Building a model for ethical enterprise information management

In Chapter 6 we presented the Zachman Framework for enterprise architecture as a tool for framing discussion around ethical concepts in organizations, building on the oft-neglected 'Motivation' column of that framework. Zachman's approach to mapping the management of an enterprise information ontology shows a successful visual description of complex systems and issues, breaking them down into simple, understandable structures and questions.

When we consider the implementation of ethical principles in organizations, we are looking at complexity in multiple aspects. Technology implementation is complex to begin with. To add to that complexity, we have the challenges of identifying the ethical values and norms guiding our organization, and the further complexity of defining, communicating and embedding ethical values in an organizational framework. This moves beyond the overarching big-picture questions of what our organizational values are – what dominant normative theory for ethics is being adopted in the organization – and how we categorize our ethical constructs in the context of an enterprise ontology. It goes right down to on-the-ground complexities of how the organization can ensure alignment between its headline ethical values and the actual experiences of the people interacting with and affected by our organization. Our 'executive level' views cascade down to the actual instances of the effects on how we use data on our customers and society.

Seeking simplicity – a generic framework for information management

Our aim in this chapter is to share with you a simple, flexible, visual model for discussing the complexity of integrating and implanting ethical concepts into information management practices.

The Ethical Enterprise Information Management (E2IM) model you will explore in this chapter has been developed by the authors in our consulting practice.

We developed it as a visual representation of a strategic framework that describes the role and contribution of information management disciplines to the execution of effective ethical information management so they can be properly identified and managed.

The E2IM model is built around a generic framework for information management first proposed by Professor Rik Maes in the University of Amsterdam in the late 1990s, which built on prior research on strategic alignment of information technology conducted by Henderson and Venkataraman earlier in the 1990s. We have extended these models to describe the interplay and alignment of ethical frameworks with an organization's information management practices, but these earlier frameworks were focused on explaining why so many IT projects fail to deliver their expected benefits.

The alignment problem

In their research, Henderson and Venkatraman (1993) advocated a four-box grid model to represent the alignment of business and IT functions in an organization, addressing the questions of strategic fit and functional integration between business and IT in the context of the overall strategy of the organization. This framework advocated the alignment of business and IT functions along two basic axes. The vertical

axis represented the 'strategic fit' between the organizational processes and procedures with the defined business strategy, and the equivalent fit between IT systems and functions with a defined IT strategy. The horizontal axis represents the 'functional alignment' between the business strategy and the technology strategy, and the alignment between business functions and the technology that is being implemented to support and enable the execution of those processes.

This recognition of the need for strategic alignment is useful, but the model was missing a critical element – information, or data. This model conflated information with the underlying technology that is used to process and manage it. It also oversimplifies the 'internal domain' of the organization by combining the infrastructure for delivery (organization structures, technology infrastructure, etc.) with the processes being executed for delivery of outcomes. This contributed to the failure of IT projects to meet business objectives, as the nuance and importance of information flows and the management of information was often lost.

Maes et al (2000) proposed an alternative model, commonly referred to as the Amsterdam Information Model, that extends both the vertical strategic fit axis and the horizontal functional axis to reflect these gaps. This model explicitly recognizes the need to strategically manage and govern information as a distinct concept from technology systems, and also extends the organization domains that need to be considered. This gives a nine-box model describing the relationships between the various domains within the organization that need alignment in planning and implementation across business management structures, information architecture and technology architecture, to ensure consistent delivery against the defined business and information strategies. Much like the Zachman framework, the Amsterdam model provides a structure for you to consider the connectedness of things in the organization across different directions.

We have found it useful when working with organizations to illustrate the implications for and impacts on one part of the organization resulting from a strength or weakness in the other. For example, an organization may require compliance with financial accounting and taxation laws as part of its governance and business strategy. But if the IT services staff use on a day-to-day basis are losing, miscalculating or misclassifying transactions, the operational issues of that IT service would affect the information used for planning and decisions in the organization, and strategies made on incorrect data and assumptions would lead to errors in accounting and failure to meet business strategy and governance goals. Likewise, if your business organization structures are not properly supported by your technology architecture, through segregation of duties and an information architecture that supports data segregation and role-based access to data, it would be difficult across the board to ensure effective governance of information security and data privacy at the operational level.

