glitch: How Techno-Solutionism Fails Us in This Life and Beyond. New Haven: Yale University Press

55 Andrew Pulver, Final tweet from Chadwick Boseman's account is most liked ever on Twitter, *The Guardian*, août 2020.

56 Sumiala, Jacobsen, 2024, Ibid.

A typology of digital death services

In a study published in July 2024[57], the TA-Swiss foundation (a competence centre of the Swiss Academies of Arts and Sciences, funded by the public authorities) proposes a typology of services associated with digital death, which is beginning to resemble the description of a relevant market.

The study makes distinctions to categorise the types of services according to a series of criteria:

- **Whether the technologies are general-purpose or specific-purpose:** **the social media platforms described above are general-purpose, but this category also includes tools such as videoconferencing platforms, whose purpose is in no way related to death, but which have been used for sharing and mourning during the Covid-19 pandemic, for example Zoom. Specific technologies are designed explicitly for the digital afterlife, dealing directly with death and mourning, such as post mortem data management, funeral planning, online memorials, and even post mortem messaging services.**
- **Whether their use is intentional or accidental:** digital inheritance remains, even when the person concerned or their loved ones have not taken an active part in its creation. The use of a specific service will always tend to be intentional, whereas a person may be confronted accidentally with the death of someone on social media.
- **Whether it is death tech (technology dedicated to death) or grief tech (technology dedicated to mourning):** while death tech refers to digital tools that help individuals manage the practical aspects of death and planning, grief tech refers to services for bereaved individuals, offering online support and enabling the sharing of memories.
- **Depending on whether people are "creators" or "heirs" of digital memories:** creators are those who, during their lifetime, take steps for their heirs, either intentionally by making funeral arrangements or recording messages for their children, or unintentionally by leaving a message preserved by a loved one. The category of inheritors corresponds to those who receive these memories, whether they are close relatives or not, each with different roles, interests, needs, and vulnerabilities.
- **Depending on whether technologies are one-way or two-way:** the study distinguishes between one-way communication tools, where heirs receive messages and other content without being able to interact, and two-way communication, made possible by new technologies in the form of conversational agents or even avatars, with which it is possible to interact.

The authors of the study also propose a mapping of services associated with death and the digital afterlife, based on the typology created by Öhman and Floridi[58], in order to illustrate the diversity of approaches, without aiming to be exhaustive, as they point out.

In particular, they distinguish between:

- **Information management and funeral planning services,** designed to help individuals manage their digital legacy, particularly with regard to the processing of personal data after death. In France, there are start-ups such as Repos digital and Sorenir, which offer services to close digital social media and messaging accounts after death and recover funds that are due to heirs. Based on a different model, Legapass and Wishbook offer personal digital safe solutions and features accessible to wealth and estate professionals, such as notaries. The business models for these services can be based on fees for closing accounts, subscription packages for digital safes, or commissions for recovering online funds.
- **Online memorial services,** for bereaved individuals, offering opportunities to share memories with others. These services are an extension of early initiatives such as Cementery.org, Virtual Memorial Garden, LibraMemoria in France (see p. 11), and Dans nos cœurs, which offers memorial pages as part of its range of services. The economic model for these services is based on two pillars. They may offer free publication of announcements on their website, or charge per publication for announcements that will be published on their website and relayed in the press. The display of personalised advertising and the sharing of data with third parties, subject to the consent of the individuals concerned, completes this model.
- **Posthumous messaging services,** allowing the deceased to "communicate" after their death with recipients predefined during their lifetime. For example, Foorkeeps, a South African application, offers its customers the opportunity to create their own legacy, consisting of selected photos, videos, letters and messages that will be delivered to family and loved ones after their death. In France, In-Memory offers to notify "people of your choice" of your death and then send messages on selected dates. These services are based on "freemium" models. A basic version is available free of charge, and monthly subscription options are available for a few euros per month, depending on the level of options chosen. A lifetime offer, with no time or usage limits, is also available for a few hundred euros.
- **Re-creation Services,** which keep the deceased "alive" through conversational agents, sometimes called deadbots, avatars or other technologies, most often based on AI, which continue to communicate with the living

57 Strub, J.-D., Bosisio, F., Jox, R. J., Rochel, J., Sterie, A.-C. : *La mort à l'ère numérique. Chances et risques du Digital Afterlife.* TA-SWISS Publikationsreihe (Hrsg.): TA 82/2024. Zolllikon: vdf.

58 Öhman, C. and Floridi, L., An Ethical Framework for the Digital Afterlife Industry (March 1, 2018). *Nature Human Behavior*, 2018.

	Digital remains as estate	Digital remains as preserved memory	Digital remains as communication	Digital remains as artificial agent
Information management services	✓	✓		
Online memorial services	✓	✓		
Posthumous messaging services	✓	✓	✓	✓
Re-creation services	✓	✓	✓	✓

Progression of posthumous online presence (Öhman, Floridi - 2018)

using the person's available data. Among these offerings, which we discuss in more detail in Part 5 (p.30), it is worth mentioning the Californian start-up HereAfter. AI, which is developing a chatbot that allows users to chat with the digital clone of a deceased loved one. This assistant is initially fed and trained by the person during their lifetime through hours of interaction with an automated investigator. The aim is to leave behind a "digital double" with whom to converse later. Similar solutions are offered by Replika, developed in Silicon Valley in 2017, and Re:Memory in South Korea, which combines images with speech. It should be noted that there are two sub-categories here, depending on how people use the service: for **digital immortality** (at the initiative of the future deceased), or for the **digital afterlife** (when it is the living who feed the service).Conversational agents are available for a few pounds a month, depending on the package, or for a flat fee of a few hundred euros with no time limit. At Deepbrain.ai, the price can rise to tens of thousands of euros for the creation of a 3D avatar that replicates the characteristics of the d ceased person (see p.32).

The positioning of funeral service providers

In this context, traditional funeral service providers are involved in addition to their core business. This market is organised around activities related to funeral services at the time of death, including organising the funeral, providing an urn or coffin, transferring the body and providing care. In addition, there are stonemasonry and florist services. Funeral companies can also be involved upstream, offering funeral insurance contracts, and after death, supporting relatives and heirs with the administrative procedures to be carried out.

In France, local authorities had a monopoly on funeral arrangements until the Sueur Law of 8 January 1993, which opened up funeral services to competition as part of a public service delegation. Today, two large groups dominate the market. The oldest, OGF, accounts for 20% of the market. It owns Pompes Funèbres Générales, founded in 1828. The second, the Funecap group, accounts for 10% of the market. It acquired Roc'Eclerc in 2015. Finally, the mutual insurance group VYV (Harmonie Mutuelle, MGEN and Mutac) founded Maison des Obsèques in 2015. The sector also comprises a large number, several thousand, of local, independent or franchised companies.

These companies have long offered support with traditional administrative procedures, such as sending mail. More recently, they have integrated dedicated digital services, either outsourced or in-house, in the form of complementary services to funeral insurance contracts or as part of care packages. These may include setting up memorial spaces for families or offering assistance with closing social media accounts and digital platforms. These services are part of a more traditional offering, provided by advisers who support relatives and offer to activate some of these options if they wish.

Starting in 2025, Funecap will launch a digital safe service. Funeral insurance policyholders will be able to store

documents there to be passed on to a designated person (who must give their consent in advance) upon their death. These documents may include administrative paperwork, mementos, photos, texts, or instructions for organising the funeral.

All of these digital offerings are still in their infancy, but these funeral companies remain key players at the time of death. As a point of contact for all families and loved ones, their arrival on the market could support and develop practices in a context where the market remains emerging.

A still fragile market

This typology and mapping provide a good overview of the diversity of offerings from economic players in the digital death market. However, it should be noted that the sector is evolving rapidly, with some of the services included in the 2024 mapping no longer existing in 2025, while others are offering new services that may fall into a different category. The sector, which is still emerging, remains fairly fragile: of the 658 tools and services listed by the most comprehensive sources, established by the website thedigitalbeyond.com (now inaccessible) and by researchers Öhman and Floridi in 2017, half of the services no longer exist in 2024. This is not without consequence, particularly when companies offer solutions for memory, mourning and commemoration. The sometimes ephemeral nature of services, due to the need to find a sustainable business model, can have consequences for those concerned. Indeed, the temporary nature of digital platforms and the business model of digital estate planning companies do not always go hand in hand with the long-term expectations of the deceased and their loved ones (Kneese 2023). The offerings of start-ups, some of which may pivot to new services or simply disappear, contradict the promise of eternity.

However, the TA Swiss study points to different realities depending on the type of service, with some being more stable than others. Following interviews with solution developers, the researchers found that information management and funeral planning services, in particular, are those that have achieved greater economic viability. This can be explained in part by the fact that the services are not exclusively aimed at end consumers, but also at organisations and companies that have a long history of supporting the bereaved. Online memorial and post mortem messaging services are more fragile, as the economic model is not always easy to find in a context where, historically, the preservation of memory has tended to be carried out by associations and volunteers. Respondents pointed out that people find it difficult to think about their own death at an early stage in their lives and consider the memories they wish to leave behind. As for digital survival services, they are currently aimed at tech-savvy early adopters, but they could benefit from significant investments in the artificial intelligence sector, particularly with the development of large language models, following in the footsteps of ChatGPT.

At this stage, it remains difficult to assess the size of the market for death-related services. In 2022, the global death market generated £120 billion in revenue and could reach £209 billion by 2030, according to a study by StrategyR[60]. However, these figures include all funeral services, without specifying the share of digital services.

The TA-Swiss study notes a reluctance on the part of investors, which "is not necessarily related to a lack of faith in the potential of the offerings, but rather to a reluctance towards what is sometimes referred to as 'business with death'[61]." Looking ahead to the coming years, it is possible to anticipate a growth in usage as populations that have grown up with digital technology and the almost complete digitisation of their lives take charge of managing their individual digital heritage.

