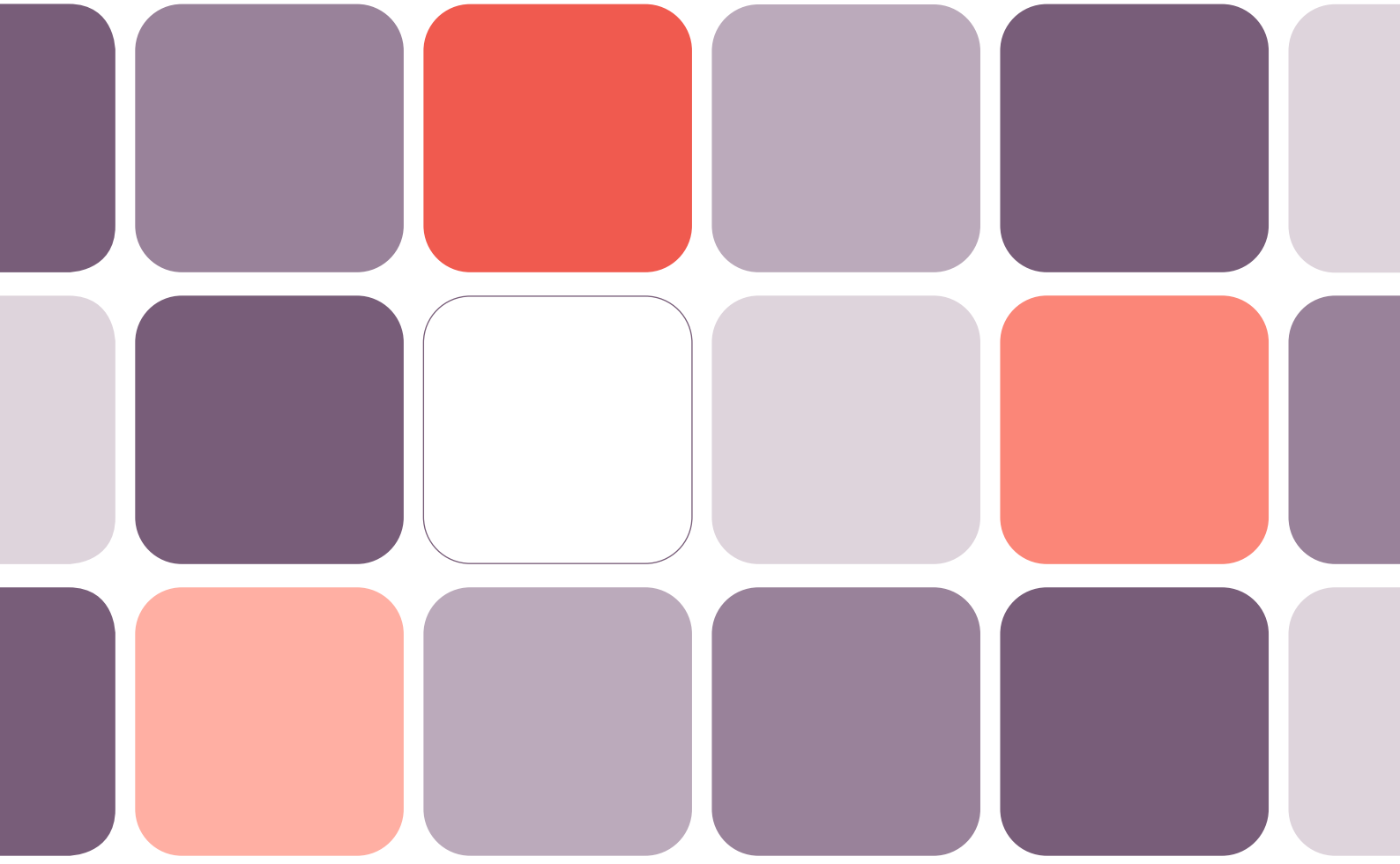
VOLUME FIVE
NUMBER THREE
WINTER 2022–23

ISSN: 2398-1679

Journal of

Data Protection & Privacy



Available online

HENRY STEWART PUBLICATIONS

ANONOS

Data without the drama™

Technical Controls That Protect Data When in Use and Prevent Misuse

Summary of the article with contributions by Anonos' Magali Feys, Chief Strategist of Ethical Data Use, and Gary LaFever, Co-CEO and General Counsel, published in The Journal of Data Protection & Privacy in January 2023

Access controls and governance policies do not prevent data from being misused, even when use is restricted internally. Furthermore, when data is shared outside an organization, it is usually protected using encryption, data masking, and other methods to ensure security while in transit and during storage. However, when data is unencrypted for processing, it is left vulnerable. The article's authors explain that technical controls must be used to protect data at all points along the chain - particularly when the data is in use. Statutory pseudonymization is a state-of-the-art and legally supported method for protecting data during use to minimize or prevent negative impacts from data misuse, breach and ransomware attacks. Statutory pseudonymization allows organizations to continue using the data for analytics, research or other purposes, while ensuring that the sensitive data of any particular identifiable natural person is protected.

As explained in the full article, statutory pseudonymization allows data use by organizations for two of their primary goals:

- **Economies of scale**: Being able to make use of economies of scale provided by cloud-based infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) offerings; and
- **Data sharing and secondary processing**: Artificial intelligence (AI), machine learning (ML), advanced analytics, and other capabilities by leveraging services offered by third parties as cloud-based software-as-a-service (SaaS) offerings.

The Importance of Technical Controls

Regulatory bodies and other groups increasingly recognize the importance of using technical controls to protect data from misuse and breach. For example, these groups are increasingly aware of the importance of technical controls to safeguard data when in use:

- **EU and U.S. governments**: Numerous struggles between the U.S. and EU governments regarding the correct way to reconcile cross-border differences in data protection laws have led to several EU-U.S. privacy treaties being struck down. It has become increasingly clear to both that technical controls are necessary, and that legal agreements and treaties are insufficient for this task.
- **Courts**: Fundamental differences between the U.S. and EU courts cannot be ignored. Technical controls allow these differences to be bridged and accommodated while permitting data transfers and cross-border personal data processing.
- **Enforcement agencies**: While EU regulators were slow to enforce GDPR requirements in Europe, enforcement agencies are increasingly taking enforcement actions against companies of all sizes and nationalities. Similarly, U.S. enforcement agencies, particularly states, are carrying out enforcement under new, more stringent privacy laws. These actions show the importance of technologically enforced controls to protect organizations from penalties, injunctions, and loss of reputation.
- **Non-governmental organizations (NGOs)**: These groups have increasingly greater visibility and impact, such as Max Schrems' organization NOYB and its court case that resulted in the EU-U.S. Privacy Shield and its predecessor, the Safe Harbor treaty, being struck down. These activities highlight the role of technical controls in data protection and data security efforts.

Safe and Effective Data Processing Supported by Technical Controls

The authors note there are four aspects of high-quality and high-defensibility data processing that statutory pseudonymization enables, helping organizations meet their data innovation and use goals without regulatory and compliance issues or enforcement actions. Statutory pseudonymization allows:

- **Surveillance-proof processing**: One of the significant global conflicts has been the possibility of surveillance of EU data by non-EU countries, particularly the U.S. Some countries, such as South Korea, have adopted strong requirements for statutory pseudonymization that enabled them to achieve an adequacy decision. Schrems II (the case that struck down the Privacy Shield) requirements set out by the Court of Justice of the European Union (CJEU) and the European Data Protection Board (EDPB) note that technical controls can be used as supplementary measures to prevent surveillance by third-country governments. Measures such as statutory pseudonymization can enable lawful international data transfers and processing that still protects the identity of EU data subjects, even when data is processed in "untrusted" environments such as those of a sub-processor, cloud processor, or other organizations and companies.
- **Lawful processing**: Another critical issue the article raises is securing legal grounds for processing personal data under the GDPR. Statutory pseudonymization plays a unique role in the GDPR. It allows pseudonymized data to be processed when organizations cannot secure consent or contractual means to process data by enabling Legitimate Interests processing as an alternate legal basis. This requires organizations to have (a) a legitimate purpose for processing; (b) the necessity of processing personal data to achieve that purpose; and (c) determine that the interest of the data controller is balanced against the interests or fundamental rights and freedoms of the data subject. The European Commission has noted that the use of technical and other measures, such as statutory pseudonymization, can help satisfy part (c) of this test through appropriate safeguards. In addition, the use of appropriate safeguards (such as pseudonymization) can allow further data processing to be lawful, as per European Commission guidance. Finally, using privacy-enhancing technologies such as pseudonymization can ensure that data controllers meet the data protection by design and default requirements, which require that data protection be applied as far "upstream" in processing as possible.
- **Breach-resistant processing**: Statutory pseudonymization can reduce the risk of data breach and misuse by obscuring identifying elements while making the protected form of data available for high utility processing. Pseudonymized data can only be controllably re-linked with additional information held separately by the data controller. This allows organizations to protect sensitive data without making it unusable while reducing the burden and costs of data breach or misuse. In the EU and the U.S., various laws and regulations require organizations to apply reasonable security measures to protect personal data. In many cases, this exempts organizations from data subject notification requirements if they can show no reasonable likelihood of harm to the data subject.
- **Data supply chain defensibility**: Joint and several liability is enforced under the GDPR, meaning that data controllers along the chain of data use are potentially open to penalties in the case of misuse or breach. Using technical supplementary measures such as pseudonymization can ensure that parties up and down data supply chains reduce their risk and exposure from improper processing.