However, we found in our consulting work with organizations that this model still missed a necessary focus, the experiences of people who deal with the results of the information handling, or 'stakeholders'. Our clients need to explain not just what's going wrong in an organization because of data handling issues, but also the 'so what?' question. Why does it matter to the stakeholder? As a result, in 2012 we started to extend the Amsterdam model to formally recognize the 'so what?' question in the context of the outcomes that are experienced by stakeholders because of the operation of the internal business, information and technology functions in the organization.

By explicitly recognizing the importance of the stakeholder's perception of the outcomes that they experience as a result of the processing of personal data, you can begin to discuss the impact and

implications of business strategy, information architecture or technology implementation on the experience of the stakeholder.

This framework describes two types of experience of outcome: process outcome (did the process they were engaged in proceed in the manner they were expecting?), and information outcome (did the information meet their expectation? Was it retained for longer than they would expect? Was it processed in a location that the stakeholder might not have been expecting?).

The connecting lines in these models are as important as the boxes, as the connecting lines represent the alignment between the different perspectives on the organization's information management objectives. As Maes points out, this alignment is a source of tension, with misalignment giving rise to either organization failure or creative tension and innovation. The challenge that organizations face is to manage that tension in a way that mitigates risk, which the International Organization for Standardization (ISO) defines as the 'effect of uncertainty on outcomes'. Ultimately, the stakeholder (usually) does not care how the 'magic' happens in the context of any information-processing activity. Your concern is that the correct process outcome is achieved and that the right thing happens as expected.

When you order a book from an online bookstore do you expect to be given insights into the business strategy, operational architecture and technical data-processing steps that your data goes through to turn your request for a book into a delivered item? No. Your concern is with getting the right book, at the right time, at the right price and in the right condition. Of course, failures in the alignment of strategy, structure and operations can lead to delays in shipping, shipping to the wrong address, shipping of the wrong item or charging of the wrong amount.

While executing ethical information management is not quite the same as ordering the latest book on ethical information management from a bookstore, the need to ensure appropriate alignment strategically and functionally in the execution of information management is equally important to ensure that the outcomes meet the expectations of the stakeholders. It is this uncertainty as to the ethical nature of the *outcomes* of information processing that we concern ourselves with for the remainder of this chapter.

Engineering the ethical links

In order to engineer the ethical links in the organization's information management framework we need to consider the practical issues of how codes of ethics and codes of conduct are defined and communicated in the organization. This is usually done through the 'tone at the top' from the organization's leadership. The practical application of an ethical framework in the context of modern information management will need to consider organizational values, processes and development of technology in the context of fundamental ethical principles such as human rights and dignity. This extends beyond an agreed-upon 'code of practice' into ensuring communication of values across an organization, and governance of processes and behaviour. As with technology and information strategy, this requires both horizontal and vertical alignment to ensure values are communicated and implemented consistently.

Without an ethical 'tone' set from the top and full integration of ethical values across an organization and into the planning and design phases of the life cycle, a code of practice may run the risk of ending up a dead and useless 'strategy' document that bears little relation to an organization's strategic practice, or wind up delivering structures that drive 'tick box' compliance to a minimal standard that does not uphold ethical information management practices The consulting euphemism for the potential results is

'unexpected adverse consequences'. The ethical concern is harm to the people affected. Therefore, in the context of ethical information management we must:

- address the strategic, structural and operational layers;
- ensure alignment between business functions, information management and technology implementation;
- consider the perspective of the stakeholder and the outcomes they experience arising from the processing of information.

We further extend the model to illustrate a need for alignment in ethical norms and expectations. This dimension represents the potential of a conflict in ethical norms or frameworks, both within the organization and between the organization and the social communities it interacts with. (At this point, we are not prescribing a normative ethical framework.)