59 Ibid., p. 92.

60 StrategyR, Death Care Services – A Global Strategic Business Report.

61 Ibid., p.93.

The user experience of digital death in 2025

As we have seen, the issue of post mortem data is not subject to a strict and harmonised legal framework across Europe, as provided by the GDPR, in which each stakeholder makes its own choices in terms of interface design. The result is a landscape of approaches that varies considerably from one digital service to another, which we explore in this section.

Adobe Stock

The call for design methodologies

Design at the heart of the CNIL's activities

In 2019, the LINC noted in its 6th Innovation & Foresight report that "the interface is indeed the primary object of mediation between the law, rights and individuals". It was with this in mind that the Données et Design[62] (Data &Design) platform was launched, to promote the co-construction of user journeys that comply with the GDPR and privacy[63].

Using a methodology that highlights current practices, the LINC published an observatory of the user journey when exercising rights in 2025[64], whose first study consisted of examining the paths to accessing a copy of one's personal data implemented by ten social networks. The aim of this observatory is to promote best practices and encourage improvements in the user experience, without however assessing compliance with data protection regulations.

Following on from this work, the LINC has set up a process to observe the practices of services offered to users for the management of post mortem data (their own or that of deceased relatives). We therefore examine what we call the post mortem user experience (or post mortem UX) in the following section.

Methodology implemented for post mortem data

The analysis presented here offers a non-exhaustive overview of post mortem UX journeys through examples from a number of digital services. It was carried out in "flash mode" in October 2024, using two approaches: macro and qualitative.

The macro approach consisted of an inventory of the information pages and policies of twenty digital services, including nine social networks (BeReal, Facebook, Instagram, LinkedIn, Snapchat, TikTok, Discord, Twitch, X), five tool suites (Apple, Google, Meta, Microsoft, Yahoo!),

62 Données & Design, https://design.cnil.fr/

63 It includes case studies and design patterns that offer 'various ways of implementing the principle of transparency within the interfaces and user journeys of digital services'.

64 Observatoire de l'exercice des droits, https://observatoire-exercice-droits.beta.cnil.fr/

and six services of various types (Airbnb, Telegram, Tinder, Vinted, Wordpress, Word of Warcraft). The aim was to list the different features offered, the interfaces used, and the semantic choices made by each of these services.

For the qualitative approach, the LINC tested a sample of seven major platforms, including four social networks (Facebook, Instagram, X formerly Twitter, LinkedIn) and three suites of tools (Apple, Google and Microsoft), in order to assess how these major-stakeholders handle post mortem data. This analysis is based on reconstructing and observing the typical trajectory of a user. To do this, we performed queries on a search engine (Google), simulating a user's attempts to identify the post mortem data management service(s) on these seven major platforms. We analysed the results that appeared first, thus constituting the first point of contact with the service concerned, and then mapped out the paths suggested to users.

This exploration principle, through role-playing, first enabled us to establish a state of the art – not exhaustive, but representative – of practices and screen markup. In a second step, these paths were broken down and categorised based on certain user experience (UX) criteria: methods of accessing information, semantics and tone of content, types of interaction with users during the procedures or assistance offered, graphic design and multimedia content, etc.

A post mortem reverse design of user journeys

Three interaction timeframes and three typical journeys

These two approaches, macro and qualitative, enabled the LINC to carry out a "reverse design" of typical user journeys (inspired by reverse engineering). This a posteriori and composite construction of journeys takes place in a context where the absence of a precise and standardised framework has left the ecosystem with considerable room for manoeuvre. We therefore observed that each platform has proceeded to implement its own tools and features.

The three typical journeys we propose do not correspond to any actual journey, but illustrate the possibilities offered by the various services and the situations in which a person may find themselves. Interactions with post mortem data can take place at three different times, or from the perspective of three different users: :

The results of this study are available through a poster format and can be downloaded from the CNIL's Digital Innovation Laboratory website:

https://linc.cnil.fr/poster-ux-post-mortem

- **ante mortem settings:** when a person wishes to anticipate, configure and prepare the management of their data after their death;
- **post mortem actions:** when an heir or authorised representative must intervene on digital service accounts;
- **post mortem interactions:** when a third party, or simply a bystander, finds themselves in a situation where they need to interact with the data or account of a deceased person.

Ante mortem settings: at the initiative of individuals

Anticipated data management is the first step and use case relating to post mortem data. This involves planning for the future of one's own data, in a context where each platform offers its own approach to the subject.

Some services offer to take action on post mortem data as part of the general user experience (account creation, privacy settings management, etc.). Google, in particular, offers to configure these settings when the account is created, then sends regular reminders via its "privacy checkup" in a tab called "Plan for the future of your account ". On smartphones, Apple offers this feature in the "Tips" app, which details how to configure the settings. It should be noted that this feature is not found when searching the smartphone settings. More generally, you have to actively search for these services in the settings to find pages or information relating to the future of accounts and content.

Three types of features stand out: inactivity management, adding a legacy contact, and memorial accounts.

Inactivity management: for some platforms, it is primarily through inactivity that the future of the account will be determined. This is the approach taken by Google in particular, which offers to define a plan for managing the period of inactivity after which the account can be considered inactive and will be deleted without warning (if no legacy contact has been designated). Users can request to receive regular emails notifying them that the "inactive account manager is activated" and to change the management settings if necessary. The same approach is applied by Microsoft, which allows users to specify a "procedure to follow when a person is deceased or incapacitated". By default, the account is automatically closed after two years of inactivity.

Adding legacy contacts: some digital services offer their users the option of designating one or more legacy contacts. For Apple, this involves giving "access to your digital legacy", including your iCloud account, by sharing an access key with the chosen person. This key can be printed and included in an estate file at a solicitor's office. It can also be sent directly to the person by message, saved directly on the person's iPhone. Apple provides a template message to send, so that users do not have to write the text themselves. The legatee has the option of refusing this responsibility and deleting the key from their iPhone. Google has implemented a similar but more granular approach: users can designate up to ten people and select from 67 different types of data for each of them. Facebook offers the option of choosing a legacy contact to take over account management (managing posts, responding to invitations, updating profile and cover photos, and requesting account deletion).

Memorialized account: the third ante-mortem feature offered by services with public accounts, such as Facebook, Instagram and LinkedIn, allows users to choose during their lifetime to have their account converted into a "memorialized" account once their death has been reported. The purpose of the account is to preserve the memory of the deceased by providing access to content published by the person during their lifetime. On Facebook, it is also possible to choose to have your account deleted as soon as your death is reported. However, the platform "strongly" advises discussing this decision in advance "with family and friends".

Actions on post mortem data: by heirs, beneficiaries or legacy contacts

When a person dies, the first post mortem action is to report the death to the platform in order to initiate the various steps mentioned above. They must then verify that the person has indeed died and request certain supporting documents such as a death certificate, proof of identity, an obituary, or any other document.

If individuals wish to take action, such as requesting the closure of an account or the deletion of data, the services ensure that the person making the request is an heir or beneficiary (if they have not been designated as a legacy contact). Each service determines the documents required for a person to be eligible to take these steps. Google, for example, requires a certified translation of documents such as a "court-certified letter of probate".

It should be noted that there are significant differences between each digital service. Even when a dedicated post mortem procedure is in place, it is not always easy for users to find. On X (formerly Twitter), for example, the account deactivation request form is included on a page about difficulties accessing accounts. You must first tick a box saying "I want to deactivate my account" before a new option appears: "Deactivate an account belonging to a deceased person". For other platforms, requests can only be made via the service's interface. Instagram, for example, requires you to have an account in order to make requests on behalf of a deceased person.

Post mortem interactions: third parties confronted with the digital traces of the deceased

In some cases, third parties may be confronted with the reappearance of data belonging to deceased persons, notifications about these persons, and sometimes suggestions to interact with their accounts. However, the major social networks have adapted to prevent this type of inconvenience, primarily with the memorial account feature. On Facebook, these accounts no longer appear in suggestions for people "you may know" nor in birthday

reminders or advertisements. On Instagram, memorial accounts no longer appear in certain spaces, such as the "explore" section.

On Telegram, account deletion is configured using an inactivity manager, which is controlled by the user but activated by default after 18 months of inactivity. However, a deleted account appears in the chat history as a ghost icon, regardless of whether the person is deceased or simply no longer uses the service.

In some cases, it is possible for a third party to moderate by reporting content relating to a deceased person. X (formerly Twitter) offered this feature at the time of the LINC's analysis in October 2024. A page called "deceased persons" provided information on content related to deceased persons, allowing anyone to report "excessively macabre" content or "media representing deceased persons shared for sadistic purposes". This did not necessarily refer to people who had an account on the social network, but concerned any representation of deceased persons. As of May 2025, this page no longer appears on the website.

In search of user studies

Although not exhaustive, this overview shows that users have access to a range of options, with different mechanisms depending on the platform. Even when two services offer similar options, such as "legacy contacts" or "memorial accounts", they are accessible in different ways, requiring people to find out about them on a case-by-case basis and adapt their requests for each platform. Managing data after death requires therefore a real effort.

However, this user experience issue has not been addressed by standardised practices in human-computer interaction (HCI) research. Some studies shed light on specific aspects of the user journey, such as a study of the semantics to be used in the event of death by the UK Department for Work and Pensions[65]. A single example of a reference framework[66] proposed in 2020 by the Aspen Centre for Political Technology, suggests a few criteria for implementing post mortem features depending on the type of service. While Facebook's scientific publications on memorial[67] accounts shed light on the development of this option, platforms do not publish their current user research on post mortem features. Scientific literature on this subject therefore remains sparse. Although researchers Michael Massimi and Andrea Charise called for the design of "thanatosensitive"[68] services in 2009 actively considering the mortality of their users, this has not yet been followed by concrete guidelines and widely recognised practices.

65 Simon Bramble, S. Designing content for people dealing with a death, *DWP Digital*, 6 February 2020,

66 Olivia Erickson, O. and Donnelly Krum, C., Digital Directive Design Toolkit, Principles for Building Safe, Simple, and Respectful Features for Posthumous Management of Online Accounts, Version 1.0,

67 Brubaker, J.R. and Callison-Burch. V. 2016. Legacy Contact: Designing and Implementing Post mortem Stewardship at Facebook. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). Association for Computing Machinery, New York, NY, USA, 2908–2919.