Requirements for Statutory Pseudonymization

Statutory pseudonymization requires five key elements, as noted by the EDPB Final Schrems II Guidance:

1. **Protecting all data elements**: EU GDPR pseudonymization status must be evaluated for a data set as a whole, not just particular fields. This requires assessing the degree of protection for all personally identifiable information in a data set, including more than direct identifiers, and extending to indirect identifiers and attributes.
2. **Protecting against singling out attacks**: The EDPB Final Schrems II Guidance requires protection against "singling out" of a data subject in a larger group, effectively making the use of either k-anonymity or aggregation mandatory.
3. **Dynamism**: Statutory pseudonymization must protect against the use of information from different datasets to re-identify data subjects, which necessitates using different replacement tokens for different purposes at different times (i.e., dynamism) to prevent re-identification by leveraging correlations among data sets.
4. **Non-algorithmic look-up tables**: Data controllers must consider the vulnerability of cryptographic techniques (particularly over time) to brute force attacks and quantum computing risk, which necessitates the use of non-algorithmic derived look-up tables; and
5. **Controlled re-linkability**: The EDPB Final Schrems II Guidance notes that, along with other requirements, the standard of EU GDPR pseudonymization can be met only if "a data exporter transfers personal data processed in such a manner that the personal data can no longer be attributed to a specific data subject, nor be used to single out the data subject in a larger group, without the use of additional information."

Conclusion

Global data processing increases the risks of data breach and misuse. Statutory pseudonymization, adopted under an increasing number of international and U.S. state privacy laws, helps to prevent privacy violations before they occur. In addition, it provides numerous legal and business continuity benefits, protection against breach, and reduced breach notification obligations. However, companies, governments, non-governmental organizations (NGOs), and other entities should carefully evaluate the application of technical controls that can satisfy the heightened requirements for statutory pseudonymization defined in the GDPR.

Technical controls that protect data when in use and prevent misuse

Received: 3rd September, 2022

Magali (Maggie) Feys

Founder, AContrario.law, IP, IT & Data Protection Lawyer, Belgium

Magali (Maggie) Feys is founder of AContrario.Law, a boutique law firm based in Belgium, specialising in IP, IT, data protection and cybersecurity. In addition, Magali acts as a legal advisor to the Belgian Ministry of Health where she advises on privacy matters (such as e-health network, COVID-19 contact tracing and digital EU-COVID-certificate and the Covid Safe Ticket) and is a member of the legal working party e-Health of the Belgian Minister for Public Healthcare. Maggie also represents Anonos (www.anonos.com) as chief strategist of ethical data use.

AContrario.law, IP, IT & Data Protection Lawyer, Stapelplein 70, bus 104 — B.9000, Gent, Belgium
Tel: (+32) 474 29 61 25; E-mail: magali@acontrario.law

Joseph W. Swanson

Attorney at Law, Carlton Fields, USA

Joseph (Joe) Swanson chairs the cybersecurity and privacy practice at Carlton Fields, a full-service law firm with offices throughout the United States. Joe counsels clients on privacy compliance matters, breach investigation and response, and related litigation. Prior to joining Carlton Fields, Joe served as a federal cyber-prosecutor.

Carlton Fields, 4221 W. Boy Scout Blvd., Ste. 1000, Tampa, FL, 33607-5780, USA
Tel: (+1) 813 229.4335, Fax: 1.813.229.4133; E-mail: jswanson@carltonfields.com

Patricia M. Carreiro

Attorney at Law, Carlton Fields, USA

Patricia (Trish) Carreiro (CIPP/US, CIPM) is a privacy and cybersecurity attorney at Carlton Fields and co-chair of the International Association of Privacy Professional's South Florida chapter. She counsels clients of all sizes on privacy and cybersecurity compliance with an emphasis on retail and highly regulated industries.

Carlton Fields, 2 Miami Central, 700 NW 1st Avenue, Ste. 1200, Miami, FL 33136-4118, USA
Tel: (+1) 305 539 7314, Fax: 1.305.530.0055; E-mail: pcarreiro@carltonfields.com

Gary LaFever

Co-CEO and General Counsel, Anonos, USA

Gary LaFever is Co-CEO and General Counsel at Anonos, Global Innovator at the World Economic Forum, former partner at the law firm Hogan Lovells, and former Management Information Consultant at Accenture. Gary's 35+ years of technical and legal expertise enables him to approach data protection and utility issues from both perspectives. He is a co-inventor of 35+ granted patents and 80+ additional patent assets internationally.

Anonos Inc., 9450 SW Gemini Drive, Suite 96049, Beaverton, OR 97008, USA
Tel: (+1) 303 389 5759; E-mail: gary.lafever@anonos.com

Abstract Global data processing flowing across geographic borders and increasing risks of external data breach and misuse beyond lawful purposes requires careful evaluation of technical controls that prevent privacy violations before they occur. This paper details the specific requirements for, and certain benefits from, implementing technical controls satisfying the heightened requirements for statutory pseudonymisation as defined in the General Data Protection Regulation (GDPR) in the context of (i) surveillance-proof processing, (ii) lawfulness of processing, (iii) more secure processing and (iv) data supply chain defensibility. The interconnectedness of these issues is presented within the confluence of conflicting interests among four different groups: governments, courts, enforcement agencies and non-governmental organisations (NGOs).

KEYWORDS: pseudonymisation, international data transfer, cloud, data breach, analytics, artificial intelligence (AI), machine learning (ML)

INTRODUCTION

Companies, organisations and governments desiring to lawfully and ethically process global data that includes EU[1] personal data should evaluate the merits and benefits of implementing 'statutory pseudonymisation'[2] as a safeguard for protecting data when in use and preventing misuse. As outlined in this paper, effective technologically enforced controls like EU General Data Protection Regulation (GDPR)-compliant pseudonymisation help companies, organisations and governments to leverage:

a) economies of scale provided by cloud-based Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) offerings delivered via networks of global subcontractors and cloud processors; and
b) artificial intelligence (AI), machine learning (ML), advanced analytics and other capabilities outside the scope of what they can accomplish using internal resources alone by leveraging services offered by third parties as cloud-based Software as a Service (SaaS) offerings.

EU GDPR-compliant pseudonymisation technology is:

a) recommended by the European Data Protection Board (EDPB)[3] for Schrems II[4]-compliant lawful cloud AI, ML and analytics of EU personal data;
b) highlighted as an EU GDPR-compliant safeguard for helping to ensure the compatibility and lawfulness of AI, ML and analytics beyond the scope of processing authorised by Consent and Contract;[5] and
c) recognised as 'tipping the balance in favour of the controller' to help support 'Legitimate Interest processing' under the EU GDPR.[6]

OBJECTIVES AND PERSPECTIVES

Companies, organisations and governments should implement safeguards such as the following to help ensure that IaaS, PaaS and SaaS processing are secure in environments which are beyond the exclusive control of the data controller — ie 'untrusted environments':[7]

- *Surveillance-proof processing* to enable lawful international data transfers and processing leveraging technical supplementary measures to protect the identity of EU data subjects without access to additional information held separately by the data controller.[8]
- *Lawfulness of processing* to support desired processing without violating the rights of data subjects.[9]

- *Breach-resistant processing* to reduce the risk from external attacks or internal misuse of data by obscuring identifying elements of personal data (while making the protected form of data available for processing capable of achieving data processing purposes) without access to additional information held separately by the data controller.[10]
- *Data supply chain defensibility* to ensure that parties up and down data supply chains are not subject to joint and several liability for the failure of other participants to process personal data in compliance with the preceding safeguards.[11]