An organization's priorities may or may not align well with the overall ethical priorities expected by the culture the organization interacts with. This is the ethical expectation of the external stakeholder in the macro context. Organizational or corporate social responsibility is a factor in building trust with the public, and trust is often a vital component of an organization's reputation. An organization that does not clearly uphold the rights of its customers, or align with their ethical expectations, runs a large reputational risk that may affect not just the organization itself but the sector it is in. A telling example of this is the focus that is being brought to bear on online advertising and social media in the wake of allegations of interference by foreign powers in elections and referenda.

While the impact of psychometric targeting by companies such as Cambridge Analytica has not been clearly measured, large-scale advertising purchases by hostile countries that fed the 'filter bubble' effect and attempted to directly influence potential voters in various global elections has been a notable development in propaganda tactics (FBI, 2018; Frier, 2017). Misinformation, and more direct incitement to violence and even genocide, are pressing public concerns that highlight friction between societal expectations, social media companies' stated values, and the priorities and actions highlighted by actions taken and outcomes. For example, one of a succession of whistle-blowers on Meta's practices (formerly Facebook) described this misalignment, testifying to the US Senate that despite Meta's publicly stated values, 'The company's leadership knows ways to make Facebook and Instagram safer and won't make the necessary changes because they have put their immense profits before people' (United States Senate Committee on Commerce, Science and Transportation, 2021).

A risk-based approach may be used to help define a proactive, principles-based strategy to work towards outcomes that align with a rights-based ethical framework. Peter Young argues that ethics may be considered a risk issue and a management issue, noting that high-profile scandals point out the 'practical consequences of unethical conduct' and stating that 'organization leaders who espouse a belief that expectations for ethical behaviour have become part of the "risk environment" for top management. So, arguably, both stakeholders and managers view "ethical risk" management as important' (Young, 2004). The ethical dimensions of business are of concern to an organization's customers and stakeholders. However, the internal and external understandings of an organization's ethics may not align. It is important to consider both the internal goals and values of an organization and the external values and expectations of the greater society.

In looking at the morals manifest in business cultures, Steven P Feldman observes that organizations that place their primary priorities on competition and increasing shareholder values often have difficulty integrating their 'competitive values' or a focus on maximizing profit with the 'moral values' of the greater community. Most organizations with strong ethical values had a strong moral vision at executive level. Companies with a 'clear moral vision' integrated an ethical framework that defined the organization's cultures and priorities and directed action, incorporating these values throughout all facets of the organization and extending them to interaction with the larger community. A siloed approach tends to be problematic. As Feldman says, 'The lack of cultural integration between competitive values and moral values plagues many companies' (Feldman, 2007).

The results of such a lack of 'cultural integration' of organizational values and priorities have been seen recently in the scandal surrounding Volkswagen's use of defeat devices, which we referenced previously. The illegality of using defeat devices to evade environmental regulatory standards is one sign of a disjunct between organizational and societal priorities, but the loss of trust in the organization that has followed shows that the mismatch between the values and ethical standards of the organization extends beyond the letter of the law. It is worth noting that the effects of the scandal are not limited to the organization itself. The consequences of the scandal have affected other automobile manufacturers, destroyed the resale value of diesel cars (Rogers, 2015) and resulted in more than one person going to prison (Atiyeh, 2019; Shepardson and White, 2017).

An organization needs to understand its own values and priorities so it can communicate them and determine 'right action' or desired behaviour within the organization. To ensure outcomes that are considered desirable from the standpoint of a customer or the larger community, it is also necessary for you to understand how the organization's ethics align with the larger community or societal ethics and expectations. These are the expectations of the external stakeholders of the outcomes they will experience as a result of the management and processing of information by your organization. The following steps are necessary to clearly determine and communicate the ethical framework for your organization:

1. Identify the priorities of the organization and desired behaviour in the organization.
2. Identify how the organizational ethic or priorities align with the larger societal ethical expectations.
3. Determine the desired outcomes and desired behaviour.
4. Ensure you have the tools to promote that outcome.