68 Massimi, M. et Charise, A. « Dying, death, and mortality: towards thanatosensitivity », *Proceedings of the 27th International Conference Extended Abstracts on Human Factors in Computing Systems*, 2009, p. 2459–2468.

– Focus –

Passwords: a recurring pitfall for heirs

Most services emphasise the protection of deceased users' privacy. However, when no specific post mortem procedure is offered to beneficiaries, the only way to close a deceased person's account is sometimes to have their login details. The help article provided by Discord summarises the options in order of ease of implementation: accessing the deceased user's account to delete it directly, using the email address associated with the account to change the login details, and, failing that, contacting the service's support team with a set of documents justifying the request.

This pitfall adds an extra layer of complexity to the challenges of password management, where users' varying practices are already a well-known[69] source of vulnerability. Providing for the transfer of data to another person in the event of death from a service linked to other secondary accounts is not enough to resolve this issue: "passwords and identification keys are not accessible by your legacy contact" when recovering data from an Apple account.

Information and help centers: bottlenecks in the user journey

Whatever the user's situation is, the first step is to find out about the options and procedures offered by the services, where they exist.

Out of the twenty services observed, no direct mention of the possible death of the user was found in the privacy policies: when the service provides specific information on this subject, it is mainly found on dedicated pages of the help centre or in FAQs. Facebook offers a multitude of help articles tailored to each type of user and procedure, while Google centralises all information and formzs on a single page, which can be navigated using multiple choices.

These information pages vary in content and tone of voice. The Yahoo! page, for example, alternates between references to "loved ones" and "account holders". Condolences are often offered, even though the page could be read by someone anticipating the future of their own data.

However, these information pages on the future of data are not systematic; thirteen of the twenty services analysed offer them. When they do exist, they do not guarantee that all user questions will be answered. Many refer to standard account deletion procedures, which are not suitable for situations involving death. The forums and comments on the help pages reflect the many questions users have and unresolved atypical situations.

69 De « azerty » à « pa$$word », une revue des pratiques de gestion des mots de passe, LINC, 2021,

Towards immortality?

The quest for eternity did not begin with digital technology. It appears in religions, but also very early on in fiction, an inexhaustible source of inspiration for the creators of digital immortality solutions. Technological advances have made it possible to go beyond the mere promise of memory and bereavement support to explore new avenues, already at work in religions or movements such as transhumanism.

Data in the afterlife

The preservation of data and memories offers the opportunity to maintain a connection with lost loved ones. With digital immortality, the aim is now to prolong life in a "digital afterlife" using data collected and stored during a person's lifetime.

As researchers Nowaczyk-Basińska and Kiel[70] note, immortality is no longer confined to religious beliefs; it has become a pagan concept: programmable, modifiable, personalised and interactive. The authors categorise attempts to experience digital survival in the afterlife into two forms of imagination. On the one hand, there is the "thanatological" imaginary, which corresponds to the experience of the death of others, when survivors themselves have to face the consequences of the death of a loved one. They may thus resort to digital artefacts to cope with, accompany or even overcome their grieving process. On the other hand, the "immortality" imaginary relates to the experience of people who envisage an immortal future, creating the means to produce a posthumous existence for themselves. Combined with developments in artificial intelligence systems, technological solutions offer hope to people who will implement them during their lifetime to counter death and imagine, in a way, that they will never die.

Digital immortality can be understood as "the pursuit of a digital presence after death, whether active or passive"[71]. It can be unidirectional, when it involves preserving a person's data in digital form, without any interaction with the outside world, and without this presence being designed to learn, adapt and evolve. This is static preservation, a "time capsule of a person". All services aimed at offering memorial spaces, or even avatars of the person, which are not intended to evolve, fall into this category. It is not so much a question of immortality as of freezing the person in time. Fanny Georges links this quest for digital eternity to the desire to "digitise the individual" in order to "preserve an imprint of their life in the quasi-genetic sense of DNA".[72] The bidirectional form, on the other hand, is dynamic, designed to evolve over time, interact with the living and learn from new experiences.

Adobe Stock

70 Nowaczyk-Basińska K, Kiel P. Exploring the Immortological Imagination: Advocating for a Sociology of Immortality. Social Sciences. 2024; 13(2):83.

71 Cavin-Baden, M., Burden, D. and Taylor, H. The Ethics and Impact of Digital Immortality, 2017,

72 Georges, Fanny. De l'identité numérique aux éternités numériques : la mort extime. L'usage des grandes bases de données personnelles après le décès des usagers. 2018.

A diverse range of "immortality solutions"

These thanatological or immortality imaginaries take various forms and have different uses in different societies. Most of the time, they involve giving form to the deceased person through voice alone, voice and image, or physically representing them in three dimensions.

From the first holograms to virtual reality avatars

The first recorded examples are holograms, recreating the form and voice of famous people and deceased artists.

In 2012, a hologram of Tupac Shakur, a rap artist murdered in 1996, gave a concert on one of the stages at Coachella, one of the largest music festivals in the United States. This was not augmented reality, but an optical illusion technique achieved through the use of semi-reflective plates, known as Pepper's Ghost. Other artists have been brought back to life in posthumous concerts, including Michael Jackson, Whitney Houston and Billie Holliday. In France, the television programme "Hôtel du Temps" brought stars back to life in the form of interviews with their digital reproductions, animated by voice cloning technologies[73]. These embodied holograms are not "bidirectional"; their words are not evolving and generated by AI such as a language model, but are taken in part from statements made during interviews during their lifetime[74]. The illusion here is visual.

These holograms, or digital twins, can now embody people in an unscripted way in virtual worlds. In Korea, for the documentary I Met You, broadcast in February 2020, the producers used data and artificial intelligence to reconstruct the avatar of a child who died of cancer at the age of seven. Her mother, equipped with a virtual reality headset, meets her in a virtual universe and interacts with her. The initiative attracted a lot of criticism at the time, particularly over the idea that such an intimate and private moment was being made public and seen by millions of people, with fears that it could lead to pathological forms of grief, particularly denial. However, in her blog, the mother explained that this was part of her own process of mourning and loss, and that it was not a question of imagining a continuing relationship thereafter[75].

From conversational agents to "deadbots": from sound, to image, to movement

In a domestic context, as an extension of "traditional" chatbots (which interact in writing) and technologies developed for voice assistants, users no longer interact with a search engine, as with Google Home, or with an online shopping platform, as with Amazon Echo, but with ersatz real people. These services are known as deadbots (if they involve a deceased person), griefbots (if the tool is designed to provide bereavement support), or even ghostbots.

One of the most significant examples is HereAfter.AI[76]. In 2016, when he learned that his father, who had cancer, was going to die soon, James Vlahos decided to keep him alive in a different way. He recorded hours of conversation with him, which he then used with AI systems to create a chatbot capable of answering questions about his father's life, using his father's voice. The personal project became a business and an app in 2019. In Korea, Deepbrain AI adds images to sound. It recreates an avatar from audio and video recordings of the person to reproduce their voice, face and movements, which it claims are "96.5% similar to the original person". According to company representatives, "most family members do not feel uncomfortable talking to the deceased, even if it is an AI avatar." Post mortem avatars are still quite expensive at this stage, with the entire process (filming and modelling) costing $40,000. This has not prevented the start-up from raising $32 million in funding.

While the use of deadbots may seem surprising, sociologist Fiorenza Gamba[77] notes that these AI-generated artefacts "transform absence into presence". The survivor can decide how long to mourn and how to say goodbye to the deceased, fill the void left by the death of a loved one, and express their emotions. She observes that people have always tried to maintain a connection with the dead through pagan or religious practices. These new devices are a continuation of these practices. She points to a debate in the scientific community between older studies that consider grief to be a finite process that must be completed in order to return to normality[78], and more recent studies that consider it possible to extend grief into a non-pathological form of connection with the deceased, maintained by the survivor according to their own requirements[79].

Large digital companies have also taken an interest in this market. In 2020, Microsoft obtained a patent for the

73 Face Retriever et Voice Cloning - développées par l'IRCAM (Institut de recherche et coordination acoustique/musique (Ircam), fondé par Pierre Boulez en 1974.

74 Renaud Machart, « Hôtel du temps », sur France 3 : l'éternel retour et les morts-vivants de Thierry Ardisson, *Le Monde.fr*, 2 mai 2022,

75 Gamba, F. (2022) . AI, mourning and digital immortality. Some ethical questions on digital remain and post mortem privacy. *Études sur la mort*, n° 157(1), 13-25.

76 Egon Cossou, The man who turned his dead father into a *chatbot*, *BBC.com*, 16 mai 2024.

77 Gamba F. (2022), Ibid.

78 Kübler-Ross, E. (1969). *On Death and Dying* (1st ed.). Routledge.

creation of conversational chatbots representing people, powered by images, voice, social media posts and messages. A 3D rendering was also envisaged. Just one month later, Tim O'Brien, then general manager of Microsoft's AI programmes, announced that the company did not intend to market this device, admitting that "yes, it's disturbing"[80]. Back in 2016, Microsoft had already ended the Tay experiment, a conversational robot available in the form of a Twitter account (now X), which after only two days had made racist and misogynistic comments, prompted by users testing its limits. Such comments could similarly be generated by deadbots representing deceased individuals, which could come from both training data sets and subsequent interactions.

More generally, a language model trained on large excerpts from a person's life will produce messages that reflect not only the person as they were at the time of their death, but also how they acted throughout their life, "including ideas they abandoned or prejudices they overcame"[81].

Thus, these different types of robots are not without risks, both for the people who use them and for those whose words or appearance they are supposed to reproduce. They can also be likened to video fake news (deepfakes).