The demand for technical controls that help to protect EU personal data when in use and prevent misuse does not originate from any one group. Rather, the growing demand comes from at least four groups, and the confluence of the interests of these different groups makes the current situation irreversible. *The common theme across the interests and perspectives of these groups is that technological controls are now critically important*. These groups comprise the following:

- *EU and US governments*: In recognition of the significant changes involved, when the EU GDPR was initially passed, all parties were given two years to comply (the EU GDPR was passed in May 2016 with an effective date in May 2018). It was a surprise to legislators (and regulators) that so much work had to be done for organisations even to begin to start to comply (eg doing inventories of their data — where it came from, where it was being stored vs processed, what rights they had and how they were documented, etc). As a result, six years after the initial passage of the EU GDPR, many companies are just now arriving at the point where they have completed the groundwork required to start implementing technology that reconciles data utility and compliance. As much as both EU and US governments would like to put a new treaty in place to ensure ongoing trans-Atlantic commerce, governments will not abandon surveillance activities they deem critical for national security. The complexity of the situation and the disparity of stakeholder interests mean that the current situation is not reconcilable by 'words alone' — regardless of whether the words are contained in contracts, policies, procedures or treaties — and requires effective technologically enforced controls.[12]
- *Courts*: The fundamentally different approaches to privacy between the EU and the USA are increasingly evident in decisions by the most senior courts in each jurisdiction (ie the Court of Justice of the European Union [CJEU] and the US Supreme Court). These decisions cannot be ignored or (easily) reversed by the other stakeholder groups. For example, the Schrems II decision by the CJEU[13] that EU personal data cannot be processed in cleartext in US-operated clouds without an assessment of whether there is adequate protection and whether Standard Contractual Clauses (SCC) require technical supplemental measures to prevent likely surveillance by third-country governments, as well as the CJEU ruling that protections must exist against the revelation of EU Special Category Data via analysis and deduction and not just immediate disclosure,[14] are binding on all parties on both sides of the Atlantic. By contrast, recent decisions by the US Supreme Court (eg related to FBI surveillance[15] and, more recently, the privacy rights of women in reproduction-related situations[16]) highlight the fundamental differences in philosophy and law when it comes to privacy between Europe and the USA. Technical controls can help to bridge these otherwise irreconcilable differences; words in a treaty are completely inadequate.

- *Enforcement agencies*: EU regulators were slow to enforce many EU GDPR requirements because of the widespread lack of fundamentals necessary to comply. Enforcement action across the EU has taken time to gather pace and for the authorities to exercise the full range of their powers. More recently, EU enforcement actions against companies of all sizes and nationalities are increasing. Examples include, enforcement actions related to the use of Google Analytics[17] by entities of various sizes and the use of customer prospecting lists.[18] Additionally, in the USA, enforcement under new, more stringent state privacy laws has begun.[19] These enforcement actions also highlight the increasing importance of technologically enforced controls.
- *Non-governmental organisations (NGOs)*: these groups have increasingly greater visibility and impact. For example, Max Schrems and his organisation NOYB successfully initiated the legal actions that invalidated the Privacy Shield trans-Atlantic treaty and its predecessor Safe Harbor treaty and more recently are behind the 101 complaints filed against the use of Google Analytics.[20] Note that this is before the effectiveness of changes in 2023 that authorise class action lawsuits or collective redress across Europe.[21] Moreover, coordinated actions against global companies involving NGOs teaming up across the Atlantic are also on the rise.[22] Activities by these NGOs again highlight the increasing importance of technologically enforced controls.

SURVEILLANCE-PROOF PROCESSING

Given the interconnected nature of international data flows, and the exposure represented by sub-processor and cloud processing, governments, organisations and companies should consider the merits and benefits of following South Korea (the Republic of Korea) in adopting strong requirements for statutory pseudonymisation that helped secure EU adequacy determination.[23]

The processing of EU personal data outside of the European Economic Area (EEA)[24] and adequacy countries requires compliance with Schrems II requirements promulgated by the CJEU and the EDPB,[25] including the use of technical controls as supplementary measures when an assessment of whether there is adequate protection reveals that SCCs together with organisational and contractual supplementary measures cannot prevent likely surveillance by third-country governments.[26] These obligations extend to onward transfers and processing by sub-processors, with respect to which the EDPB specifically highlights concerns since 'a large variety of computing solutions may imply the transfer of personal data to a third country (eg for storage or maintenance purposes)'.[27] A decision by the German Baden-Württemberg *Vergabekammer*, which judges compliance with the requirements for public tender dossiers, ruled on 13th July, 2022 that even the risk of onward processing by sub-processors using US-managed cloud infrastructure is equivalent to an actual transfer of personal data requiring compliance with the EU GDPR.[28] While the Karlsruhe Higher Regional Court later reversed the decision of the Baden-Württemberg procurement chamber, its ruling acknowledging contractual commitments by Amazon Web Services EMEA SARL to restrict processing to the EU, failed to address the impact of requests by the parent company Amazon Web Services, Inc. to provide data in response to FISA, EO 12333 or US Cloud Act requests. In addition, a 26th July, 2022 Dutch Ministry of Justice and Security (NCSC) legal memorandum stresses that the reach of government surveillance extends to data processed internationally by sub-contractors and cloud processors.[29] As a result, global enterprises that leverage

non-EEA (eg US) managed infrastructure (eg public cloud, multiparty data sharing and analytics) to process EU personal data will be subject to similar scrutiny.

It should be noted that in addition to the EDPB, the heightened EU GDPR requirements of pseudonymisation have been recognised by the European Data Protection Supervisor (EDPS)[30] as a viable means of enabling the lawful transfer of personal data to third countries not offering an equivalent level of protection. As noted by European Data Protection Supervisor, Wojciech Wiewiórowski, in an EDPS webinar titled *Pseudonymous Data: Processing Personal Data While Mitigating Risks*:

> Our legal data protection rules in the European Union and particularly GDPR itself considered pseudonymisation as a sort of model of all risk mitigating measures. This comes only after the first of all obligations, if you do not need the personal data do not process them. But if you need the personal data, then GDPR refers to pseudonymisation when it takes exemplifying the appropriate safeguards in many circumstances.[31]

LAWFULNESS OF PROCESSING

Legitimate Interest processing

Article 6 of the EU GDPR provides six legal grounds for processing personal data for which there is no statutory preference or sequence of application.[32] This is highly relevant because if Consent under Article 6(1)(a) was the only basis upon which information could be processed, controllers and processors would often face a 'Hobson's choice'[33] between: (a) securing 'uninformed consent'; and (b) not processing data for valuable complex research (health, scientific, marketing or otherwise) purposes because of the complexity of explaining what is happening behind the scenes so that data subjects can fully understand.

The difficulty of successfully using either Consent[34] or Contract[35] to enable EU GDPR-compliant AI, ML, and advanced analytics, was highlighted by (i) the near billion-dollar fine levied by the Luxembourg Data Protection Authority in July 2021 against Amazon[36] for improper processing of Amazon's own first-party data under the EU GDPR, and (ii) the ruling by the Belgian Data Protection Authority that IAB Europe's self-styled Transparency and Consent Framework (TCF) — relied upon by Google and many other advertisers for targeted advertising — violates the EU GDPR.[37]

The limitations of Consent and Contract in complex processing situations is one of the reasons that Legitimate Interests[38] exists as an alternate legal basis. The EDPB notes that the Legitimate Interests legal basis[39] requires a controller to satisfy all three conditions:[40]

1. *Legitimate purpose*: the identification and qualification of a legitimate purpose pursued by the controller or by a third party. This interest of the controller or third party may be broader than the purpose of the processing but must be present at the processing date.[41]
2. *Necessity*: the need to process the personal data must be established as a requirement for the legitimate interest pursued.[42]
3. *Balancing of interests*: the legitimate interest of the controller or third party must be balanced against the interests or fundamental rights and freedoms of the data subject, including the data subject's rights to data protection and privacy, considering the particular circumstances of the processing.[43]

The Purpose, Necessity and Balancing tests must *all* be satisfied, and 'high marks' in one or more tests does *not* overcome the failure to satisfy other tests.[44]

As a result, attempts to use Legitimate Interests processing for data uses that violate the EU GDPR, including Article 5 (Principles Relating to Processing of

Personal Data), such as discrimination against protected categories of individuals, illegally influencing the results of elections, etc will fail the first test. These data uses would not be lawful under Legitimate Interests grounds regardless of the outcomes of the Necessity and Balancing tests.