The tools in this case may include standards to determine the appropriateness of an action or procedure, evaluation of the risks of adverse outcomes (including the possibilities of unintended outcomes), and a system of rights and accountabilities to ensure alignment of decisions and actions with priorities and ethical principles. Outcomes and the alignment of outcomes with customer expectations may also act as a sort of large-scale key performance indicator for the function of the ethical framework.

To ensure effective alignment of information ethics, the ethical framework of an organization needs to be communicated across silos in the organization as part of the core values of the organization, rather than simply being a line item on a management agenda. The communication of values must be strategically aligned in the business vertical, but also needs to be aligned horizontally so that the information strategy vertical and technology vertical are implemented in a manner consistent with the ethical values of the organization. Where there is a disconnect, a failure to ensure appropriate alignment, it is inevitable that

the stakeholders of the organization will experience outcomes that might not meet their ethical expectations.

One way in which a lack of cultural integration of priorities into the organization may be observed is a 'tick box' approach to compliance. A strategic business decision to focus on regulatory compliance as a target is likely to result in a bare-minimum response and a reactionary approach rather than an active, strategic use of governance to ensure optimal ethical outcomes for stakeholders. However, a similar approach to compliance might also be the result of where the organization's ethical framework solely prioritizes increasing monetary value for shareholders as an outcome. In this case, the organization's desired outcomes may come into conflict with the expectations of the larger community that it is part of.

This conflict of priorities within an organization is not unique to questions of data privacy and other information governance and compliance initiatives, but it is an age-old conflict in the application of ethics in organizations and society. The resolution of this conflict requires careful and diligent management of behavioural change to align organizational and societal ethics, and indeed to align the ethic of the individual actor to the desired value system. The alignment between the horizontal functional focus of the organization, and the alignment of strategic priorities and objectives at all levels in the organization, requires considered planning and engineering of the ethical information management culture and environment in your organization.

The design and application of technology in support of business and information imperatives is an essential element to ensure that ethical standards are met. However, the specification for that technology, the use of that technology, the operation of controls, the communication of requirements, and the identification of and assessment of risks associated with technology require human actors to make ethical choices.

Volkswagen's engines misreported emissions in regulatory checks. They did so because the engine management software was designed to detect regulatory checking and to modify the engine performance characteristics for the duration of that test. That software behaviour was specified by people who defined the requirements for systems; it was coded by people who programmed the systems; it was accepted as desired and acceptable by people who wrote and executed software quality tests for those systems. People ignored external reports indicating that there was cause for concern.

A series of ethical choices affected the ultimate delivery of an expected outcome to society (cleaner engines and lower emissions). These ethical choices affected the strategy for and governance of key information in the context of Volkswagen's engine management systems. The pursuit of market growth drove a series of choices that served to undermine shareholder value in Volkswagen. It ultimately damaged trust in the German automotive industry, tainted other car manufacturers (regardless of their use of similar cheats), and raised questions over the effectiveness of government regulation in a number of jurisdictions.

This presents us with a clear conflict between the ethical framework of the organization and the ethical framework of society that has resulted in a series of outcomes that fail to meet the expectations of society. The challenge, and opportunity, arises from the need to understand how to take the abstract concepts of ethics and implement them in a strategic framework for information management, such that informed and effective choices can be made for the governance of information that acknowledges, supports and enables the delivery of ethical outcomes.

Engineering ethical alignment

Decisions and actions at all levels of the organization are coloured by and influenced by the organization's ethical or moral priorities. At the outcomes level, the organization comes in close contact with the ethical framework of the larger society. On one hand, the organization's attitudes towards the 'customer' are coloured by its ethical framework. On the other, the expectations of what is considered a quality outcome (process outcome or information outcome) by external 'customers' are shaped by the larger socioethical framework. A significant disconnect between social ethic and organizational ethic is likely to cause unsatisfactory outcomes and responses.