The issue arose in 2025 in the United States, in a court where a man was on trial for homicide after a road rage incident. The deceased victim appears in a video to deliver a statement at the hearing. His sister, using voice recordings, videos, photos and AI systems, has produced a kind of avatar that comes to "forgive" the accused. Convinced that her brother would have reacted in this way, but unable to say so herself, she performs this ventriloquist act, which is very well received by the judge, who says he "loved this AI […] and heard the forgiveness". These uses already raise ethical and, ultimately, legal questions. A professor of ethics at Carnegie Mellon University, without questioning the sincerity of the approach, fears that not all uses of AI will be in line with the wishes of the victim[82].

Between nostalgia and deepfakes, uses that raise questions

Before the emergence of the "digital afterlife industry" (p.20), the market for family memories, and genealogy in particular, exploded. Digital technology has enabled the development of websites dedicated to the simplified production of family trees. Players in the sector have diversified their offerings in order to attract more and more users, in particular by using DNA tests to trace origins (not authorised in France)[83].

These same platforms offer features that play on the "afterlife". MyHeritage, in particular, launched "Deep Nostalgia" in 2021, which, in exchange for opening an account and a "licence transfer", offers its users the opportunity to transform a photograph of a person into an animated version. The site's FAQs specify that "this feature is intended for nostalgic use, i.e. to bring beloved ancestors back to life". While in its first version, voice overlay was not possible in order to prevent the creation of deepfakes (fake images representing real people)[84], according to the site, in an advanced version, "Deep Story", it is now possible to make this avatar speak.

Based on text provided by the user, who can choose the language and accent of the voice and then modify it as desired, the user obtains "a high-resolution video animating the person's face and mouth to speak, generating realistic lip-syncing". Although the site specifies that the aim is to create "biographical videos" of one's ancestors, and that users undertake to respect people's privacy, the feature is accessible without any control over the images uploaded to it. The post mortem data and features offered here, as is the case with the generalist platforms mentioned above, are not the platform's primary features, but contribute to expanding the registered user base through the interest they generate.

The way people perceive these developments

The devices devised by the digital afterlife industry are therefore part of a long history of practices involving communication with the deceased[85]. Rather than imposing themselves as a post mortem "revolution", it is possible to wonder whether these new devices are likely to be linked to practices that already exist among the population. However, while the literature is prolific on ethical issues (see below), it does little to question the more ordinary representations of the population with regard to these developments. In this context, the questionnaire survey commissioned by the CNIL (p.15) enabled us to outline these representations.

The main results of this survey indicate a reluctance to use AI systems to maintain contact with deceased loved

79 Neimeyer, R. A., & Thompson, B. E. (2014). Meaning making and the art of grief therapy. In Grief and the expressive arts: Practices for creating meaning (pp. 3–13). Routledge/Taylor & Francis Group.

80 Clare Duffy, Microsoft patented a *chatbot* that would let you talk to dead people. It was too disturbing for production, *CNN Business*, mercredi 27 janvier 2021,

81 Kate Lindsay, No One Is Ready for Digital Immortality, *The Atlantic*, july 2024

82 Sascha Garcia, « Je te pardonne » : aux États-Unis, une victime ressuscitée par l'IA s'adresse à son meurtrier dans un tribunal, *Libération.fr*, 8 mai 2025

83 Cnil.fr, Tests génétiques sur Internet : la CNIL appelle à la vigilance Cnil.fr, Tests génétiques sur Internet : la CNIL appelle à la vigilance

84 Jane Wakefield, *MyHeritage offers 'creepy' deepfake tool to reanimate dead*, *BBC*, 26 février 2021.

ones. Whether it is a question of authorising the use of one's own personal data to train an AI after one's death, or of interacting oneself with the AI of a deceased person, around three quarters of those surveyed do not seem attracted by these prospects. More specifically, when it comes to authorising loved ones to use their data after death, only 8% of respondents say they are "certain" they would grant this permission to their loved ones, while 20% consider it "likely". In total, just over a quarter (28%) of those surveyed would consider this possibility, confirming a general sense of reservation. We see much the same results when respondents are asked if they would be willing to feed an artificial intelligence system with content about themselves (photos, recordings, texts) during their lifetime so that their loved ones could continue to interact with them after their death. The rejection is therefore not linked to a lack of control over the data that would inform the system, but to the practice itself.

It is also interesting to note that rejection is even stronger when people are asked about their own potential interaction with an AI embodying a deceased loved one ("Could you use this type of artificial intelligence to 'communicate' with a deceased loved one?"). In this scenario, the proportion of "no, definitely not" responses increases by 5 points compared to the question about authorising the use of one's own data, and the affirmative response categories ("yes, definitely" and "yes, probably") lose a few points (1 and 4 points). It is therefore possible to hypothesise that the idea of being confronted with post mortem AI is even more repulsive than that of collecting one's own digital traces to enable loved ones to interactwith one'spost mortem alter ego.

In the wake of social disparities in digital practices, we observe an uneven propensity to accept these devices among the population. Men, young people, graduates and those who are very active on social media are the most likely to say that they could use them. At the same time, contextual factors seem to correlate with the acceptability of post mortem AI, with respondents who have children being 12% to 16% more likely to use, resort to, or contribute to these devices than those without children. People who have already had experience interacting with the online account of a deceased loved one are also 20% to 27% more likely than the sample as a whole to accept them.

Although rejection of these digital afterlife technologies appears to be widespread among the French population today, these correlations point to potential margins for "habituation." For example, the high level of acceptability among heavy social media users suggests that growing familiarity with the digital mediation of relationships and identities could, in the long term, make these devices less transgressive. Similarly, an individual's concrete exposure to digital death management, through increasingly frequent interaction with the online traces of a deceased person, is likely to act as a factor of acculturation, transforming an abstract question into an increasingly tangible issue that may call for technological solutions. Finally, the greater acceptability among parents shows that anticipating one's own death and concern for the transmission or post mortem support of one's loved ones can influence the positions of principle observed in the general population. In short, while reluctance towards these devices currently prevails, it is undoubtedly not set in stone and could evolve as digital technology becomes more integrated into life experiences and bereavement.

Between posthumous Privacy paradox and ethical questions

As we describe in Part 1 (p.6), the legal framework for post mortem data is the result of a form of arbitration between inheritance logic and the extension of the right to privacy and data protection after death. Other legal frameworks are applicable on a case-by-case basis, in particular the invasion of the privacy of heirs, etc.

However, several authors note that the development of uses relating to post mortem data, and even more so with the new developments made possible by AI, raise new ethical questions and may require an appropriate legal framework for some.

A new privacy paradox?

The term "privacy paradox" comes up very often when it comes to data protection and freedoms, with uses that can sometimes be controversial. In its common usage, this concept refers to the contradiction between individuals' stated concerns about the collection of their personal data and their practices of sharing information online. This paradox is often used to target younger populations, who are said to make poor use of digital technology. However, as we wrote in the 8th Innovation and Foresight Report[86], "our digital practices are rooted in social relationships and socio-economic structures. It is difficult for an individual to be data-conscious when the entire economy seems to be seeking to capture as much data as possible about that individual. The incentives to reveal oneself are constant, and network effects, which reinforce the concentration of activities on a few tools, make it particularly difficult to escape collective dynamics." Indeed, cutting oneself off from a social network means not only ending a contrac-

85 Henrickson, L. *Chatting with the dead: The hermeneutics of thanabots, Cover Image Media, Culture & Society*, juillet 2023.

tual relationship, but also ending relationships with the people who use those same networks.

In the context of post mortem data, this concept takes on a new form when it refers to the privacy of deceased persons, for whom the legal framework for data protection no longer applies, with some exceptions. The deceased are no longer the architects of this paradox, but suffer its consequences post mortem. While some of the services described above can be activated at the initiative of individuals in anticipation of their death, in pursuit of immortality, others will be fed by survivors and heirs seeking to give digital life back to those they have lost. In each case, new technologies and services known as "bidirectional" (p.20) are the ones that raise real ethical questions about people's memories. AI systems based on language models, for example, continue to evolve and produce discourse based on the exchanges they have with their users. It's not just about reproducing data and content anymore; the words and discourse attributed to the avatar of the deceased person may veer into areas that they would not have recognised. There are many examples of language models trained by users to reproduce sometimes reprehensible statements.

Rethinking the ethics of deceased persons?

In a context where the rights of the deceased have largely been formulated as the rights of the survivors, these new uses lead to the reformulation of new ethical questions, with a view to possibly adapting the law according to certain authors.

In 2019, the French National Digital Ethics Council (CNPEN)[87] addressed the issue in its opinion no. 3 on conversational agents[88], arguing in favour of regulating "deadbots" that "deliberately imitate the way a deceased person spoke or wrote". In particular, it recommended "conducting a societal reflection, an in-depth ethical reflection at the level of society as a whole", in order to arrive at "specific regulations" and "technical supervision" of these devices.

For Fiorenza Gamba[89], the issue of consent, but above all of "non-consent", calls for "urgent deliberations on the use and abuse of the images and identities of deceased persons, and consequently of their dignity". She adds that "the fundamental question in this regard concerns the human value of the deceased and the corresponding rights to their digital twin, their deadbots or their presence on the Internet." As early as 2018, Carl Öhman and Luciano Floridi proposed an ethical framework for the digital afterlife industry. According to them, "digital remains" should be considered as those of an "informational human body", which should be protected from commercial use. To this end, they recommend drawing inspiration from the ethical framework developed in the field of archaeology and museology, in particular the code of ethics of the International Council of Museums (ICOM), which stipulates that human remains must be treated in accordance with their inviolable "human dignity". As museums often sell and produce replicas of exhibited objects (human or otherwise), the code further specifies that "all aspects of commercial enterprise" must be carried out with respect for "the intrinsic value of the original object." According to them, a similar approach would clarify the relationship between deceased individuals and the companies that hold and display their data.

For some, individuals could even suffer anticipatory harm during their lifetime in relation to the use of their data after death, if it were to be fed into a deadbot, and may self-censor (chilling effect) for fear that a secret might be revealed after their death[90]. Based on these observations, lawyer Edina Harbinja argues for a right to data protection and privacy after death, and for new rights to be developed in relation to digital immortality practices[91].

