

CODE OF ETHICS

for Data-Based Value Creation



IMPLEMENTATION

OVERVIEW

The “Code of Ethics for Data-Based Value Creation” consists of the following documents: 1) Overview; 2) Basics; 3) Recommendations; 4) Implementation; 5) Context.

The **IMPLEMENTATION** document shows how data-ethics principles can be integrated into company processes, what organisational variants exist in this respect and what are the functions of ethics implementation. The code is available in German, English, French and Italian.

IMPRINT

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1. INTRODUCTION

The introduction provides a brief overview of the most important terms relating to the structure and processes of companies that offer data-based services or products. This should facilitate a practical realisation of ethics in the organisation of a company, by providing a connection to common concepts of business administration and data management. We also refer those interested to further literature on the topic.

1.1. BASICS: COMPANY ORGANISATION AND CULTURE

ORGANISATION AND ORGANISATIONAL DEVELOPMENT

The term 'organisation' is a basic concept of the social sciences, encompassing both the goal-oriented, holistic design of relationships in social systems and the results of such activity (Vahs and Schäfer-Kunz 2007). On the one hand, organisation theory uses it for entire systems, such as companies, churches, trade unions, schools, authorities, or associations (institutional organisation concept) and, on the other hand, for the process of organising within such systems (instrumental organisation concept). In the latter case, the goal of shaping work processes guides the focus towards organisational rules. In this context, organisation manifests as a function of corporate management. In contrast, the institutional understanding of organisations looks at the entire system, i.e. the institution (Schreyögg and Geiger 2016).

In turn, the term 'organisational development' refers to a long-term process of sustainable development and changing the organisations and the people working in them. The effect of this process rests on the joint learning of all persons directly participating in the processing and solution of operational and entrepreneurial problems. This assumes that the performance of the organisation and the quality of (working) life within the organisation are directly interdependent. Thus, the aim of a change process in the traditional approach is the simultaneous improvement of the performance or profitability of an organisation (efficiency) and the quality of working life (human factor) (Wagner 2014). Organisational development implies a holistic view that considers the individual, the organisation, the environment and time as parts of a whole. The work of organisational development takes into account the networks, interdependencies and laws of social systems (Gesellschaft für Organisationsentwicklung e.V.).

The implementation of ethics in a company is clearly a task of organisational development. The recommendations of the Code of Ethics for Data-Based Value Creation aim at a holistic view of data management, including its potential impact on society and its repercussions for the reputation of the company and data management as a whole. Therefore, successful use of the Code of Ethics also includes the task of incorporating the recommendations that the Code proposes and adapting them to the concrete objectives of a company, into its structures and processes, so they have the desired effect.

FORMS OF ORGANISATIONAL STRUCTURES IN COMPANIES

Organisational structures are an instrument to control the behaviour and performance of organisational members, in order to achieve the organisational goals. The so-called 'dual problem' of organisational design, which requires a solution, consists of two elements:

- 1) **Organisational differentiation – the problem of the division of labour:** The economic-growth process that industrialisation triggered brought with it growing complexity. The principle of the division of labour increasingly became the determining basic principle of economic activity and the motor of productivity. For companies, this meant an expansion of the business volume, but also more personnel, a greater variety of tasks and more complex requirements. The introduction of integration rules and vertical reporting channels (hierarchy) aimed to counteract the threat of unmanageability (Schreyögg 2016).
- 2) **Organisational integration – the problem of the work association:** The division of labour, i.e. the completion of work by specialised bodies and departments, also implies an interruption in the flow of work. Different people at different places and different times create the different parts of the work, and the separately completed parts must be reunited/integrated at the end, to achieve a closed performance unit again (Schreyögg 2016).

Naturally, this 'dual problem' is also evident in a data-management company, where the data lifecycle often provides the orientation for organisational differentiation. The collection, storage, analysis of data and use of data products and services usually form separate activities of specialised units of the company or are even outsourced to third parties. However, the ethical perspective requires an integrative view because the ethical quality of the concretely implemented data management results from the interaction of the individual substeps.

How exactly this 'integrative ethical view', which the Code of Ethics aims to promote, can be achieved in practice depends crucially on the structure of the company. The core feature of such structures is the **type** and **form** of an organisation. The most important types and forms are briefly outlined below.