Figure 7.3 shows a conceptual model for information management functions in the context of two nested ethical perspectives – the 'ethic of society' and the 'ethic of the organization'. There is a third, the 'ethic of the individual'. We address this aspect in Chapter 9 in the context of data governance for ethical data management, but in the interests of simplicity we do not represent it in the E2IM framework diagrams. Suffice to say that it is in an organization's best interests to recruit and retain staff who best align with and exemplify the ethical values the organization espouses, and that society expects.

This model is built around our extension of the nine-box Amsterdam Information Model discussed earlier in this chapter. In our consulting work, Castlebridge extend this model to include the 'customer perspective', which constitutes an expectation (or set of expectations) of how the information and process management capabilities of an organization will deliver desirable and expected outcomes for them (information outcomes and process outcomes). The quality of the overall system of information management (the original nine-box model) is defined by how well the information and process outcomes produced by it meets or exceeds the expectations of the customer, in the form of an individual customer or as embodied by society as a whole.

The influence and roles of ethical frameworks on the perceived quality of the system of information management arise in two distinct ways:

1. The ethic of society influences strategic and tactical governance and planning in an organization through the definition and enforcement of laws and regulations, and the development of standards and codes of practice to support the implementation of both legislative requirements and wider concepts of 'good practice'. Customer feedback and complaints (the 'voice of the customer' in quality management terms) drive changes in organization business practices, information management capabilities and technology components.

2. The ethic of the organization can influence society through lobbying at a strategic level, contribution to establishing what 'good practices' are through benchmarking and contribution to standards working groups, and through education of the customer and the wider market as to the benefits of products or the societal value of the proposed information processing.

Within the organization, the alignment of and execution of business, information and technology functions is generally achieved through the operation of processes, policies, controls and communication within and across organization verticals. This is illustrated in the diagram by the narrow vertical lines, as

before. These represent the *documented* governance structures and procedures for ensuring and assuring alignment. However, the effectiveness of these lines of communication and governance can be heavily influenced by the ethic of society and the ethic of the organization, represented by the horizontal lines running parallel to the formal structures.

Where an organization is strongly aligned with the ethic of society, then issues with, questions about and challenges to proposed strategies, methods and procedures for processing information that are at odds with that ethic will be more likely to be communicated and addressed to ensure an overall system of information management that will be capable of better meeting the expectations of customers in that society. But if the ethic of the organization is the dominant cultural driver in the organization, particularly if its values are strongly shareholder-theory oriented, we often find such challenges greeted with resistance, attempts to downplay or ignore the risks, or at times an almost bullying approach to obtaining and processing data even to the point of breaching applicable laws and guidance standards.

In short: the decisions an organization takes regarding the implementation of an information architecture or an information governance framework are directly impacted by the manner in which the organization aligns and emphasizes its internal ethical framework with the ethical framework and expectations of society. The 'tone at the top' and the spirit of execution in the middle are essential to the effective implementation of an aligned governance model for effective ethical information management. Where the ethic of the organization runs counter to the ethic of society, or where the ethic of society has yet to fully appreciate the implications of a data-processing activity, we often find ourselves at the mercy of the ethic of the individual. This, in turn, is often subject to peer pressure or conflicts of priority and of objective.

Stephen Feldman has described the split personality of business ethics in management as follows, 'On one hand, they [managers] can develop a single-minded pursuit of profit that sometimes has difficulty even bridling itself at the boundaries of the law; on the other hand, business managers are socialized in communities where virtues of honesty, fairness and trustworthiness are held in high regard' (Feldman, 2007).

Unfortunately, this dichotomy of emphasis is not unique to commercial organizations. The single-minded pursuit of one perspective of value can ultimately lead to actions that run counter to commonly agreed ethical values. It is this dichotomy that leads to charities selling or renting access to their donor databases to list brokers without a lawful basis (because it helps make more money for the delivery of service), to government departments demanding bulk data sharing without a clear legal basis and other necessary controls, and to researchers chafing against the constraints that must be placed on their use and exploitation of data to mitigate against unintended consequences of otherwise valid research goals.