Towards a right not to become a robot

Since the right to data protection is based on the paradigm of informational self-determination during a person's lifetime, some authors believe that similar rights could be granted to people after their death. People could then acquire the right to control the recreation of their personality after their death. To this end, it might be possible to include a request in a will not to become a robot[92] ("do not bot me"[93]). In addition, heirs could obtain an exclusive right to create deadbots, or to authorise their creation. Heirs would have the right to prevent anyone else from creating competing versions, including celebrity fans.

Such an approach would require technical and governance solutions to be put in place for its implementation, such as a register of requests from deceased persons that could be consulted by industry players. At present, however, there is no transnational system that would allow death certificates to be recognised between jurisdictions electronically and automatically.

Professionalising support

86 Cahier IP8, Scènes de la vie numérique, p. 18.

87 Devenu « Comité consultatif national d'éthique du numérique – CCNEN » en 2024.

88 Conseil national pilote d'éthique du numérique (CNPEN) , Avis n°3 - Agents conversationnels : enjeux d'éthique.

89 Gamba, F. (2022), Ibid.

for digital death?

According to Katarzyna Nowaczyk-Basińska of the Centre for the Future of Intelligence at the University of Cambridge, regulatory solutions such as those proposed above remain possible options in response to the development of the digital afterlife industries, but they cannot be implemented without a process of professionalising support[94].

While the sector has been built largely on economic considerations, the researcher would like to include a model of social innovation, which would involve a new role: digital afterlife leaders, inspired by healthcare professionals and potentially modelled on data protection officers for the regulation of personal data. This idea first appeared in 2013 in a forward-looking exercise conducted by a consulting firm, which asked its employees to draw up a list of new jobs that could emerge before 2025. Among these was the role of "digital death manager", based on the idea that with the growing trend towards recording our digital lives, everyone, not just celebrities, might need help managing their digital legacy[95]. Although this projection was rather optimistic in its timeframe, as we have seen, it is still a niche sector, and future developments could argue in favour of this professionalisation of support services.

According to Nowaczyk-Basińska, the portfolio of activities of these digital afterlife leaders could cover four areas. First, they could provide legal and ethical expertise to address the major issues related to digital death, in a context where the legislative field varies from one state to another. Secondly, they could respond to the psychological needs of their clients, acting as mediators by translating the different expectations of families, while representing the deceased. They would need to have an excellent understanding of digital technologies, stay up to date with the latest innovations, and develop in-depth knowledge of the sector. Rather than selling products and services, their role would be to provide analysis and support, as well as warning of potential negative consequences. Finally, the researcher suggests that they should raise awareness among users and clients about these technologies, to "inform without alarming", using language that can be understood by everyone.

These "support" advisers should also act with a certain degree of autonomy, either as part of larger organisations or as independent experts. Some associations are already offering the beginnings of digital afterlife support. For example, the Digital Legacy Association, launched in 2015 in the United Kingdom, which describes itself as "the only professional body dedicated to digital assets and digital legacy", offers tools to support individuals[96]. However, the professionalisation of this new function would raise the question of its funding and economic model. The role of data protection officers has been made mandatory by law for certain organisations. In this context, a model would need to be found.

90 Davey, T. *Until Death Do Us Part: Post mortem Privacy Rights for the Ante-mortem Person* (PhD thesis, University of East Anglia, 2020);

91 Edwards, L. and Edina Harbinja, E."Be Right Back": What Rights Do We Have Over Post mortem Avatars of Ourselves?', *in Future Law, Emerging Technology, Regulation and Ethics* (Edinburgh University Press 2020)

92 Edwards, L., Harbinja, E and McVey, M. *Governing Ghostbots* (2023)

93 This name refers to the "Do Not Track Me" project, a browser extension designed to block trackers.

94 Nowaczyk-Basińska, K. (2025). Digital afterlife leaders: professionalisation as a social innovation in the digital afterlife industry. *Mortality*, 1–22.

95 Ben Schiller, 8 new jobs people will have in 2025. Futurism forum, *Fast Company*, 15 août 2013,

96 The Digital Legacy Association, https://digitallegacyassociation.org/

– Focus on –

Cybernetics and transhumanism: retro-futuristic versions of digital immortality?

The end of entropy or the death of death: from cybernetics to transhumanism

The interface between digital technology and death has its roots in the second half of the 20th century, with the birth of cybernetics and, a little later, transhumanism[97]. The relationship with death permeates both movements.

Cybernetics defines the fight against entropy as central: a law which, in its microscopic sense, leads us to consider that energy tends to disperse and causes systems to gradually degrade until death. It focuses reflection on the limits of the human machine, the body, whose behaviour is mechanical and which it considers to be a "superfluous" instrument, unlike the mind.

In L'adieu au corps (1999), sociologist and anthropologist David Le Breton revisits the seminal work of this school of thought, Cybernetics (1948), whose author, Norbert Wiener, "is undoubtedly the first to blur the boundaries between automatons and living beings"[98]. The body is considered merely as a series of replaceable parts, with prostheses that would do more than replace limbs, but could enhance the human being.

It was on these reflections that transhumanism was built in the 1960s and 1970s, initially developing around the idea of ending death[99]. In 1972, Robert Ettinger published Man into Superman, one of the founding works of the transhumanist movement, in which he promoted cryogenics[100] (he had himself cryogenically frozen upon his death in 2011). Wounded during the Second World War, he owed his recovery to a new bone marrow transplant technique, which convinced him that "medicine will be able to solve any problem, including that of death"[101].

Other figures carried on this movement in the 1970s and 1980s, first the author Fereidoun M. Esfandiary, who called himself FM-2030, the date on which he believed we would achieve immortality, then Max O'Conor, who took the name Max More ("Plus" in French) – who formalised the transhumanist movement around the magazine Extropy, launched in 1989.

The movement then underwent changes: Max More's extropian trend lost its influence. Two Swedish academics, Nick Bostrom, a philosopher, and Anders Sandberg, a neuroscience researcher, became the movement's ambassadors. In 1998, Bostrom registered the World Transhumanism Association (renamed Humanity+ in 2008) and became the spearhead of transhumanism, seeking to establish the movement on "a broader, more academic and more international ideological foundation"[102]. In 2005, he published The Tyrant Dragon, a short story featuring a man-eating dragon, a symbol of ageing that must be fought against[103]. In its 2009 transhumanist declaration, the association envisages expanding human potential, overcoming ageing and confinement on planet Earth[104].

97 "The emergence of transhumanist ideology should be viewed in the context of the technophile culture of 1960s and 1970s America, marked by the conquest of space and the genesis of cyberculture, which emerged from part of the American counterculture.", *Le Transhumanisme* (Que sais-je ?), Nicolas Le Dévédec, 2024

98 Le Breton, D. (1999). *L'Adieu au corps.* Éditions Métailié.

99 "[…] Among all transhumanist utopias (colonising space, increasing our physical and cognitive abilities, using technology to solve major social and ecological problems), one plays a structural role: the aspiration for a prolonged, even infinite life." Damour, F. (2018). Le mouvement transhumaniste. Approches historiques d'une utopie technologique contemporaine. Vingtième Siècle. Revue d'histoire, 138(2), 143-156.

100 Robert Ettinger, *The Prospect of Immortality* (1962)

101 N. Le Dévédec, Ibid.

102 N. Le Dévédec, Ibid.

103 Nick Bostrom, La Fable du Dragon-Tyran.

104 (2018). Les déclarations transhumanistes de 1998, 2002 et 2009. Transhumanisme : Quel avenir pour l'humanité ? (p. 187-197). Le Cavalier Bleu.

The end of the body, but life in the machine

In both cases, technology is called upon to push the limits of man or compensate for his weaknesses. Cyberneticist Wiener goes so far as to develop the idea of erasing the latter in favour of the mind, and theorises the idea of "downloading" it to a new computer machine. The idea was taken up by Ray Kurzweil, who founded the Singularity University for this purpose before being recruited by Google in 2012. He wants to gradually free himself from the biological body and achieve a digital body, "the body 3.0"[105]. The aim is to compensate for the brain's shortcomings, such as memory, by "connecting" the individual to record their life using external devices (connected objects, glasses, bracelets, etc.) or even implants. Thus, "the digital elements of the implant could in principle be connected to any external software or hardware. This could enable improvements such as access to software, the Internet and virtual reality applications"[106].

This idea of life outside the body can be found in transhumanism. Notably in the writings of an 'extropian', David Ross, who sees software as a receptacle for the human mind, recreating a system of neurons and synapses similar to that of the brain. This would open up access to cyberspace for humans, giving them the possibility of multiplying and saving themselves – while ensuring that they choose the "right technology" that will not fail, as Marvin Minsky, a researcher in artificial intelligence, wrote in 1989[107]. The various chatbots and AI programmes designed to 'recreate' us appear here as a precursor to this ideal, before direct interoperability between the brain and the machine. This is the path that Elon Musk has embarked upon with Neuralink, which aims to develop a device implanted in the brain that can directly interpret neural signals and interface with connected objects or other digital devices.

The role of big tech companies

In general, the leaders of large tech companies seem quite receptive to this ideology. Historian Franck Damour cites a symposium organised by the transhumanist think tank Future of Life Institute, which brings together academics and representatives of digital giants such as Yann Le Cun (Facebook), Elon Musk (Tesla/SpaceX), Larry Page (Google)[108]; or the 2045 initiative, launched in the early 2010s by Russian entrepreneur Dmitry Itskov, which aims to transplant the brain into an artificial, connected brain, a digital avatar, potentially holographic, and therefore "immortal".

This can also be seen in the direction taken by large companies. Google has invested the most in this field, driven by its co-founder, Sergey Brin, who is committed to transhumanism. In parallel with the recruitment of Ray Kurzweil and investments in 23andMe, which offered genetic testing to the general public, the firm developed projects such as Verily (formerly Google Life Sciences), which specialises in life sciences research. In 2013, it launched Calico (California Life Company) to combat human ageing and associated diseases, prompting Time magazine to ask on its cover: "Can Google solve death?"[109].