ORGANISATION TYPES

1) **Single-line system** (based on the work of French administrative scientist Henri Fayol, 1841-1925): The one-line system is a direct, hierarchical form of organisation (top-down). A subordinate organisational unit receives instructions directly from its superior manager or management unit. The instances of distribution must not skip any hierarchical level. This often leads to delays in information and coordination processes (Vahs and Schäfer-Kunz 2007).

SUPERORDINATE ORGANIZATIONAL UNIT

SUBORDINATE ORGANIZATIONAL UNIT 1

SUBORDINATE ORGANIZATIONAL UNIT ...

2) **Multi-line system** (based on the work of American management theorist Frederick Winslow Taylor, 1856-1915): In a multi-line system, a subordinate organisational unit receives instructions from several superior management units. This multiple subordination aims to guarantee a shortening of communication channels since employees can directly address their problems to the respective specialist. Here, the focus is on the professional competence of the superiors and not on their positional power. However, conflicting instructions can arise here, with limited ability to trace responsibility in the event of an error.

SUPERORDINATE ORGANIZATIONAL UNIT 1

SUPERORDINATE ORGANIZATIONAL UNIT 2

SUBORDINATE ORGANIZATIONAL UNIT 1

SUBORDINATE ORGANIZATIONAL UNIT ...

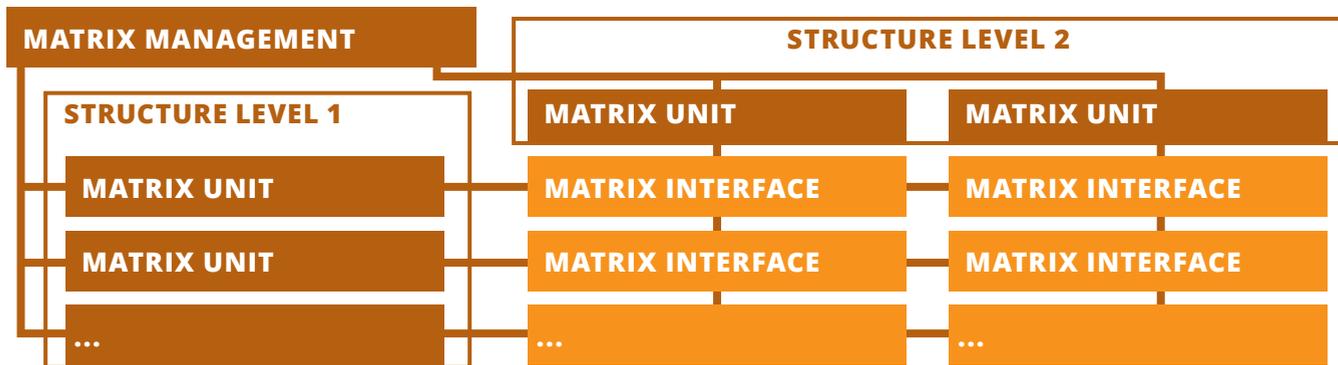
FORMS OF ORGANISATION

1) **One-dimensional organisation forms** are characterised by a single structuring feature. The most common forms are:

- Functional organisation – structured by function (e.g. purchasing, HR, marketing);
- Divisional organisation – structured by divisions, lines of business, business units or cost centres, profit centres, investment centres.

2) **Multi-dimensional organisation forms** are characterised by two or more structuring features. They are structured according to functions or objects, such as products, customer groups, regions, projects, processes or strategic business areas. The best-known multi-dimensional form of organisation is the matrix organisation, characterised by a division of management functions along two di-

mensions. Subordinate organisational units (so-called matrix interfaces) receive instructions from higher-level management units (so-called matrix units). However, these matrix units are directly subordinate to the highest position (matrix management). In terms of organisational type, this is a multi-line system (Vahs and Schäfer-Kunz 2007).