If a proposed data use satisfies both the Purpose and Necessity tests, then the Balancing test must be applied to assess the impact of the intended processing on the interests or fundamental rights and freedoms of data subjects. In performing the assessment of relevant 'impact', the Article 29 Working Party has stated that:

> The Working Party emphasises that it is crucial to understand that relevant 'impact' is a much broader concept than harm or damage to one or more specific data subjects. 'Impact' as used in this Opinion covers any possible (potential or actual) consequences of the data processing. For the sake of clarity, we also emphasise that the concept is unrelated to the notion of data breach and is much broader than impacts that may result from a data breach. Instead, the notion of impact, as used here, encompasses the various ways in which an individual may be affected — positively or negatively — by the processing of his or her personal data.[45]

The need to assess the collective interests at stake on both sides of the balancing of interests test — ie the interest of the data controller (or a third party) and the interests of the data subject — are affirmed in opinions of the EDPB (including its predecessor Article 29 Working Party) and decisions of the CJEU. Citing the CJEU rulings in Google Spain and 'Schrems I',[46] Lokke Moerel and Corien Prins highlight in *Privacy for the Homo Digitalis: Proposal for a New Regulatory Framework for Data Protection in the Light of Big Data and the Internet of Things*, that 'the clear signal is that collective interests must also be involved in these considerations. Only then can full account be taken of the constitutional basis for personal data protection at the EU level.'

Under EU GDPR Article 6(4), personal data collected and processed for a stated purpose based on Legitimate Interests, a contract, or vital interests — ie *not based on consent — may be further processed* for another purpose if the new purpose is compatible with the original purpose. The European Commission in its guidance — *Can we use data for another purpose?* — highlights the following points (as stated in the EU GDPR) as being relevant for determining whether a new purpose is compatible with the original purpose:[47]

- the link between the original purpose and the new/upcoming purpose;
- the context in which the data was collected (what is the relationship between a data controller and the individual?);
- the type and nature of the data (is it sensitive?);
- the possible consequences of the intended further processing (how will it impact the individual?); and
- the existence of appropriate safeguards (such as encryption or *pseudonymisation*).

They also note that if a data controller wants to use the data for statistical or scientific research 'it is not necessary to run the compatibility test'.

Furthermore, the European Commission guidance[48] highlights that if a data controller has collected the data 'on the basis of consent or following a legal requirement, no further processing beyond what is covered by the original consent or the provisions of the law is possible'. In these instances, 'further processing would require obtaining new consent or a new legal basis'.

This underscores the 'Hobson's choice' noted above: if the processing is too complex to be explained simply (or too complicated to comprehend, but data

subjects consent anyway) then either the processing cannot be allowed at all (with the attendant loss of societal benefits) or a non-consent legal basis must, in practice, actually be available for use.

As described more fully below, the combination of EU GDPR-compliant Data Protection by Design and by Default and EU GDPR-compliant pseudonymisation can enable lawful and trusted personalisation leveraging complex data analysis, machine learning, AI, sharing, combining and enriching not otherwise supportable using consent or contract.

Data Protection by Design and by Default

Data Protection by Design and by Default, as newly defined under EU GDPR Article 25, goes beyond Privacy by Design.[49] The EU GDPR requires that Data Protection by Design and by Default be applied as far 'upstream' in processing as possible (eg by 'pseudonymising data at the earliest opportunity') to limit data use to the minimum extent and time necessary to support each specific product or service authorised by an individual data subject.[50] This is a more stringent standard than basic Privacy by Design, which can be satisfied by 'considering data protection and privacy issues upfront in everything you do'.

Encryption and traditional Privacy Enhancing Techniques (PETs) were developed long before the EU GDPR requirements were established. Because of their limitations in protecting data during computation and analysis ('protection in use'), when used alone, encryption and traditional PETs will likely fail to satisfy new EU GDPR Data Protection by Design and by Default requirements.

For example, persistent tokens and identifiers used for marketing purposes such as the Google Advertising ID (ADID) and the Apple Identifier for Advertising (IDFA) may fall short of requirements for Data Protection by Design and by Default because links between data subjects and identifying information are readily ascertainable.

As noted in the recent decisions regarding the unlawfulness of Google Analytics,[51] EU supervisory authorities are increasingly finding that persistent tokens and identifiers generally used in the industry fail to satisfy EU GDPR Data Protection by Design and by Default requirements because of the risk of unauthorised re-identification via the Mosaic Effect. The Mosaic Effect occurs when a person is indirectly identifiable via linkage attacks because information can be combined with other pieces of information, enabling the individual to be distinguished from others.[52] These static tokens and identifiers do not satisfy the requirements for EU GDPR-compliant pseudonymisation set forth below because personal data can be attributed to specific data subjects without the use of separately kept 'additional information'. This means that the benefits enumerated herein associated with properly EU GDPR-compliant pseudonymised data will not be available under the EU GDPR.

Requirements for EU GDPR-compliant pseudonymisation

The EU GDPR provides incentives to use technical and organisational measures, including pseudonymisation, to enable the flow, commercial use and value maximisation of data in a way that recognises, respects and enforces the fundamental rights of individuals while allowing for the benefits to society from the commercial use of data. The heightened standards for EU GDPR-compliant pseudonymisation (relative to the narrower historical use of the term) were most recently affirmed by the EDPB[53] and the European Commission (EC)[54] in the context of the Schrems II ruling by the CJEU.

Pseudonymisation was previously understood to generally refer to replacing direct identifiers with tokens for individual fields independently within a dataset. Under the EDPB Final Schrems II Guidance and the Final SCCs, it is clear that EU GDPR-compliant pseudonymisation requires all of the following:

- *Protecting all data elements*: Footnotes 83 and 84 of the EDPB Final Schrems II Guidance highlight that achieving EU GDPR pseudonymisation status must be evaluated for a dataset as a whole, not just particular fields. This requires assessing the degree of protection for all data elements in a dataset, including more than direct identifiers, and extending to indirect identifiers and attributes. This is underscored by the definition of 'Personal Data' under EU GDPR Article 4(1) as more than immediately identifying information and extending to any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.
- *Protecting against singling out attacks*: Paragraph 85 of the EDPB Final Schrems II Guidance requires protection against 'singling out' of a data subject in a larger group effectively making the use of either k-anonymity or aggregation mandatory.
- *Dynamism*: complying with the requirements in Paragraphs 79, 85, 86, 87 and 88 of the EDPB Final Schrems II Guidance to protect against the use of information from different datasets to re-identify data subjects necessitates the use of different replacement tokens for differing purposes at different times (ie dynamism) to prevent re-identification by leveraging correlations among datasets without needing access to the 'additional information held separately' by the EU data controller (see https://www.MosaicEffect.com);
- *Non-algorithmic lookup tables*: the requirement of Paragraph 89 of the EDPB Final Schrems II Guidance to consider the vulnerability of cryptographic techniques (particularly over time) to brute force attacks and quantum computing risk will necessitate the use of non-algorithmic derived look-up tables in many instances; and
- *Controlled re-linkability*: The combination of the four preceding items are necessary to meet the requirement in Paragraph 85(1) of the EDPB Final Schrems II Guidance that, along with other requirements, the standard of EU GDPR pseudonymisation can be met only if 'a data exporter transfers personal data processed in such a manner that the personal data can no longer be attributed to a specific data subject, nor be used to single out the data subject in a larger group, without the use of additional information'.

Contract vs Consent vs Anonymisation vs Legitimate Interest processing

The following graphic and accompanying narrative highlight the differences in the capability of contract, consent and anonymisation versus EU GDPR pseudonymisation-enabled Legitimate Interest processing to support repurposing of data for secondary processing, including personalisation, in the context of the sale of a trip via a website. While a controller could initially decide to rely on legitimate interests, the diagram highlights that contract, consent and anonymisation face severe limitations in their ability to support the desired use case (Figure 1).