105 Caccamo, E. et Bonenfant, M. (2021). Rhétorique des discours transhumanistes : arguments et fondements discursifs. *Communication & langages*, 210(4), 5-31.

106 Bostrom, N., & Sandberg, A. (2009). Cognitive enhancement: methods, ethics, regulatory challenges. *Science and engineering ethics*, 15(3), 311–341.

107 Whole Earth Review, Summer 1989, cité dans *L'Adieu au corps*, David Le Breton

108 Damour, F. (2018), ibid.

109 Avec Calico, Google veut s'attaquer à la vieillesse et à la maladie, *Le Monde*, 18 septembre 2013

The materiality of digital death

While we imagine ghosts as gaseous creatures, devoid of any materiality, the reality of practices associated with digital death relies on physical technical infrastructures. Individuals themselves can implement strategies to preserve their own data during their lifetime, or the data of deceased loved ones, sometimes with the desire to preserve everything. Similarly, the digital solutions used for backup and "digital survival" require maintenance to continue functioning. This raises questions about the materiality of digital death.

Individual practices for preservation

Differentiated data preservation strategies

Ordinary practices for preserving digital personal data are a complex and little-explored phenomenon. Through our survey (p.15), we were able to gather figures that highlight a tension between, on the one hand, technological developments that facilitate or even stimulate the capture and storage of content and, on the other hand, users' sustained attachment to this content, which makes the work of sorting and "memory curation" difficult.

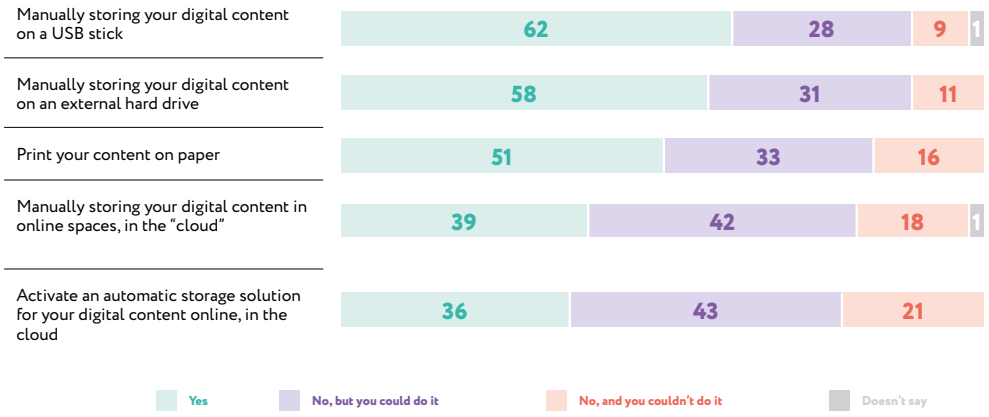
Indeed, we can see that the loss of digital content is a common phenomenon: 81% of respondents to our survey say they have already lost data. This loss particularly affects those who are most active on social media and younger people (90% of 25-35 year olds, 88% of 18-24 year olds), suggesting that loss is correlated with the intensity of digital use. Our survey also shows that technical expertise does not protect against loss (82% of users who describe themselves as "competent" say they have been affected by content loss). The feeling of exposure to loss is therefore less a question of technical know-how than the result of increased exposure to digital technology and attachment to the content produced.

Faced with these risks, the preservation strategies observed in our survey vary and are strongly influenced by age: USB sticks are the most popular solution, followed by external hard drives. Cloud computing, although technically advanced and theoretically practical (unlimited and easily accessible storage), shows adoption divided by age and technical proficiency (50% among young people, 45% among those who describe themselves as "proficient" versus 17% among others).

Mirroring digital memory, analogue technology continues to play an important role. In our survey, paper printing in particular remains popular across the board (around 50%). Sometimes, people scan physical objects (such as old printed photos or documents) so that they can be stored and shared online (on memorial pages, for example). A British company, Digital Memory Box, created

Adobe Stock

Have you already implemented each of the following solutions to prevent the loss of digital content (photos, videos, personal documents, etc.)?



Toluna/Harris Interactive - CNIL - 2024

by British philosopher Debra Bassett, who originated the concept of Second Loss, offers to digitise VHS tapes and slides for storage in a "memory capsule". Conversely, we can observe practices of rematerialising digital media, for example by printing digital photos[110].

The smartphone acts as a bridge between memory through objects and through digitised data. In particular, it becomes a "memory prosthesis" offering us infinite capabilities for remembering[111], which respondents do not seem to want to actively distance themselves from. The telephone, as an object, can be the focus of particular attention because of the data it contains. The number itself can be kept: bereaved people may continue to pay for a deceased person's subscription in order to keep messages and their number, to maintain a link[112].

The survey also shows that only a minority of respondents (24%) are uninterested in or plan to deactivate the "photo memories" functions on their phones. The motivations for using these functions, which differ according to age (personal remembrance among older people, social sharing among younger people), show that these tools are part of the value placed on continuous memory[112].

The Digital hoarding syndrome

The book *Mort de la photo de famille* (Death of the Family Photo) already pointed to the transition from a selective family memory structured around the album to a memory that is sometimes almost complete[113]. This massive preservation potentially challenges the selective forgetting necessary for the narrative construction of the self[114], echoing "digital hoarding" ("digital syllogomania" or "digital Diogenes syndrome"). This concept can be defined as the capture, excessive preservation and difficulty in deleting digital content, even useless content, leading to clutter and stress[115]. This trend, amplified by the relative invisibility of digital accumulation compared to physical accumulation, delays awareness and action.

While accumulating data is easy, deleting it in practice can be complex. As we saw in Part 4 of this report, beyond technical skills, it is necessary to move beyond individual responsibility to address real public issues related to interfaces, settings, awareness and digital rights in order to give individuals back control over this accumulation.

Infrastructure

110 Brun, Victoria et al. « Quand le numérique matérialise le défunt : les données post mortem dans le processus de deuil ». *Études sur la mort*, 2022/1 n° 157, 2022. p.27-40.

111 Nicolas Nova, *Smartphones. Une enquête anthropologique*, Genève, Métis Presses, 2020

112 Ibid.

113 Jonas, Irène. *Mort de la photo de famille ? : de l'argentique au numérique*, L'Harmattan, 2010.

114 Doueihi, Milad. *Pour un humanisme numérique*. PatriMoine Culturel iMMatériel et nuMérique, 2011.

115 van Bennekom, M. J. , Blom, R. M. , Vulink, N. , & Denys, D. (2015). A case of digital hoarding. Case Reports, 2015 ; Sedera, D. , Lokuge, S. & Varun Grover, V. , Modern-day hoarding: A model for understanding and measuring digital hoarding, *Information & Management*, Volume 59, numéro 8, 2022.

maintenance and data retention

Between data preservation, the development of solutions for maintaining memory, and communicating with the afterlife, digital death owes its survival to digital infrastructures that must be maintained. It also leaves an environmental footprint that goes beyond our memory alone.

Maintaining digital death

Preserving the memory of loved ones or keeping their avatars alive over time (through a deadbot, for example) inevitably encounters the pitfalls shared by all digital devices: dependence on storage infrastructure, physical components (materiality) and software – which also raises the question of cost and economic stability. Sociologists Jérôme Denis and David Pontille explore this question – beyond the digital aspects – of maintenance in their book *Le soin des choses*[116]. In it, they examine "the art of making things last", which raises several issues: fragility, the fight against time, the necessary expertise and the conflicts that may be associated with it.

Offers proposed by start-ups, some of which may pivot towards new offers or simply disappear, contradict the promise of eternity. The "second loss" can thus be the consequence of an economic model that is not viable over time or of a physical infrastructure that requires maintenance (obsolescence, physical deterioration of components) – and which is not immune to incidents. This can happen both in real life (fire, earthquake) and in the digital world (bug, cyberattack). At the same time, replacing "parts" is just as necessary as updates, particularly for security reasons. Jérôme Denis and David Pontille clearly show that these two tasks are not simple: maintenance requires expertise, which must also be maintained over time (the example of the Cobol programming language illustrates this[117]), but can also lead to a whole system of tinkering. In the case of an avatar service, for example, how long can it be maintained if the organisation that provided it has gone out of business? How long before an operating system update renders it unusable? Or before the lack of updates makes it a vulnerability for the terminal?

Added to these issues is that of unpredictability, which the two authors illustrate in particular through the case of a Saturn observation satellite, which continued to transmit information after the end of its mission for several years, forcing researchers to put in place strategies to continue processing the information and take advantage of the opportunity until its disintegration[118].

Space (disc) occupation

Funeral rituals have undergone significant changes in recent years. Cremation, which accounted for only 1% of funerals in France in 1980, has grown steadily to reach nearly half of all funerals (46%) today, as reported in an OGF-IGF Ipsos study conducted in March 2024[119]. This rate is even higher in some neighbouring European countries, at 90% in Switzerland, 80% in the United Kingdom and 74% in Belgium. The choice of cremation is most often made by the person themselves during their lifetime, in 85% of cases. When heirs have had to choose a type of funeral, 15% have chosen cremation for environmental reasons[120]. A study commissioned in 2017 by the City of Paris Funeral Services stated that burial was more polluting than cremation[121]. Among the other reasons for this choice, in an OpinionWay survey conducted in 2023[122], 53% of people said they did not want to be a burden on their family after their death. Manon Moncoq, a funeral anthropologist, notes that this "choice of cremation, motivated by environmental, philosophical or personal reasons, thus becomes a way of affirming one's identity through one's last wishes".

At the same time, practices associated with digital death (p.10) or digital immortality (p.30) mostly consist of occupying disk space in data centres, when they do not involve running machines to produce interactions with deadbots or avatars. People's environmental footprint therefore tends to extend beyond death.