3) Newer forms of organisation: Not least because of digitisation, future organisations must become increasingly adaptable. Hierarchical structures are becoming increasingly less important. Known newer forms of organisation are:

- Networked organisations (also network organisations, focal networks): Networks are complex and multi-dimensional, comprising independent persons, groups and companies in relatively stable relationships, linked by common values and aiming to realise competitive advantages in complex and dynamic markets;
- Virtual organisation: In a virtual organisation, ad-hoc task-specific and cross-location intercompany cooperatives form for a limited time;
- Modular organisation: Organisational units with responsibility for results, similar to divisional organisations, which strong decentralisation divides into relatively small, manageable units, so-called modules or segments with a high degree of autonomy, enable fast and flexible reactions to changing environmental influences.

Young companies in the data-management sector, in particular, often adopt structures characteristic of newer forms of organisation, as they operate in dynamic markets and must react quickly to changes. However, such forms can also increase the risk of blurring responsibility, which can make it difficult to achieve the goals of the code of ethics. Accordingly, it is important to choose an implementation of the code of ethics that fits the type and form of organisation of the respective company.

CORPORATE CULTURE AND ETHICS

The organisation of a company is not the only determining factor in choosing an appropriate ethics implementation. At least as important is the corporate culture. Over time, the coming together of different actors and events in organisations leads to distinctive patterns of behaviour and orientation that informally shape the actions of the members of the organisation (both managers and employees). The organisation as a whole represents a kind of cultural system, structurally comparable to a national culture (Schreyögg and Geiger 2016) or a miniature society that seeks to define itself through its values, norms and characteristics (Wien and Franzke 2014). Accordingly, the company appears as a social construct that human beings have created, and the values, ways of thinking and behaviour patterns of its employees shape and determine the reality within the company. In this respect, people automatically become the central focus of the company (Wien und Franzke 2014). In addition, corporate culture is a potential source of competitive advantage, due to its diversity (Schreyögg and Geiger 2016).

Despite the importance of the corporate culture for the implementation of ethics, the two aspects must be considered separately. While corporate culture describes the values and norms that have evolved over time in a company and guide the members of the organisation, there is no claim that these behaviours correspond to ethical and moral aspects or that companies act according to the principle of social responsibility. On the contrary, in some companies, unethical behaviour is very much a part of the corporate culture (examples are bribery or balance-sheet manipulation).

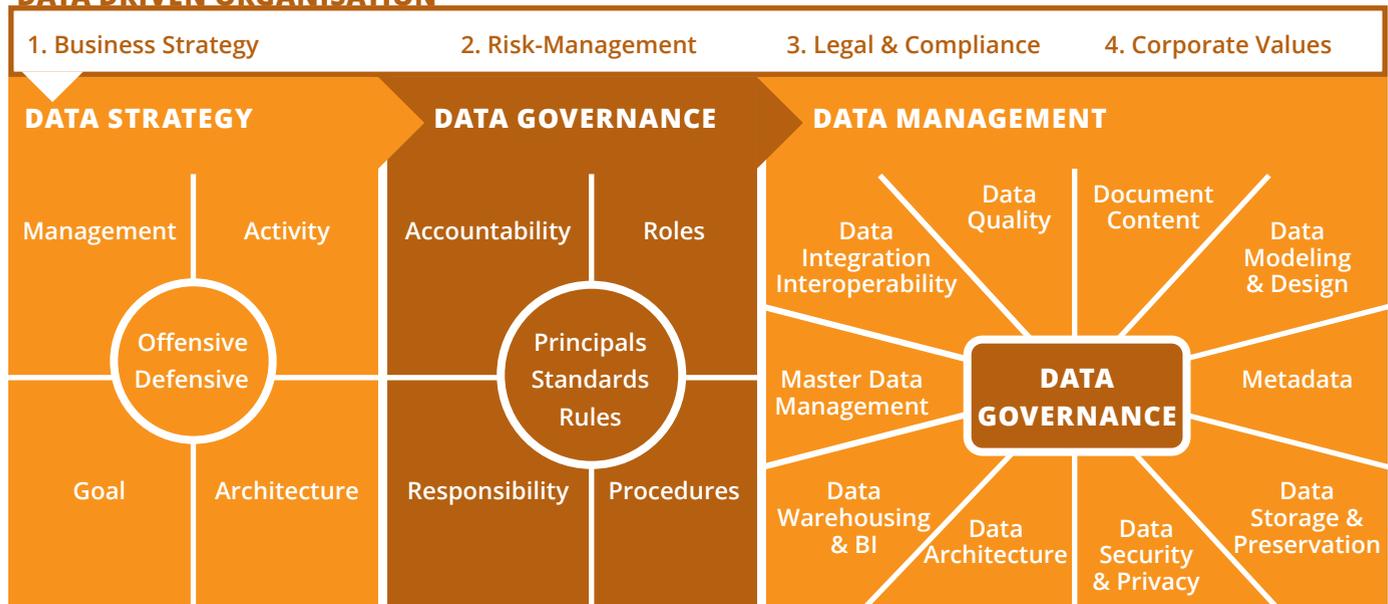
However, the call for organisational action to become more strongly bound to ethical standards has grown increasingly loud in recent decades, with requests that companies distinguish themselves as 'good citizens' (corporate citizens) alongside their regular business. Although the daily activities of the members of the organisation do not yet consider this sufficiently, companies are already making some efforts to develop ethical guidelines and, thus, fulfil their social responsibility (Schreyögg 2016).