As concern about the ethical and societal impacts of data and data processing grow, we are seeing an increase in organizations such as Facebook beginning to invest in governance structures and control systems to counter 'fake news' and to introduce additional ethical and privacy controls into their business models (Culver, 2017). These are being introduced in response to feedback from customers and from society that the outcomes that are being delivered are unacceptable. What remains to be seen, however, is whether these changes are merely initiatives affecting the formal 'black line' controls within the organization or whether there is a meaningful realignment of the business, information and technology dimensions of the organization to address the core issues that arise.

The initial resistance of Mark Zuckerberg to accept the potential for Facebook to have influenced the outcome of elections would appear to suggest there may be a disconnect between the ethic of the organization and the ethic of society at the strategic level that could impede meaningful change. In November 2017, Facebook was scheduled to appear before a Senate Committee hearing (an example of the 'law and regulation' influence of the ethic of society). Media reports suggested that senior executives will not be present, but instead would be attending an investor conference call (Shinal, 2017). The hearing was attended by Facebook's General Counsel, not senior executives (US House of Representatives Committee Repository, 2017). While Zuckerberg and other Facebook executives did attend later hearings in the United States, the EU and other jurisdictions, the 'tone from the top' was clear: answering to shareholders was more important than answering to legislators and elected representatives. This 'tone from the top' of shareholders before stakeholders does not bode well for the sustainability of changes in ethics practices or thinking in the organization.

However, in an organization that maintains a balance of priorities that align with the socioethical framework, what is understood to be a quality outcome by the organization should also align with societal expectations. The challenge lies in addressing ethical alignment in the philosophies and strategies for information management in organizations. This requires both an emphasis on introspective re-evaluation of ethics by the organization, as well as an approach to educating and communicating with society about the ethical frame being applied in the organization to the proposed processing.

In cases where there is a significant disconnect between the two ethical frames outlined, it also requires a clear articulation to society (the customers) as to how the proposed processing is to the benefit of society, even if it requires an evolution of the ethic of society to permit the processing.

In this way, the expectation of information and process outcomes, and the perceived and experienced quality of the outcomes delivered by the system for information management in the organization, can be more appropriately established and aligned in a way that not only supports a balancing of at least two potentially competing ethical perspectives but may contribute to an improved quality of ethical practices in relation to information in organizations and society alike.

The basic principles of human rights, human dignity and the concepts of Kant's 'categorical imperative' (treating the human individual as an end, not just a means) might be used as foundational checkpoints to test outcomes against expectations of quality in an ethical framework.

The analysis of utility of ethical impact

The outcomes of different actions naturally vary greatly from small effects to extremely large impacts on quality of life. Possible consequences of an action or option can vary from annoyance to fatal. A pragmatic, utilitarian way to measure this may be to apply a basic risk and impact analysis on the actions planned, determining likely consequences of an activity, the severity of impact these consequences might have, and whether there are any controls in place (such as legal regulations) to mitigate this. Two questions for you to ask at this stage are:

1. Are there societal controls in place to ensure human dignity is upheld in this case?
2. What organizational or technical controls can we put in place to ensure human dignity is upheld?

The question of controls includes both external controls such as regulations and internal controls to ensure actions are limited to avoid violating rights.

These controls may be as simple as ensuring that individuals are made aware of the purposes of processing, the basis of processing, and the identity of entities or categories of entities that data may be shared with. The importance of this principle in EU Data Protection law was reinforced by the Bara case in the European Court of Justice (Court of Justice of the European Union, 2015). Dignity may not require consent to be obtained (in Bara the Romanian government agencies had a statutory basis for its data sharing), but it does require that there be an awareness of the nature of the proposed processing.

This type of analysis is similar to a traditional risk analysis in which the probability and impact of the consequences of an action can be identified and assessed, and the relevant controls to mitigate and rebalance that risk are identified. In the context of privacy-impacting processing, this type of analysis is a key component of a privacy impact assessment, going beyond basic 'tick box' checks against statutory requirements. Instead it ensures a focus on first principles of ethical behaviour, combined with regulatory requirements and the influence of other externally defined standards.