In the physical world, the standard for a cemetery plot is a twenty-year term from the time of death, with the possibility of extension or, in some cases, the preservation of family vaults. As the physical space of cemeteries is not expandable, rules have been put in place to mitigate the risk of excessive expansion. But what about online when it comes to disk space?

What appears to be a divergence in practices is part of a context in which, as we explore in Cahier IP 9 Data, Footprint and Freedoms, the environmental footprint of digital technology already accounts for nearly 4% of global emissions and could increase further in the years and decades to come. While there is a trend towards a certain form of sobriety in "physical" practices, some new digital

116 Jérôme Denis et David Pontille. *Le soin des choses. Politiques de la maintenance.* Paris, La Découverte, 2022.

117 Pierre-Loeiz Thomas, Le secteur bancaire manque de spécialistes du cobol, un code informatique vieux de 64 ans, *Le Monde*, 23 mai 2023

118 "[The probe] continued to exist and function beyond the programmed limits of its "theoretical lifespan", carefully calculated by the small team that had designed, built and sent it into space." - Jérôme Denis et David Pontille, ibid.

uses, particularly those known as digital immortality practices, have the effect of extending people's environmental footprint beyond their lifetime, even if only marginally.

If, as the CNIIL survey shows, the majority of people do not want their data to be stored after their death, or only partially, the question of the materiality of digital technology, and digital death in this case, must be addressed in a context where we are producing more and more data throughout our lives.

119 OGF, La crémation en France : un choix de plus en plus plébiscité, octobre 2024,

120 85 % pour respecter les volontés du défunt, 59 % pour la simplicité d'organisation et les aspects pratiques, 49 % pour des motifs financiers

121 Fondation services funéraires de Paris, Etude sur l'empreinte environnementale des rites funéraires : inhumation vs crémation, octobre 2017

122 Christophe Henning, Pourquoi la crémation est privilégiée par près d'un Français sur deux, *La Croix*, 31 octobre 2023

– Zoom on –

Personal data as historical heritage

The democratisation of digital technology has led to an unprecedented expansion in the amount of traces left by anyone who publishes, shares or even "likes" content online. From personal web pages in the 1990s to blogs and then social networks, this "user-generated" content has fuelled the web, as have less visible traces in the form of metadata.

The consumer Internet is unique in that it has developed alongside an awareness of its volatility due to its dynamic nature. In 1996, Brewster Kahle founded the *Internet Archive* in the United States with the goal of "preserving human knowledge and making it accessible to all." The aim is to preserve interactive versions of web pages with their network of hyperlinks, as well as texts and software as they are published. The *Wayback Machine* website, launched in 2001, functions as a time machine for discovering earlier versions of websites. Among civil society initiatives, the EternesIA project plans to create a foundation for the creation of an eternal database, in which those who wish to do so could leave a selection of digital traces of their lives[123]. The aim would be to "include every existence within the intangible heritage of humanity".

In France, the Bibliothèque nationale de France (France national library, or BnF), which received its first donations of website copies in 1992, made its first web capture in 2002 during the presidential election, then partnered with the *Internet Archive* to undertake preservation. The 2006 law on copyright and related rights in the information society (DADVSI) extended legal deposit to web archiving: the National Audiovisual Institute archives radio and television websites, while the BnF is responsible for the entire ".fr" domain. These collections are compiled "manually" by a network of librarians at the BnF and in partner libraries.

The collection can cover all types of websites and extend to more personal spaces such as blogs or even public conversations on social media, depending on choices made based on current events. While not everything is preserved, the BnF exceeded 60 billion URLs in 2023. In the same year, more than 12 million Skyblogs that were still active were deposited at the BnF before the platform was shut down[124], joining the collections after their authors had been informed of their right to object. These archives can be consulted by associated researchers at the BnF or in certain associated libraries.

As pointed out by paleographer and archivist Emmanuelle Bermès, the goal of preserving digital cultures, "perceived as volatile," is part of a relationship with time "that can be described as presentism[125]," with the creation of a "history of the present." In this context, personal data feeds into heritage and the creation of commons. Their uses, forms of mediation, and exploitation by AI systems raise new questions, which the CNIL will explore in October 2025 at an event and in an ethics report entitled *air2025: Intimacy of the deceased, memory of the living*[126].

123 Sarah Boucault, Dominique Pon, le directeur de clinique qui veut rassembler la mémoire de l'Humanité, *Usbek & Rika*, 5 août 2021

124 BnF.fr, La Bibliothèque nationale archive les Skyblogs.

125 Emmanuelle Bermès, *De l'écran à l'émotion - Quand le numérique devient patrimoine*, Ecole Nationale des Chartes, Paris 2024.

126 CNIL, air2025, https://www.cnil.fr/fr/air2025

Ways to raise awareness of the legal and ethical issues surrounding post mortem data

One might think that the fate of post mortem data has been sealed in Europe with the entry into force in 2018 of the GDPR, which does not apply to the data of deceased persons. As we have seen, the reference to national law in the text has resulted in a patchwork of legislation where it exists, with different approaches depending on the Member State.
The wide variety of use cases described in this report, from managing one's own data during one's lifetime to creating avatars, raises a number of legal and ethical issues that we have attempted to address. Within the existing legal framework, we propose a series of recommendations for the various stakeholders.

Raise public awareness of the future of their personal data

Remind people that they have rights regarding post mortem data

While the General Data Protection Regulation (GDPR) does not apply to the data of deceased persons, Article 85 of the French Data Protection Act allows individuals to give instructions on what should happen to their data after their death.

These instructions regarding the storage, erasure and communication of personal data after death may be specific, when they concern a particular service (data controller), or general for all data relating to the individual. As we specify on page 7, the decrees relating to general instructions have not been published. However, this right remains effective since anyone can contact other trusted third parties directly to record them, such as a notary. It is therefore still possible to set out one's wishes regarding the management of one's data in a will and to designate a person who will be responsible for implementing them as specified in the will.

In the absence of directives or wills, the person's heirs may access certain data, receive communications of digital assets (files, sounds or data), close accounts or object to certain processing operations. French law thus offers everyone the possibility of retaining control over their data after death.

Adobe Stock

Raising awareness and encouraging the public to manage their data ante mortem

With the development of social networks, messaging services and online storage, people are increasingly confronted with post mortem data, either because they have to manage it or because they see data belonging to deceased persons being displayed. Nearly a third of those surveyed in our November 2024 poll said they had been exposed to content posted from the account of a deceased person, mainly among those under 34. As the generations that grew up with digital technology age, this percentage will inevitably increase for the general population.

Despite this growing familiarity with digital death, the management of this data is not yet a matter of course. People are not always aware of the existence of ante mortem settings in digital services – where they exist – for designating a contact legatee, for example, or for deleting an account. This is in a context where managing the accounts of deceased persons can be a source of stress, or even conflict, for heirs or beneficiaries. People should be encouraged to think about the future of their accounts and reminded that, in France, the Loi Informatique et Libertés (Data Protection Act) provides for the possibility of defining specific guidelines for the services they use (data controllers), subject to consent.

The CNIL, in particular, provides information and links to the settings pages of several digital services on its website, which can be updated regularly. This report also aims to raise awareness of the issue. Other stakeholders could use this work to raise awareness among different audiences. In 2024, as part of a challenge launched by SIILAB[127] at the Sciences Po Paris Public Policy Incubator, students proposed a possible solution: France Services agents, trained in the subject, could conduct an "interview with bereaved families to help them manage their loved one's digital data[128] ". This type of initiative could complement the support services now included in funeral insurance contracts.

While it is understandable that people do not want to think about their own death, especially when they are young, addressing these issues would serve to ease the burden on those left behind. They also offer a way for everyone to preserve their legacy, as well as their privacy after death.

Promoting "digital hygiene" practices

Our memories were previously limited by our physical storage capacity for documents, objects and photographs, which was itself limited by the need to purchase 24 or 36-exposure film. The advent of digital practices and, even more so, the availability of virtual storage media provided "free of charge" by the major storage players has, as we pointed out in the 9th issue of the Innovation and Foresight Reports, "given users the illusion of infinite storage, meaning that they no longer feel the need to sort, classify or delete their photos". At the same time, our survey reveals that 80% of respondents say they have lost data at some point. These digital traces concern not only files, but also our conversations and exchanges on social networks, messaging services, etc. The data we produce, particularly photographs, have become objects of conversation before they are objects of memory. We are increasingly communicating through images, written messages and now voice messages.

Upon a person's death, heirs and beneficiaries may find themselves having to manage this wealth of data, once they have retrieved it. Without questioning the value of the various traces of digital life, their overabundance limits their human use. It would therefore be interesting to promote new forms of digital hygiene, consisting of individuals cleaning up their storage spaces as they go along, just as one sorts through a wardrobe, to keep only selected memories. Everyone could thus apply a retention period for their own data, similar to what is imposed by personal data protection legislation on data controllers (private and public organisations).

Alongside commercial offerings such as the Digital Memory Box (p.42) and digital safe services (p.22), practices such as the use of ephemeral messaging features and regular sorting of images and documents should be promoted. These practices could be enforced by setting limits on storage space, closing and deleting data from unused accounts, etc. The purpose of these sorting operations would not only be to delete documents, but also to preserve data of interest, which would probably be lost in the flood of data to be processed upon the person's death. Digital services could encourage this sorting through dedicated guides and features.

Such actions have a positive impact during the person's lifetime, as by limiting the amount of personal data available online, they help to preserve their personal data and privacy.