An expression of this development is that many companies have already adopted the practice of formulating ethical principles in writing and declaring them a Code of Conduct, intended to be a binding guideline for operational activities. This involves addressing various topics, such as anti-corruption, child labour, human rights and environmental protection (Schreyögg 2016). The present Code of Ethics is an expression of this development, with a specific focus on companies that use data to create value.

1.2. FRAMEWORK FOR DATA-BASED ENTERPRISES

There are various disciplines and countless technical terms for the organisation of data. Mostly, they refer to technical arrangements, and especially in the case of larger companies, the IT department of a company manages them. The purpose of this section is to present a framework of the most important basic concepts of data organisation, to better explain the recommendations for the Code of Ethics. This framework appears in the figure below (adapted from Zetamind AG, Zurich) that explains it. Note that a complex set of rules and countless measures do not have to be ensured before data use can even begin. Rather, interfaces and dependencies should be identified because data use is an interdisciplinary matter.

DATA DRIVEN ORGANISATION



The development of data-based value creation does not happen in a vacuum. New applications for data use are oriented towards the business strategy of a company, supporting or extending it. The same applies to data ethics. Values and standards for dealing with data should not be developed from scratch but should align with the company's existing values and standards. Of course, considerations from the area of risk management and legal and compliance requirements are also relevant to the development of a data strategy.

Based on these requirements, three levels of the framework for data-based companies can be distinguished:

- **DATA STRATEGY:** The definition of a data strategy is the responsibility of the management. It includes the formulation of the basic goals that the company wants to achieve with data-based products and services and the processes necessary to achieve them. For example, it is necessary to decide the extent to which one can rely on one's own data or must acquire data from third parties, in order to achieve the goals. The architecture of the data strategy must also be clarified—for example, aspects of the data lifecycle in the company that should be given particular weight. Part of the data strategy is also how 'offensive' or 'defensive' it should appear, which the culture of the company influences. A young startup with a disruptive idea will want to operate in the market differently from a larger, established company and may give more weight to data-protection risks. The strategic decision is to use codes of ethics as a guideline, in an appropriate form for the company in question, and to select the appropriate implementation.
- **DATA GOVERNANCE:** Data governance functions as the central hub of the framework. On the one hand, it influences the organisational and technical implementation of the operational management of data. On the other hand, it also intervenes in the organisation of the company by defining responsibilities and processes. The changes that data governance triggers usually also relate to the culture and the existing skills in the company. In other words, data-based value creation requires not only technical equipment but also a certain company maturity, in terms of organisation, culture and skills. The code of ethics then forms the central guiding document of data governance. It defines and concretises the basic ethical orientations and procedural values and leads to selecting the appropriate recommendations for the company.
- **DATA MANAGEMENT:** Finally, the term 'data management' covers the multitude of concrete processes that handling data involves. Among other things, it clarifies the architecture of the concrete data sets and the type of metadata, the numerous processes involved in storage, quality assurance and the use of data for modelling, aspects of cybersecurity and interoperability. Many of the specific recommendations of the Code of Ethics can function as concrete guidelines for data management.