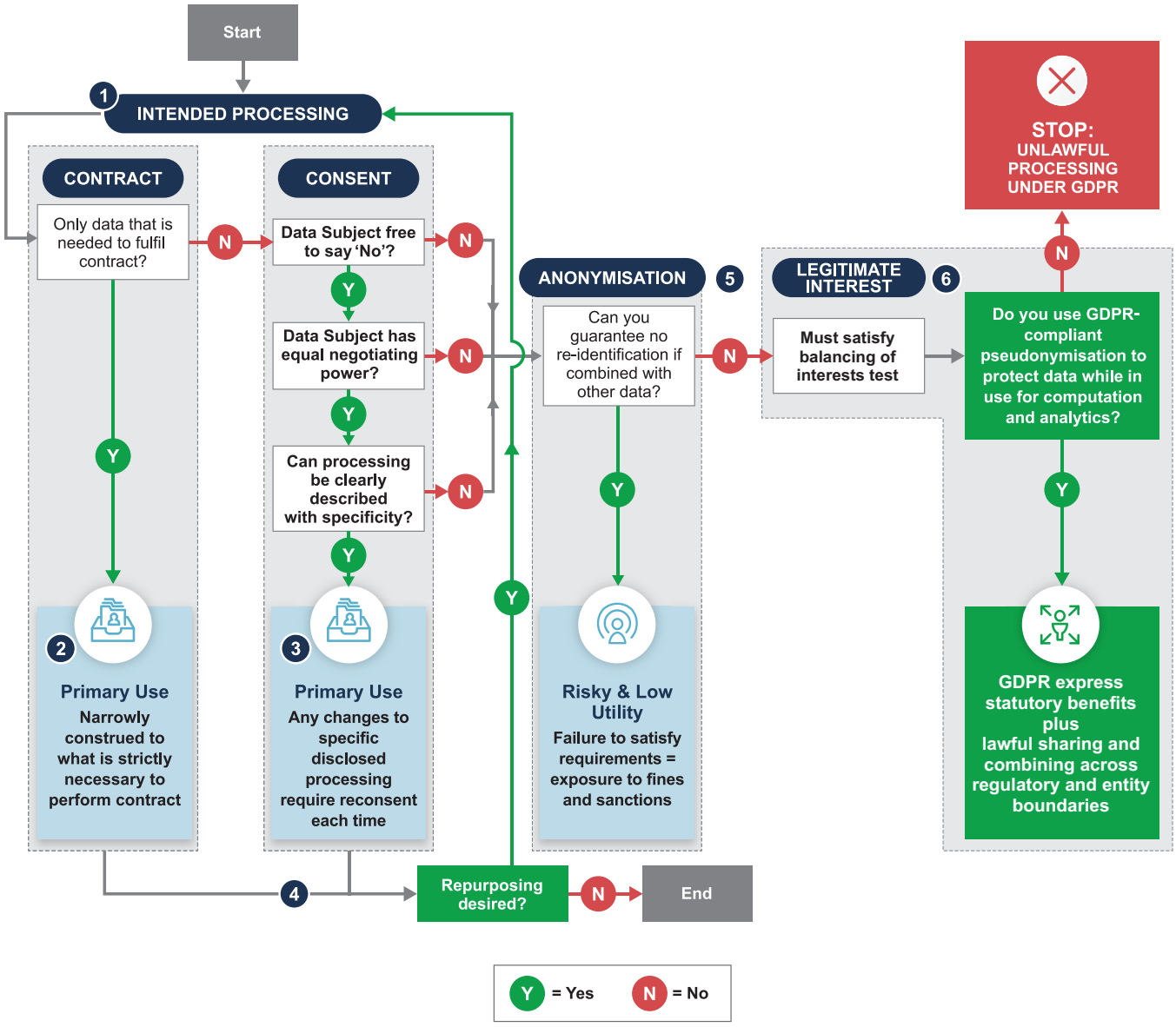


Figure 1: EU GDPR pseudonymisation enables Legitimate Interest-based personalisation

Marketing example

Number references below correspond to number references in Figure 1.

1. Examples of Intended Purposes
   - Sell a trip via website (flight, hotel, etc)
   - Save preferences for future bookings
   - Market analytics to offer personalised future trips via email
2. Under Contract
   - Can sell initial trip, but cannot (a) save for future bookings or (b) market for future trips
3. Under Consent
   - Can save preferences for future bookings
   - Works only for marketing analytics disclosed with specificity at time of initial data collection

4. New marketing is (a) secondary repurposing under Contract and (b) fails requirements of advanced specificity for Consent and thus '[f]urther processing would require obtaining new consent or a new legal basis'.
5. Due to the details of the data collected and the need to retain indirect identifiers and attributes unprotected for desired analytics, the requirements for anonymisation under the EU GDPR are not satisfied.[55]
6. Legitimate Interest is the remaining applicable option for a legal basis for marketing analytics. EU GDPR pseudonymisation provides protection for data while in-use for computation and analytics to help tip the balance in favour of processing by the data controller.[56]

BENEFITS OF PSEUDONYMISATION FROM A SECURITY COMPLIANCE STANDPOINT

In addition to the foregoing benefits, pseudonymisation can both be a tool in a company's data protection toolkit, while also potentially reducing a company's reporting obligations and liability if the personal data they hold is compromised.

The EU GDPR repeatedly endorses pseudonymisation. EU GDPR Article 25(1) obligates parties to 'implement appropriate technical and organisational measures, such as pseudonymisation', and Article 25(2) obligates parties to 'implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed'.[57] EU GDPR Recital 78 uses 'pseudonymising data as soon as possible' as an example of such a measure. EU GDPR Article 32 explicitly recognises pseudonymisation and encryption as measures to be considered when:

> taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk.[58]

Likewise, in the US, state and federal laws and regulations, both comprehensive and industry-specific, require organisations to implement reasonable security measures to safeguard personal data. Examples include:

- New York's Stop Hacks and Improve Electronic Data Security Act (SHIELD Act);[59]
- Massachusetts's 201 CMR 17.00; and
- HIPAA's Security Rule.[60]

California even provides consumers with a private right of action and statutory damages of between $100 and $750 'per consumer per incident or actual damages, whichever is greater' if their personal information is subject to 'unauthorized access and exfiltration, theft, or disclosure' resulting from a business's failure to 'implement and maintain reasonable security procedures and practices appropriate to the nature of the information'.[61]

Pseudonymisation can be a powerful tool for satisfying these requirements because it can allow companies to protect personal data without rendering that data unusable. Further, pseudonymisation may even allow organisations to exempt certain data from the reach of various privacy laws. For example, pseudonymisation could potentially be used as a means of statutory deidentification, which would largely remove an organisation's HIPAA obligations related to that data.

Pseudonymisation may also significantly reduce the burden and costs stemming from incidents that involve the compromise of personal data. In the EU, pseudonymisation

may mean that a data incident is 'unlikely to result in a risk to the rights and freedoms of natural persons', and thus not a data breach which would otherwise require notification to a supervisory authority under GDPR Article 33 and data subjects under Article 34.

Similarly in the US, many federal and state breach notification laws exempt victim organisations from notification requirements when there is no reasonable likelihood of harm to the affected individuals or where the compromised data is unusable. HIPAA, for example, requires covered entities to notify patients when their unsecured protected health information ('PHI') is impermissibly used or disclosed *unless* the covered entity demonstrates that there is a 'low probability' that the PHI has been compromised.[62] As part of any risk assessment performed pursuant to HIPAA, pseudonymisation could help establish this 'low probability'.

Likewise, state breach notification laws often define encrypted or 'otherwise unusable' data as not requiring breach notification to either regulators or affected individuals. Florida's data breach statute, for example, mandates notification in instances of a breach of personal information, but explicitly excludes information that is 'encrypted, secured, or modified by any other method or technology that removes elements that personally identify an individual or that otherwise renders the information unusable'.[63] Pseudonymisation can thus significantly reduce the breach notification obligations of organisations.

Finally, in the event of a regulatory investigation or litigation filed in the wake of a data security incident, the fact that the personal data was pseudonymised would be an important fact against liability but also could stem any claimed damages from that incident.

DATA SUPPLY CHAIN DEFENSIBILITY

Articles 28 and 29 of the GDPR obligate data controllers to ensure the lawful processing of personal data throughout their data supply chain. Article 28(1) specifically requires that:

> the controller shall use only processors providing sufficient guarantees to implement appropriate technical and organisational measures in such a manner that processing will meet the requirements of this Regulation and ensure the protection of the rights of the data subject.

GDPR Articles 26 and 82 set forth the principle of joint and several liability, pursuant to which any division of liability among parties in a data supply chain is unenforceable against claims by data subjects. As a result, each participant in a data supply chain, regardless of whether they are a controller, joint controller or processor, is obligated to indemnify data subjects for damages as a whole; only after providing full relief to data subjects are they then entitled to seek relief from other actors in the data supply chain who contributed to the damage.

As a result, companies, organisations and governments are increasingly demanding Schrems II compliant technical supplementary measures (like EU GDPR pseudonymisation) from fellow data supply chain participants to reduce the risk and exposure from improper processing by other parties with whom they share and process data. Data is an incredibly valuable resource for company performance and innovation, and without data flowing freely, critical opportunities for growth and revenue may be lost.