127 Laboratoire d'innovation porté par la Direction régionale de l'économie, de l'emploi, du travail et des solidarités (DREETS) des Hauts-de-France

128 YouTube, Le dernier clic - Défi proposé par SIILAB (labo porté par la DREETS Hauts-de-France),

Considere the environmental footprint of post mortem data management

All of these practices are part of broader measures aimed at reducing the environmental footprint of digital technology. We explored these issues in a previous Innovation and Foresight report, published in 2023[129]. The figures show that terminals (79%) contributed more to the digital footprint in 2020 than data centres (16%) and networks (5%). However, in a context of growing digital usage, the increase in the number of data centres and their use automatically leads to an increase in their footprint, according to the Arcep and ADEME survey "Pour un numérique soutenable" (Towards sustainable digital technology) published in 2025[130]. Greenhouse gas emissions from data centres in France increased by 11% in 2023, their electricity consumption by 8%, and the volume of water used for cooling by 19%. These figures can be linked to a study by the Oxford Internet Institute, which predicted in 2019 that by 2070, the number of accounts belonging to deceased persons would exceed the number of accounts belonging to living persons on Facebook[131] .This is in a context where, in France in particular, plans to set up ever more powerful data centres are expected to go ahead. The increase in footprint is not the result of an increase in data storage, but increasingly of the associated computing capacities required to train and use AI systems, particularly generative AI, on which deadbots are based.

While it is legitimate to want to leave traces of one's passage, any practice aimed at no longer considering the digital world as an immaterial space with infinite limits is part of a global consideration of digital issues. Good data management during one's lifetime can help to ensure that we do not leave behind new forms of digital waste.

Encourage the development of understandable user journeys

Promote the creation of design standards for user experience

Most digital services and major platforms have implemented features to enable their users and/or customers to plan the management of their personal data during their lifetime. However, the analysis of "the user experience of digital death in 2025 " (p.24), carried out by the CNIL's Digital Innovation Laboratory, has shown that the way in which these features are presented, how they work and their heterogeneity from one platform to another do not facilitate the procedures for those concerned during their lifetime or for their beneficiaries.

This is in a context where practices relating to post mortem data have not been "standardised" in Europe or worldwide. The GDPR has established a general framework for transparency, information and associated rights with regard to personal data.

Although "the law differs" (p.4), it would be possible to encourage more uniform practices for the management of such post mortem data. Research in the literature has shown us that there is little specific work on these issues (p.28). The aim would be to promote and encourage the sharing of good interface design practices, not only by the platforms themselves, but also with designers, researchers and civil society, in order to design models of digital death user experience that are understandable and accessible to people.

Clarify legal issues relating to beneficiaries and mandates for deceased persons

One of the key issues in managing post mortem data, especially when the person has not designated a legatee or given instructions during their lifetime, remains the ability of individuals to assert their status as beneficiaries or heirs with digital services. Sometimes, it is the companies they have appointed, the "information management and funeral planning services" (p.20), that have difficulty gaining recognition from platforms. The CNIL regularly

129 Cahier IP9, Données, empreinte et libertés - Une exploration des intersections entre protection des données, des libertés, et de l'environnement, CNIL, 2023

130 Arcep, Enquête « Pour un numérique soutenable », édition 2025.

131 Öhman, C. and Watson, D. Are the Dead Taking Over Facebook? A Big Data Approach to the Future of Online Death (2019). *Big Data & Society.*

receives requests on this subject, whether they are calls from individuals, complaints or requests for advice from appointed companies.

These frictions were also noted during the analysis of the user experience for "actions on post mortem data: by heirs, beneficiaries or legatees", where significant differences were found between services and platforms in terms of the procedures and documents required to assert one's rights. Some platforms even require users to have an account in order to carry out procedures, or offer no alternative when the beneficiary does not have the deceased person's login details and passwords.

The CNIL could publish content to remind these services of their obligation, in accordance with Article 85 of the Data Protection Act, to allow heirs to exercise their rights.

Difficulties are also encountered by companies appointed by the heirs to assert their rights, particularly in terms of being recognised by the service as such. The conditions under which agents can act on behalf of the beneficiaries should be clarified.

Preventing risks associated with the use of AI on post mortem data

Paving the way for better control over the use of one's data by AI

New uses made possible by artificial intelligence systems, particularly with the development of large language models (LLMs) such as ChatGPT, Gemini and Claude, have opened up new avenues for the quest for immortality already at work in transhumanist movements (p.38). Conversational agents designed to reproduce the speech of deceased individuals, known as deadbots, can be used both by individuals during their lifetime, who choose to work towards their immortality by providing these agents with training data sets, and by third parties – often relatives – who feed these artificial intelligence systems with post mortem data from the individual in order to 'bring them back to life".

These practices are not without risk for the memory and legacy of the deceased, leading for some to new forms of privacy paradox (p.35) and the risk of these deadbots becoming autonomous, evolving in a way that does not correspond to how the deceased person would have expressed themselves (p.33).

People wishing to use these devices, either for themselves or for others, should be systematically informed of the specific risks associated with them. Everyone should have the opportunity to control the future of their words (in this case, the use of their data to train a language model), both during their lifetime and after their death. Researcher Edina Harbinja advocates the creation of a right not to be botified (do not bot me), so that everyone can signal their refusal to have their data used by such tools (p.36). According to her, this would involve setting up internationally recognised technical mechanisms to signal people's intentions. While the researcher concedes the difficulty of making such a measure applicable on an international scale, it must nevertheless remain possible for everyone to express such wishes. The French National Digital Ethics Committee (CNPEN)[132], in its 2021 opinion[133], calls for new rules to be defined "concerning the consent of the deceased person, the collection and reuse of their data, the operating time […], the terminology used, and the name given to it, or even the specific conditions of its use".

Under current law in France, Article 85 of the Data Protection Act paves the way for general and specific guidelines for digital platforms and services. Specific opposition systems could be offered to their users by platforms that collect and process large amounts of personal conversational data.

As a reminder, in 2025, the CNIL published practical AI fact sheets, in particular on how data controllers can respect and facilitate the exercise of the rights of data subjects, on AI models, and on training sets[134].

Preventing and informing on the risks associated to the use of deadbots

The various practices associated with grief are a subject of debate among researchers, between normative views of grief that should follow certain defined stages, and others who consider grief to be a personal process that can take different forms, without any particular time frame.

In this context, the development and use of conversational agents, known as deadbots, is also a subject of debate and raises questions about the effects they have on their users. The CNPEN cites the example of a chatbot that

132 Devenu « Comité consultatif national d'éthique du numérique » en 2024.

makes offensive remarks, or remarks that differ from what the person would actually have said in the same circumstances, exposing its user to the risk of "undergoing a rapid and painful psychological change".

The use of traditional conversational agents by living beings already poses a risk to people. A study conducted by the Massachusetts Institute of Technology (MIT) with OpenAI, published in 2025[135], shows that 10% of ChatGPT users experience an increase in feelings of loneliness or a decrease in social interactions. The use of chatbots also tends to produce what is known as the ELIZA effect, named after a chatbot designed in 1966 by MIT computer scientist Joseph Weizenbaum. This refers to the tendency to unconsciously equate the behaviour of a computer with that of a human being.

The use of deadbots may have no impact on individuals, or may even be beneficial in their grieving process and in helping them to preserve memories. However, the risks associated with sensitive or emotional uses should not be overlooked. This would involve engaging in ethical debates and reflections on the development and use of such solutions, beyond an analysis of the compliance of systems with European texts, such as the GDPR or the AI Regulation, or with national texts. The CNIL has embarked on this path with the publication of this report and the organisation of its annual event air2025: Privacy of the deceased, memory of the living, organised on 15 October 2025[136] as part of the missions entrusted to it by the Law for a Digital Republic of October 2016, to "lead a reflection on the ethical issues and societal questions raised by the evolution of digital technologies".

Beyond these reflections, it would be conceivable to draw inspiration from the proposals made in March 2025 by the Council of Europe in its "proposal for guidelines on the protection of personal data in the context of neuroscience"[137], to introduce into the field of neurotechnologies an impact assessment of the use of mental data (Mental Data Protection Impact Assessments - MDPIAs). In the context of post mortem data and conversational robots, this would involve evaluating, measuring and correcting these tools to prevent misuse, harmful behaviour and statements that pose a risk to people's mental health.

133 Conseil national pilote d'éthique du numérique (CNPEN), Avis n°3 - Agents conversationnels : enjeux d'éthique

134 CNIL.fr, IA : Respecter et faciliter l'exercice des droits des personnes concernées

135 MIT Media Lab, Investigating Affective Use and Emotional Wellbeing on ChatGPT, March 21, 2025,

136 CNIL, air2025, https://www.cnil.fr/fr/air2025

137 Conseil de l'Europe, Draft Guidelines on Data Protection in the context of neurosciences, Mars 2025.

The Scientific and Foresight Council

In order to strengthen its mission of monitoring and forward thinking, the CNIL runs a council of experts with diverse profiles and backgrounds: sociologists, economists, anthropologists, philosophers, entrepreneurs, researchers, authors, lawyers and journalists.

Beyond their direct contribution to enriching the CNIL's forward-looking thinking, the Council contributes to debates on digital ethics and provides a forum for open and free discussion and reflection on data culture.

Being more attentive and open to the outside world, working in partnership with the world research and innovation, these are the objectives pursued by the CNIL with this Council.

Chaired by the President of the CNIL, **Marie-Laure Denis**, the Council is composed of the following individuals:

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Innovation and Foresight Reports Collection

Within the CNIL's Digital Innovation Laboratory, the innovation, research and foresight team leads research and exploration projects on emerging topics related to personal data and privacy. Its work lies at the intersection of innovation, technology, usage, society, regulation and ethics.

The IP notebooks collection, which stands for Innovation & Prospective, aims to present and share the work and prospective studies conducted by the CNIL. The aim is to contribute to multidisciplinary and open reflection in the field of IT & Freedoms and to fuel debate on digital ethics issues.

This is the 10th issue in the series:

IP REPORT 1 - Privacy in 2020
Expert opinions

IP REPORT 2 - The body, the new connected object
From Quantified Self to M-Health:
new frontiers in data collection the world

IP REPORT 3 - Data, muses and frontiers of creation
Reading, listening, watching and playing in the age of personalisation

IP REPORT 4 - ed. Foresight Committee: Share!
Motivations and trade-offs for sharing oneself in the digital society

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

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IP REPORT 7 - Civic Tech, data and Demos
Issues of personal data and freedoms in the relationship between democracy, technology and citizen participation

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IP REPORT 9 - Data, footprints and freedoms
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