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2. IMPLEMENTATION OF ETHICS

The implementation of company ethics can be a task of organisational development. It essentially consists of creating so-called 'ethics structures'. The term represents the various systems, positions and programmes that a company can use to elicit ethical behaviour. These ethics structures should fulfil the following basic functions:

- Erkennen von ethischen Fragen, die bei der Schaffung neuer Produkte und
- Recognising ethical issues that arise in the creation of new products and services or in everyday business;
- Deciding how to proceed to resolve the ethical issue;
- Enforcing ethical behaviour and enabling learning from these issues.

The following chapter explains these functions. Below are the most important forms of ethics structures.

2.1. FORMS OF ETHICS STRUCTURES

Distinguishing ethics structures relative to two dimensions makes it easier for a company to choose the appropriate structure. The first dimension concerns the distinction between individual and organisational approaches.

- **Individual approaches focus on the individual.** The aim is to ensure that when a question of ethics confronts the individual in everyday business, the individual has the knowledge and skills to do 'the right thing' in an ethical sense. In short, it is a question of creating a 'virtuous employee', and the instrument of choice to support this goal is appropriate training measures. Quite a few companies focus mainly on this goal and rely (for example) on regular 'training' (live or online) to sensitise employees to such issues as corruption or sexual harassment.
- **Organisational approaches focus on the organisation of the company.** The aim is to create the organisational and structural conditions within the company that promote ethical behaviour of employees. One such measure is the creation of an internal ombudsman's office, where employees can anonymously report any ethics problems that arise.

These distinctions along the first dimension are primarily conceptual in nature; in everyday business life, the two dimensions are mutually dependent. Employees may be virtuous, but if the company does not promote ethical behaviour in any

way, the virtuous employee will not result in ethical behaviour of the company as a whole. In such cases, the phenomenon of 'moral distress' is present: Employees know which actions are ethically correct, but for structural reasons (e.g. lack of time or resources), they cannot implement them, which leads to internal conflicts. Conversely, a company can take various organisational measures to promote ethical behaviour, but if employees individually do not feel committed to ethical principles in any way, they go unused. Accordingly, the creation of ethical structures will always include both individual and organisational aspects.

The second dimension comprises the distinction between ethics committees and ethics procedures (Arn and Hug 2009; see 1.3). This is presented in greater detail below.

2.2. ETHICS BODIES

The term 'ethics committees' refers to the creation of defined organisational units within an institution, intended to provide space for ethical reflection on issues that arise. Such committees can also function as 'ethical support systems' (Arn and Hug, 2009). Five types of committees can be distinguished here:

- **HOUSE ETHICIST:** This 'one-person panel' consists of an expert who is consulted on an ad hoc basis on ethical issues. It is not the task of the house ethicist to make the decision about the problem in question (even though it may well happen in practice). Rather, this person acts as an advisor to the team in which the problem arises. The house ethicist has profound training and expertise in ethical questions. Hospitals that employ a designated person as a clinical ethicist often use the 'house ethicist' mechanism.
- **ETHICS COMMITTEE:** This body is a committee of professionals that can be approached when an ethical issue arises or, as a standard procedure, can examine all new company products and services with regard to their ethical aspects. It usually consists of a company's senior management, possibly supplemented by ethical experts. The decision on ethical issues is delegated to this body. This ethics structure is a common tool in the field of (clinical) research, and larger companies, in particular, use it.

- **ETHICS FORUM:** This body consists of a group of experts from different areas of a company, including operational activities (e.g. software developers). Its regular meetings are independent of the occurrence of a specific ethical problem, but it can also convene on an ad hoc basis in the event of an urgent problem. The aim of an ethics forum is to regularly exchange views on ethical questions that arise in everyday business and to discuss possible solutions, under the guidance of a moderator, i.e. a person who has a certain competence in ethics and conversation management. Guidelines (see section 2.3.) can support the discussion. An ethics forum always has a continuing education function because the respective teams regularly deal with guided ethical reflection. Ethics forums were first used in health-care institutions but now also operate in other areas.
- **ETHICS AUDIT TEAM:** This body consists of a designated group of professionals who particularly define processes and criteria for ethical issues (see section 2.3.) and checks entity compliance with them. This body can act as an extension of the classic legal compliance function of a company, in the field of ethics.
- **ETHICS MANAGEMENT:** This is a larger team that performs all the functions of the ethics structures (perception of ethical issues, decision-making, execution/learning). An ethics management team may comprise several, if not all, of the above-mentioned bodies and may control their deployment. Such a complex ethics-management system is primarily relevant for large companies that operate in ethically sensitive areas.