Business continuity risks arising from the inability to process data are more significant than the monetary risk from penalties or non-monetary risks from damaged reputation from privacy or security breaches. The CJEU Schrems II ruling notes five times the preference for injunctive relief for failing to comply with international data transfer requirements.[64] See the *National Law*

Review article discussing a 12-hour notice to terminate processing sent by the Portuguese data protection authority to a Portuguese agency relying on SCCs.[65] See also the PwC article highlighting that 52 per cent of Fortune 500 companies now include privacy risk disclosures in their annual reports due to auditing considerations regarding an entity's ability to continue as a going concern.[66] Most recently, the European Commission clarified the joint and several liability of data controllers and processors in Clauses 3 and 12 of its new SCCs.[67] These issues related to data supply chain risk and exposure highlight the need for technologically enforced controls that data when in use and prevent misuse.

CONCLUSION AND RECOMMENDATION

Global data processing flowing across geographic borders and increasing risks of external data breach and misuse beyond lawful purposes require careful evaluation of technical controls that prevent privacy violations before they occur. Statutory pseudonymisation, adopted under an increasing number of global (eg EU, UK, Japan and South Korea) and US state privacy laws (eg California, Virginia and Colorado), helps to prevent privacy violations before they happen. As a result, companies, governments, NGOs and other entities should carefully evaluate the merits and benefits of implementing technical controls satisfying the heightened requirements for statutory pseudonymisation defined in the GDPR.

References

1. The countries comprising the European Union (EU) are Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.
2. The term 'statutory pseudonymisation' refers to statutorily recognised heightened standards for de-identification as more fully described under the laws of *the EU and the UK*, Article 4(5) of the EU and UK GDPR:

> pseudonymisation means the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organizational measures to ensure that the personal data are not attributed to an identified or identifiable natural person,

and the data protection laws of *Brazil*, Article 13(4) of General Data Protection Law (LGPD):

> For purposes of this article, pseudonymization is the processing by means of which data can no longer be directly or indirectly associated with an individual, except by using additional information kept separately by the controller in a controlled and secure environment;

Japan, Article 2.9 of Act on the Protection of Personal Information (APPI):

> 'Anonymously processed information' in this Act means information relating to an individual that can be produced from processing personal information so as neither to be able to identify a specific individual by taking action prescribed in each following item in accordance with the divisions of personal information set forth in each said item nor to be able to restore the personal information. (i) Personal information falling under paragraph (1), item (i); Deleting a part of descriptions etc. contained in the said personal information (including replacing the said part of descriptions etc. with other descriptions etc. using a method with no regularity that can restore the said part of descriptions etc.). (ii) Personal information falling under paragraph (1), item (ii); Deleting all individual identification codes contained in the said personal information (including replacing the said individual identification codes with other descriptions etc. using a method with no regularity that can restore the said personal identification codes);

South Korea, Article 2(i-2) of Personal Information Protect Act (PIPA):

> Pseudonymisation is 'the processing of personal data in such a manner that a specific individual becomes not identifiable without the use of additional information, rendered by removing a part of the data, replacing all or a part of the data, etc.'

and five US states — *California*, Article 1798.140(r) of California Consumer Privacy Act (CCPA):

> 'Pseudonymize' or 'Pseudonymization' means the processing of personal information in a manner that renders the personal information no longer attributable to a specific consumer without the use of additional information, provided that the additional information is kept separately and is subject to technical and organizational measures to ensure that the personal information is not attributed to an identified or identifiable consumer.

Colorado, Article 6-1-1303(22) of Colorado Privacy Act (CPA):

> 'Pseudonymous Data' means personal data that can no longer be attributed to a specific individual without the use of additional information if the additional information is kept separately and is subject to technical and organizational measures to ensure that the person data are not attributed to a specific individual;

Virginia, Article 59.1–571 of Virginia Consumer Data Protection Act (VCDPA)

> 'Pseudonymous data' means personal data that cannot be attributed to a specific natural person without the use of additional information, provided that such additional information is kept separately and is subject to appropriate technical and organizational measures to ensure that the personal data is not attributed to an identified or identifiable natural person;

Utah, Article 160.103.171(28) of Utah Consumer Privacy Act (UCPA):

> 'Pseudonymous data' means personal data that cannot be attributed to a specific individual without the use of additional information, if the additional information is: (a) kept separate from the consumer's personal data; and (b) subject to appropriate technical and organizational measures to ensure that the personal data are not attributable to an identified individual or an identifiable individual;

and *Connecticut*, Article 1(24) of Connecticut Data Privacy Act (CTDPA):

> 'Pseudonymous data' means personal data that cannot be attributed to a specific individual without the use of additional information, provided such additional information is kept separately and is subject to appropriate technical and organizational measures to ensure that the personal data is not attributed to an identified or identifiable individual.

See also *Is Canada's Proposed Consumer Privacy Protection Act Too High Risk Compared to E.U. Data Protection Law?*, available at https://www.linkedin.com/pulse/canadas-proposed-consumer-privacy-protection-act-too-high-magali-feys/ (accessed 20th November, 2022).

3. See 'Use Case 2: Transfer of Pseudonymised Data' at paragraphs 85 through 89 of EDPB Recommendations 01/2020 on Measures that Supplement Transfer Tools to Ensure Compliance with the EU Level of Protection of Personal Data Version 2.0 on 18 July, 2021, available at https://edpb.europa.eu/system/files/2021-06/edpb_recommendations_202001vo.2.0_supplementarymeasurestransferstools_en.pdf (accessed 20th November, 2022; hereinafter referred to as the 'EDPB Final Schrems II Guidance').
4. 'Schrems II' refers to the Judgment of the Court of Justice of 16th July, 2020, Data Protection Commissioner *v*. Facebook Ireland Limited and Maximillian Schrems, C-311/18, related to protection of EU personal data in the context of US national security intelligence gathering frameworks, including Section 702 of the Foreign Intelligence Surveillance Act (FISA) and Executive Order 12333 (EO 12333), available at https://curia.europa.eu/juris/document/document.jsf?text=&docid=228677&pageIndex=0&doclang=en (accessed 20th November, 2022).
5. See EU GDPR Article 6(4)(e).
6. See pages 42 and 67 of *Opinion 06/2014 on the Notion of Legitimate Interests of the Data Controller*, available at https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2014/wp217_en.pdf (accessed 20th November, 2022).
7. Gartner refers to this as privacy-enhancing computation (PEC) — ie protecting data when in use in untrusted environments. Gartner highlights the use of public cloud, multiparty data sharing and analytics as untrusted environments, notwithstanding that such processing is increasingly foundational to the success of organisations. See *Gartner Identifies Top Five Trends in Privacy Through 2024*, available at https://www.gartner.com/en/newsroom/press-releases/2022-05-31-gartner-identifies-top-five-trends-in-privacy-through-2024 (accessed 20th November, 2022).
8. See EDPB Final Schrems II Guidance, note 6 above; see also *Application of the CLOUD Act to EU Entities*, available at https://english.ncsc.nl/binaries/ncsc-en/documenten/publications/2022/augustus/16/memo-cloud-act/Cloud+Act+Memo+Final.pdf (accessed 20th November, 2022).
9. See 'Lawfulness of Processing' section and text accompanying Notes 32–56.
10. The same technical controls that enable surveillance-proof international data transfers reduce the surface area for attack by bad actors — both internal and external — behind an organisation's firewall. When breached, the majority of data that would otherwise be available for misuse or attack is protected by

cryptographic controls (encryption when at rest and in transit and statutory pseudonymisation when in use) and does not reveal identifying information. Access to the keys necessary to re-identify cryptographically protected data is sequestered to separately authorised personnel for limited secure processing for permitted purposes only. These additional technical and organisational supplementary measures increase the security of the data and reduce exposure and liability upon external breach or internal misuse. See EU GDPR Articles 25 and 32 (accessed 20th November, 2022).