In cases that touch upon fundamental human rights, the risk appetite of an organization should be low. This requires that the organization has a clear understanding of the balance and trade-offs between its goals, as expressed through the ethical framework of the organization, and the expectations of its customers, as expressed through the ethical framework of society. This highlights the importance of impact analyses such as privacy impact assessments, and the need to anticipate in planning and design which areas may impinge upon human rights and ensure controls are in place to mitigate risk and uphold human dignity.

Ethics and Big Data

In Chapter 1 we introduced the European Data Protection Supervisor (EDPS) in the context of the regulatory focus on information ethics in Europe. We examined some of the core concepts the EDPS was promoting, from the perspective of the ethical models that they seemed to be aligning with. In the paper 'Towards a new digital ethics' (EDPS, 2015) the EDPS has thrown a clear focus on ethics and human dignity into the overall discussion of data protection and privacy.

The EDPS opinion identified four key themes through which human dignity can be preserved through ethical practices in 'big data'. The framework we have outlined in this paper aligns with these themes and provides a model for the practical implementation of strategic, tactical and operational governance models for information in organizations. The E2IM framework provides a basis to understand and implement the principles that the EDPS has set out in the opinion on ethics in big data.

Future-oriented rules and enforcement

In our framework, legal and regulatory rules are the input of society into the ethical framework of the organization. This input happens at the strategic level to influence the strategic and governance decisions for business, information and technology.

Once the voice of society is heard through externally imposed rules, these need to be internalized into the ethical framework of the organization, cascading down from strategic to operational decision makers, and aligning across the three fundamental activity domains of the organization (business, information and technology).

The organization can seek to influence rules at the strategic level through lobbying activities, which would include traditional lobbying of legislators but would also include education of wider society about the nature and scope of proposed processing and the trade-offs and benefits.

Regulatory rules need to be explicit enough to be meaningful and enforceable but not so prescriptive as to prevent their evolution in response to changes in the potential application of emerging capabilities in technology or to changes in the wider ethical framework of society.

Of course, without effective and visible enforcement, particularly in a form that has consequences at the strategic level in the organization, there will be inevitable misalignment of objectives and governance within the organization. This enforcement needs to be meaningful to counteract the conflicts of priorities identified by Feldman and others, which we discussed earlier.

It is tempting to believe that the influence of the 'court of public opinion' would play a role here. However, this societal penalty may only be as long-lived as the news cycle, hence we do not include it at this level in our framework. Financial and criminal sanctions against organizations and individuals help personalize the need to align the ethic of the organization with the ethic of society.

Ultimately, both brand pressures and other sanctions will provide a 'carrot and stick' in the context of enforcement as the 'customer expectation' of information or process outcomes might be sufficiently negative as to dissuade people from buying a product, using a service, or sharing full and truthful information with a government agency.

Accountable controllers

The EDPS tells us that: 'Accountability requires putting in place internal policies and control systems that ensure compliance and provide relevant evidence in particular to independent supervisory authorities' (EDPS, 2015). This requires formal planning for the implementation of and execution of defined systems of governance for business functions, information assets and technology platforms. In particular, the ability to generate and produce consistently reliable evidence for the operation of controls over the processing of data is essential.

The EDPS has argued for more responsible initiative on the part of businesses. These we identify as 'standard practices' that might emerge from within an organization and which might be held up as being of benefit to its wider industry or to society (we refrain from using the term 'best practice' as this implies no scope for continuous improvement). The EDPS also identifies guidance from data protection authorities, codes of conduct, certifications and other mechanisms to support accountable behaviours in the organization.

Another sub-theme in the EDPS commentary on 'accountable controllers' is the importance of proactivity and transparency of processing in ensuring robust trust. Our framework represents this through the explicit focus on the customer's expectations of information and process outcomes and the customer feedback loop.