Which of these bodies suits which company depends on various factors. The size of the company is certainly relevant, because smaller companies, in particular, find it difficult, in terms of resources, to cope with more complex structures. Another factor is the organisational structure of the company. Companies with a high degree of division of labour are likely to prefer 'house ethicists' or an 'ethics committee'. Companies structured on the basis of newer forms of organisation are more likely to be interested in 'distributed ethical knowledge', in the form of ethics forums. Finally, a company's culture is also relevant, particularly with regard to the question of whether ethical decision-making should be delegated or the corresponding competencies should be promoted among all employees.

Regardless of whether the question of the choice of the appropriate body arises explicitly, the following basic questions arise in all cases:

- Who is part of the panel (e.g. should ethical competence be represented in the form of designated experts)?
- What is the exact role of the body (e.g. does it enforce standards or clarify standards)?
- What powers does the body have (e.g. is it purely advisory or can it actually make decisions)?
- What resources does the body have (e.g. does it have enough time to actually reflect on ethical issues)?

2.3. DECISION SUPPORT

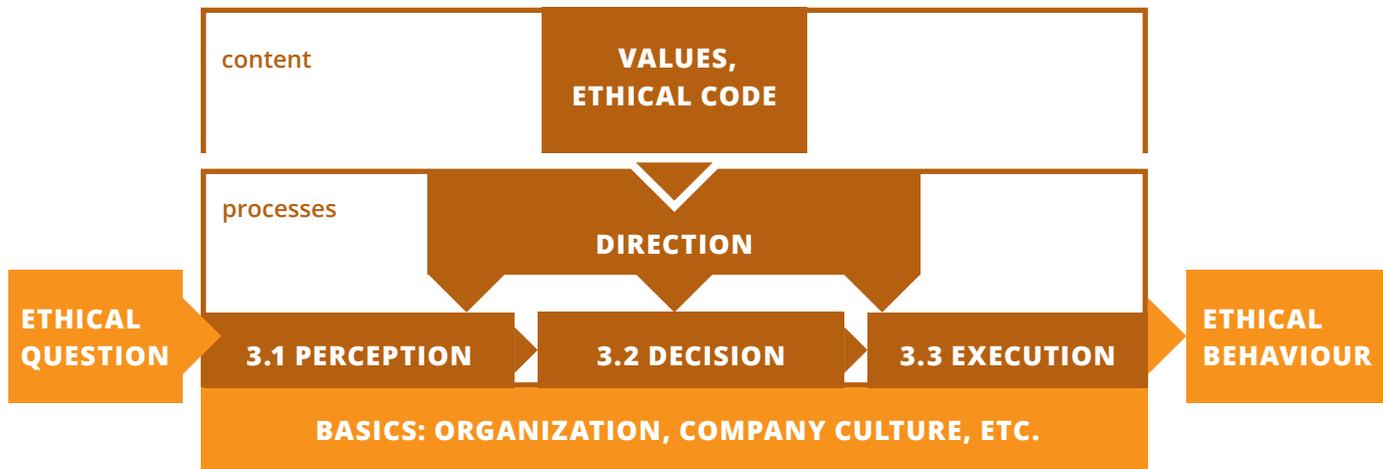
The term 'decision support' describes the creation of tools to support concrete decision-making. Here, a basic distinction exists between two forms:

- **CASE-SPECIFIC GUIDELINES:** Such guidelines serve to concretise abstract specifications (the values to which a company is committed), by providing guidelines or, at least, recommendations for defined areas. The Code of Ethics presented here (in particular the document 'Recommendations') falls within this area. It also includes documentation requirements that specify which processes and results a company must document.
- **DISCUSSION-RELATED GUIDELINES:** Such guidelines serve to systematically address an ethical problem. To a certain extent, they serve as support for those committees that rely heavily on the internal discussion of ethical issues (e.g. through an ethics forum). Examples of such guidelines are Baumann-Hölzle (2009; see section 1.3.) and Bleisch and Huppenbauer (2014).