11. See Clauses 3 and 12 of Final EU Commission SCCs, available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D0914&from=EN (accessed 20th November, 2022).
12. See *Why Words Alone Cannot Comply with Schrems II*, available at https://www.anonos.com/why-words-alone-cannot-comply-with-schremsii (accessed 20th November, 2022).
13. See *Assessing the Implications of Schrems II for EU–US Data Flow*, available at https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/assessing-the-implications-of-schrems-ii-for-euus-data-flow/71E5412185BA0AE59B9F1AE1CFB6B97B (accessed 20th November, 2022).
14. See Case 184/20 (OT v Vyriausioji tarnybinės etikos komisija), available at https://curia.europa.eu/juris/document/document.jsf;jsessionid=E7212ECF38E8EAB7DBC2AB443FD6B4C1?text=&docid=263721&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=2255189 (accessed 20th November, 2022).
15. See *The Supreme Court Just Made a US-EU Privacy Shield Agreement Even Harder*, available at https://thehill.com/opinion/judiciary/598899-the-supreme-court-just-made-a-us-eu-privacy-shield-agreement-even-harder/ (accessed 20th November, 2022).
16. See *Roe v. Wade Reversal Sends Ripples through Privacy World*, available at https://iapp.org/news/a/roe-v-wade-reversal-sends-ripples-through-privacy-world/ (accessed 20th November, 2022).
17. See *French and Italian Data Protection Authorities Take Issue with Google Analytics: Analysis and Key Takeaways*, available at https://www.orrick.com/en/Insights/2022/07/French-and-Italian-Data-Protection-Authorities-Take-Issue-with-Google-Analytics (accessed 20th November, 2022).
18. See *Commercial Prospecting and Rights of Individuals: ACCOR Fined 600,000 Euros*, available at https://www.cnil.fr/en/commercial-prospecting-and-rights-individuals-accor-fined-600000-euros (accessed 20th November, 2022).
19. See *California Attorney General Announces First CCPA Enforcement Action*, available at https://iapp.org/news/a/california-attorney-general-announces-first-ccpa-enforcement-action/ (accessed 20th November, 2022).
20. See *101 Complaints on EU-US Transfers Filed* at https://noyb.eu/en/101-complaints-eu-us-transfers-filed, see also, *101 . . . Not Dalmatians, But Tracking Technologies Related Complaints: Highlights On Recent Case-Law*, available at https://www.lexology.com/library/detail.aspx?g=e3da9b72-2dd9-498d-8bd4-dc58b3221936 (accessed 20th November, 2022).
21. See *Class Actions to Reshape the Litigation Landscape in Europe in 2023*, available at https://www.gibsondunn.com/class-actions-to-reshape-the-litigation-landscape-in-europe-in-2023/ (accessed 20th November, 2022).
22. See *Oracle's 'Surveillance Machine' Targeted in US Privacy Class Action*, available at https://techcrunch.com/2022/08/22/oracle-us-privacy-class-action/ (accessed 20th November, 2022).
23. See §17, 27, 36, 42, 44, 45, 46, 47 and 48, as well as footnote 24 of the Commission Implementing Decision of 17.12.2021 pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council on the adequate protection of personal data by the Republic of Korea under the Personal Information Protection Act, available at https://ec.europa.eu/info/sites/default/files/1_1_180366_dec_ade_kor_new_en.pdf (accessed 20th November, 2022). See also *Stop Hacks and Improve Electronic Data Security Act ("SHIELD Act")*, available at https://ag.ny.gov/internet/data-breach and 45 C.F.R. Parts 160 and 164, available at https://www.hhs.gov/sites/default/files/ocr/privacy/hipaa/administrative/combined/hipaa-simplification-201303.pdf (accessed 20th November, 2022).
24. In addition to the EU member states, the EEA also includes Iceland, Liechtenstein and Norway.
25. See EDPB Final Schrems II Guidance, note 5 above.
26. *Ibid*. at paragraph 53.
27. See Frequently Asked Questions on the judgment of the Court of Justice of the European Union in Case C-311/18 - Data Protection Commissioner v Facebook Ireland Ltd and Maximillian Schrems Adopted on 23rd July, 2020, FAQ #11, available at https://edpb.europa.eu/sites/default/files/files/file1/20200724_edpb_faqoncjeuc31118_en.pdf (accessed 20th November, 2022).
28. See *Baden-Württemberg Procurement Chamber Decides US Cloud Services are Not GDPR Compliant*, available at https://nextcloud.com/blog/baden-wurttemberg-procurement-chamber-decides-us-cloud-services-are-not-gdpr-compliant/ (accessed 20th November, 2022).
29. See the last paragraph of 26th July, 2022 NCSC legal memorandum (p. 15) highlighting that the reach of the CLOUD Act extends to data processed via sub-contractors and cloud processors, available at https://english.ncsc.nl/binaries/ncsc-en/documenten/publications/2022/augustus/16/memo-cloud-act/Cloud+Act+Memo+Final.pdf (accessed 20th November, 2022).
30. In a December 2021 EDPS webinar, Thomas Zerdick, Head of Technology and Privacy at the EDPS, stated that: 'After the Schrems II ruling, the debate on pseudonymisation has gained momentum as many consider it as the most viable "supplementary measure" to transfer personal data to third countries not offering an equivalent level of protection.' Available at https://edps.europa.eu/

press-publications/press-news/videos/ipen-2021-pseudonymous-data-introduction-thomas-zerdick_en (accessed 20th November, 2022).
31. See *IPEN 2021 on Pseudonymous Data*, available at https://edps.europa.eu/press-publications/press-news/videos/ipen-2021-pseudonymous-data-keynote-speech-wojciech_en at 4:06 (accessed 20th November, 2022).
32. Article 6(1) of the EU GDPR provides the following six lawful bases for processing EU personal data: (a) consent; (b) contract; (c) legal obligations; (d) vital interests of the data subject; (e) public interest; or (f) legitimate interests pursued by the data controller.
33. See https://www.merriam-webster.com/dictionary/Hobson%27s%20choice (accessed 20th November, 2022).
34. See GDPR Article 6(1)(a).
35. *Ibid*., Article 6(1)(b).
36. See *Amazon Gets Record $888 Million EU Fine Over Data Violations*, available at https://www.bloomberg.com/news/articles/2021-07-30/amazon-given-record-888-million-eu-fine-for-data-privacy-breach#xj4y7vzkg (accessed 20th November, 2022).
37. See *Belgian DPA Fines IAB Europe Over Consent Framework GDPR Violations*, available at https://iapp.org/news/a/belgian-dpa-fines-iab-europe-250k-euros-over-consent-framework-gdpr-violations/ (accessed 20th November, 2022).
38. See GDPR Article 6(1)(f).
39. See Article 29 Working Party Opinion on the Notion of Legitimate Interest of the Data Controller Under Article 7 of Directive 95/46/EC, currently under revision by the EDPB (see the EDPB Work program 2021/2022 adopted on 16th March, 2021, available at https://edpb.europa.eu/system/files/2021-03/edpb_workprogramme_2021-2022_en.pdf) (accessed 20th November, 2022).
40. See EDPB Recommendations 02/2021 on p. 3, citing the CJEU judgment of 4th May, 2017, Valsts policijas Rīgas reģiona pārvaldes Kārtības policijas pārvalde v Rīgas pašvaldības SIA 'Rīgas satiksme', Case C-13/16, ECLI:EU:C:2017:336.
41. *Ibid*., citing CJEU judgment of 11th December, 2019, TK v Asociația de Proprietari bloc M5A-ScaraA, Case C-708/18, ECLI:EU:C:2019:1064.
42. *Ibid*.
43. *Ibid*., citing CJEU judgment of 24th November, 2011, Asociación Nacional de Establecimientos Financieros de Crédito (ASNEF) and Federación de Comercio Electrónico y Marketing Directo (FECEMD) v, Administración del Estado, Cases C-468/10 and C-469/10, ECLI:EU:C:2011:777, points 47 and 48; CJEU judgment of 19 October 2016, Patrick Breyer v Bundesrepublik Deutschland, Case C-582/14, ECLI:EU:C:2016:779.
44. See EDPB Recommendations 02/2021, note 40 above.
45. See *Article 29 Working Party 06/2014*, available at https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2014/wp217_en.pdf at 35 (accessed 20th November, 2022).
46. See Lokke Moerel and Corien Prins, *Privacy for the Homo Digitalis: Proposal for a New Regulatory Framework for Data Protection in the Light of Big Data and the Internet of Things*, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2784123, citing Case C-131/12 Google Spain and Google Inc. May 13, 2014, EU:C:2014:317; Case C-362/14, Schrems, October 6, 2014, EU:C:2015:650; Opinion WP29 06/2014 (accessed 20th November, 2022).
47. See European Commission *Can We Use Data for Another Purpose?*, available at https://ec.europa.eu/info/law/law-topic/data-protection/reform/rules-business-and-organisations/principles-gdpr/purpose-data-processing/can-we-use-data-another-purpose_en (accessed 20th November, 2022).
48. *Ibid*.
49. Privacy by Design is the approach championed by Ann Cavoukian, Ph.D., former Information and Privacy Commissioner of Ontario, for embedding privacy into the system design process. See https://www.ipc.on.ca/wp-content/uploads/Resources/7foundationalprinciples.pdf (accessed 20th November, 2022).
50. See the quotation by the European Data Protection Supervisor, 'The first rule in data protection is: if you do not need personal data, do not collect it. The second rule is: if you really need personal data, then start by pseudonymising the personal data.' Available at https://edps.europa.eu/ipen-webinar-2021-pseudonymous-data-processing-personal-data-while-mitigating-risks_en. See also GDPR Article 25(1), GDPR Recital 78, and Articles 25(1) and (2).
51. See Commission Implementing Decision of 17.12.2021, note 23 above.
52. See https://MosaicEffect.com/ (accessed 20th November, 2022).
53. See EDPB Final Schrems II Guidance, note 7 above.
54. See EC Implementing Decision 2021/914 on Standard Contractual Clauses for the Transfer of Personal Data to Third Countries pursuant to Regulation (EU) 2016/679 of the European Parliament and of the Council on 4 June 2021 (Final SCCs).
55. Anonymisation is not the state-of-the-art for protecting data when in use because of the availability of external datasets for augmenting purportedly anonymised data enabling unauthorised re-identification. If successful in making re-identification impossible, data subjects suffer from not having the flexibility to relink to identity for authorised processing. Recital (26) of the EU GDPR notes that even the data controller must not be able to reidentify a data subject, considering 'all the means reasonably likely to be used'. In practice, data controllers never delete source datasets used to create purportedly anonymous datasets, meaning that, apart from aggregated data, re-identification will almost always be trivial for the data controller. See footnote 2 in Annex II Commission Implementing Decision (EU) 2021/914, available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D0914&from=EN, which stipulates that anonymisation 'requires rendering the