Empowered individuals

The EDPS opinion discusses the need to recognize that individuals are empowered, but also to provide the ability for individuals to exercise power and control over their data and how it is to be used. It discusses the concepts of prosumers, consent and data ownership. These reflect the interplay between the individual as an actor in society and the organization.

This societal expectation of the types of process and information outcome that an organization should deliver, and the ability of the organization to meet these expectations, defines the overall quality of the system of information management in an organization to support human dignity through the application of ethical principles and practices.

Educating the customer about the uses of data, and avoiding the pitfalls of assuming – without appropriate explanation, lawful basis or consent – ownership of someone else's data that is linked to their individual personality, is one approach to empowering individuals. Providing mechanisms for individuals and society to provide feedback on how data is being processed, and the impact on human dignity, is another.

However, for these mechanisms to be effective in practice, the organization needs to ensure appropriate alignment and governance of the business, information and technology functions that contribute to the delivery of the expected information and process outcomes. Part of that governance is an ability to re-spond to and adapt governance controls to feedback from society, whether it is represented by an individual, a civic society organization or a regulator.

Ultimately, as the EDPS points out, in the balancing act between personal data privacy and other concerns such as public interest and the rights of others, human dignity is a constant that must be respected at all times. This right is best supported through mechanisms for governance of information, which allow the 'voice of the customer' to be heard and their dignity to be recognized.

Privacy-conscious engineering

Giovanni Buttarelli, the former European Data Protection Supervisor, tells us that:

> Human innovation has always been the product of activities by specific social groups and specific contexts, usually reflecting the societal norms of the time. However technological design decisions should not dictate our societal interactions and the structure of our communities, but rather should support our values and fundamental rights. (EDPS, 2015)

Buttarelli outlined many mechanisms and approaches by which this balancing of technology design against societal interactions and fundamental rights can be achieved – techniques such as metadata to tag records with their data protection requirements, data aggregation and empowerment of individuals through anonymity.

A 'first principles'-based approach building on an assessment of the proposed outcomes against their ability to support human dignity, and their alignment with fundamental concepts in ethical philosophy, is a key first step that you should take to implementing ethical information management practices. To incorporate these into effective day-to-day operative governance frameworks, you need to focus not just on technology but on the 'business' processes, functions and objectives that you intend such technologies to support and enable. Hence the importance of the E2IM framework in ensuring effective alignment of perspectives, strategies and practices.

This 'principles first' approach must, by its very nature, be based on an assessment of the proposed outcomes for society and the desired outcomes of the individuals on whose behalf you are processing this data. From there, your organization must engineer both your technology and the organizational ethics to ensure appropriate attention and respect is paid to ethical concerns such as privacy in a holistic governance environment, rather than this being a hasty afterthought.

Conclusion

The vital importance of an ethics framework to govern the development and use of new technologies has been recognized again and again. New developments in information management tools and capabilities shine new light on the need to take steps to actively engage in determining a framework that ensures rights are upheld.

A framework for ethical information management practices will need to look to the future to ensure processes are designed with regard to respect for human dignity and fundamental rights such as privacy and data protection. Communication of these values and ethics in an organization must be cross-functional and extend across silos, and will need to be supported by a governance framework that ensures accountability. Following good information governance practices and ensuring ethical requirements are considered at the beginning stages of the information life cycle will help to ensure that new developments in information processes and technologies enhance the dignity and empowerment of the person.

In discussing the need for an ethical framework for modern information management tools, it is useful to ground yourself in first principles and to look back to lessons learnt in other areas and disciplines. Technology itself is neutral; our use of technology must be ethical. The fundamental requirement in any design or plan to use technology in a novel way is to ensure that the outcomes of the new use do not result in violations of human dignity, whether by design in which the individual is seen as a means rather than an end, or by unintended consequences of a well-intended process. Rather, from initial planning and design, the ethical values of upholding human dignity must be integrated and communicated as a vital consideration in the design and implementation of new technology and processes. A principles-based, outcomes-focused framework may provide tools to determine priorities in the contexts of organizational and societal values in order to identify and mitigate the risks of adverse outcomes.

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