Of course, both committees and decision support are equally relevant to the creation of an ethics structure. However, the focus can be set differently. In cases with a manageable number of expected ethical questions, the creation of guidelines may be sufficient. However, the more 'creative' a company is in implementing new ideas of data value creation, the more new ethical questions can be expected and the more important it becomes to create committees in which to discuss them.

3. FUNCTIONS OF ETHICS IMPLEMENTATION

The implementation of ethics in a company ultimately serves the goal of ensuring that its processes reflect its content-related specifications regarding ethical behaviour, so as to produce such behaviour. To this end, the following diagram illustrates the various distinguishable functions (adapted from Tanner & Christen 2014):



Whenever ethical questions arise, it is important to recognise them as such, to find a decision that is appropriate to them and to implement the resulting actions. Securing these functions is a management task that includes considering the fundamentals of the respective company (its organisation and culture). This procedure can be understood as the build-up of 'moral intelligence' (Tanner and Christen 2014; see section 1.3). The individual functions are outlined in more detail below.

3.1. PERCEPTION

First is the recognition that ethical issues play a role in a particular product or service. Without such 'moral sensitivity, a decision-making process cannot even begin. The development team first sets this perceptual task and can also delegate it by having a designated committee (ethics committee) examine each new product or service.

However, such delegation can also be resource-intensive and slow down the pace of innovation. In addition, a 'delegation culture' with regard to ethical issues can generally reduce the sense of responsibility among employees. Accordingly, approaches for the individual promotion of moral skills are important at this level, coupled with the creation of ethics structures where such 'discovered' ethical questions can then be discussed.

Under certain circumstances, it may also be necessary to allow anonymous reporting of ethical issues, as is the case for cases of companies with other ethically problematic behaviour (e.g. corruption).

3.2. DECISION

As mentioned above, deciding about an ethical issue can either be delegated to a specific committee or discussed in the team where the issue originates. The former may be more efficient (provided the relevant decision-making body can make a timely decision); the latter has the advantage of promoting ethical awareness among a larger number of employees. In particular, discussion-related guidelines can support the decision-making process.

Of course, context-related distinctions are also possible—for example, using guidelines for 'simpler' ethical questions, while reserving for discussion in a reflective setting (e.g. ethics forum) 'more complex' questions, such as how to balance values when fundamental differences already exist in the team because they conflict with each other.

A defined procedure for decision-making comprises several steps that enable structured handling of moral dissent, to function not as algorithms but as heuristics. Here is an example of a procedural schema (inspired by Bleisch and Huppenbauer 2014):

STEP 1: ANALYSIS OF THE CURRENT STATE

- List facts / which knowledge is missing?
- Consider existing law (regulatory context)
- Identify stakeholders
- Develop context sensitivity
- Include all perspectives of the experts involved

STEP 2: IDENTIFY THE ETHICAL QUESTION(S)

- Identify morally relevant aspects (standards, values)
- Formulate contentious question(s)
- Disclose personal values
- Distinguish between moral and non-moral aspects as far as possible

STEP 3: ANALYSIS OF THE ARGUMENTS

- Identify arguments for and against
- Reconstruct moral standards and values
- Compare arguments with normative background theories

STEP 4: EVALUATION AND DECISION

- Develop several options for action, avoiding an 'either/or' situation
- Take a moral stance
- Assess and weight arguments
- Identify any one-sidedness in the patterns of argumentation
- Balancing of values/rights

STEP 5: EXECUTION OF THE SOLUTION

(see section 3.3)

Such a decision-support model is not an algorithm; it will not automatically find the optimal solution. The problems are usually too complex for that. Rather, it is a thinking aid for tackling the problems and finding a responsible solution.

3.3. EXECUTION

Once a decision has finally been made, it must be executed (this corresponds to step 5 of the above scheme). This includes, in particular, the following points:

- Evaluate the feasibility of executing the decision
- Take measures for successful execution
- Consider communication aspects (How is the decision communicated and to whom?)
- Identify possible criteria for reassessment
- Examine how lessons can be learned from the decision

Depending on the nature of the problem, it is important to ensure compliance or to raise awareness of similar problems through appropriate training measures. The Swiss Alliance for Data-Intensive Services is currently developing a training programme for companies, based on the Code of Ethics for Data-Based Value Creation, to support the implementation of data ethics.