data anonymous in such a way that the individual is no longer identifiable by anyone, in line with recital 26 of Regulation (EU) 2016/679, and that this process is irreversible'. The EDPB highlights that the availability of external datasets enabling unauthorised re-identification must be considered. See paragraphs 79, 85, 86, 87, 88 of EDPB Final Schrems II Guidance, *Opinion 06/2014*, note 6 above.

56. See Article 29 Working Party Opinion on the notion of legitimate interest of the data controller under Article 7 of Directive 95/46/EC, currently under revision by the EDPB (see the EDPB Work program 2021/2022 adopted on 16th March, 2021).
57. It is interesting to note that the EC highlighted in the South Korea Adequacy Decision that pseudonymisation is a non-elective precondition under PIPA for certain processing activities pertaining to statistics, scientific research and archiving in the public interest (such as to be able to process the data without consent, repurposing, sharing and combining datasets). See paragraphs 36 and 42, available at https://ec.europa.eu/info/sites/default/files/1_1_180366_dec_ade_kor_new_en.pdf (accessed 20th November, 2022) and PIPA Sections 15(1), 28(2) and 28(3).
58. It is interesting to note that the EC highlighted in the South Korea Adequacy Decision that parties have an affirmative obligation under PIPA to 'endeavour to process personal data in anonymity or in pseudonymised form, if possible'. See paragraph 62, available at https://ec.europa.eu/info/sites/default/files/1_1_180366_dec_ade_kor_new_en.pdf (accessed 20th November, 2022) and PIPA Sections 3(6) and 3(7).
59. See *SHIELD Act*, note 23 above.
60. See 45 C.F.R. Parts 160 and 164, note 23 above.
61. Cal. Civ. Code § 1798.150(a)(1).
62. See *Breach Notification Rule*, available at https://www.hhs.gov/hipaa/for-professionals/breach-notification/index.html.
63. Fla. Stat. § 501.171(g)(2).
64. See *CJEU Schrems II* ruling at paragraphs 121, 135, 146, 154, and 203(3), available at https://curia.europa.eu/juris/document/document.jsf?text=&docid=228677&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=9745404 (accessed 20th November, 2022).
65. See *Portuguese DPA Orders Suspension of U.S. Data Transfers by Agency that Relied on SCCs*, available at https://www.natlawreview.com/article/portuguese-dpa-orders-suspension-us-data-transfers-agency-relied-sccs (accessed 20th November, 2022).
66. See *52% of Fortune 500 Now Include Privacy Risk in 10-K Reports*, available at https://www.linkedin.com/pulse/52-fortune-500-now-include-privacy-risk-10-k-reports-jay-cline/?trk=eml-email_series_follow_newsletter_01-hero-1-title_link&midToken=AQEuYwjcC6-W7A&fromEmail=fromEmail&ut=3RK9saM2F069M1 (accessed 20th November, 2022).
67. See clauses 3 and 12 of Commission Implementing Decision (EU) 2021/914, available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021D0914&from=EN (accessed 20th November, 2022).

Journal of
Data Protection & Privacy
Volume 5 Number 3

Contents

Editorial

Elon Musk's cost-cutting at Twitter raises fresh data protection concerns and puts the social media platform on a collision course with regulators on both sides of the Atlantic 205
Ardi Kolah, BA (Hons), LL.M, MBCS, MSyI, CIPP/E, CIPM, FIP, FRSA, Doctorate Researcher, Queen's University Belfast and Founding Editor-in-Chief, Journal of Data Protection & Privacy

Comment

Who are you on Web 3.0? 207
Lothar Determann, Baker McKenzie

Practice papers

African Union's Data Policy Framework and Data Protection in Africa 209
Kinfe Yilma, Addis Ababa University

The AI Act in light of the EU Digital Agenda: A critical approach 216
Konstantinos Kouroupis, Frederick University

Deconstructing the regulatory impact of the US CLOUD Act: An optimal regulatory approach to ensuring access to data in the cloud? 230
Nick Roudev, Linklaters and Lori Baker, Dubai International Financial Center

UK data protection and digital information bill explained 242
Steve Wilkinson, Freelance Data Protection Officer

Observing 2021–2 data breach decisions of the Irish Data Protection Commission 254
Marie C. Daly, Covington & Burling

Privacy nutrition labels, app store and the GDPR: Unintended consequences? 267
Miloš Novović, BI Norwegian Business School

Technical controls that protect data when in use and prevent misuse 281
Magali Feys, AContrario.law, et al

Right to be forgotten in case of search engines: Emerging trends in India as compared to the EU 297
Indranath Gupta and Paarth Naithani, Jindal Global Law School

Book review

Taming the Algorithm. The Right Not to Be Subject to an Automated Decision in the General Data Protection Regulation 310
Prof Dr Chris Bellamy, Member, Editorial Board Journal of Data Protection & Privacy

Henry Stewart Publications
Ruskin House,
40-41 Museum Street,
London, WC1A 1LT, UK
www.henrystewartpublications.com

Journal of
Data Protection & Privacy

Editorial Board

Order Form

Journal of

Data Protection & Privacy

ISSN 2398-1679

◯ Please enter my subscription to the current volume, Volume 5 (consisting of 4 issues), at:
☐ £210 UK and Europe ☐ US$295 N. America* ☐ £225 Rest of World

◯ Please enter my subscription to the current volume, Volume 4 (consisting of 4 issues), at:
☐ £210 UK and Europe ☐ US$295 N. America* ☐ £225 Rest of World

◯ I enclose a cheque made payable to: Henry Stewart Publications

◯ Please invoice me/my company

◯ Please charge £_____/US$_____to my Mastercard/Amex/Visa (Please delete accordingly)

*Only subscribers in North America may pay the Dollar rate. All other subscribers will be charged in Sterling

Card No: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiry date: ☐☐/☐☐

◯ CVC Number* ☐☐☐

(*the last 3 digits on the reverse of card — please note this data will be destroyed after your payment has been processed)

Name of Cardholder:_____Signature of Cardholder:_____

Please provide card billing address if different from the firm/organisation address.

_____

_____

Postcode

Mr/Mrs/Miss/Ms First Name Last Name

Position/Department

Organisation

Address

_____

Country Zip/Postcode

Tel: Fax: E-mail:

Type of Organisation

PLEASE PHOTOCOPY AND SEND THE COMPLETED FORM TO:

Henry Stewart Publications, Ruskin House, 40-41 Museum St, London, WC1A 1LT, UK

Tel: +44 (0)20 7092 3469, +1 646 895 6129; Fax: +44 (0)20 7404 2081; E-mail: gweny@henrystewart.co.uk