
Editorial: Developments in environmental reporting

Guest Editors:

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Biographical notes: Dr Jorge Carlos Marx Gómez studied computer engineering and industrial engineering at the Technische Fachhochschule Berlin. He is a Lecturer and Researcher at the Otto-von-Guericke-Universität Magdeburg where he also obtained a PhD degree in business information systems with the work Computer-based Approaches to Forecast Returns of Scrapped Products to Recycling. He is a Visiting Professor of business informatics at the Technical University of Clausthal. His research interests include business information systems, e-Commerce, material flow management systems, life cycle assessment, eco-balancing, environmental reporting, recycling programme planning, disassembly planning and control, simulation and neuro-fuzzy-systems.

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Since its first incarnations in the late 1980s and early 1990s, environmental reporting – and its integrated form, sustainability reporting – has increasingly entered mainstream company business. Today, the field is a global one and reporting on environmental performance and closely related social and financial issues is part of many companies' daily affairs, be they stock-quoted or not, environmental pioneers, sector leaders, global players, multinationals or small and medium-sized companies.

Now that companies are improving their practice, more and more are moving away from an obviously outdated orthodox practice, simply providing 'green glossy brochures',

mainly produced on print media, and usually prepared as ‘one size fits all’ documents. The trend now is towards an advanced and more sophisticated approach, providing substantial information, producing several reporting instruments and finely tuned communication vehicles using different media and in various presentation styles, while fulfilling the requirements of a number of regulations, guidelines and, no less important, meeting users’ heterogeneous information needs.

The reasons why there is an increasing demand for environmental information can be seen in the fact that interested parties, target groups and other stakeholders are generally becoming more critical about company business. Furthermore, as environmental reporting has matured, reports are analysed by more competent and professional users with higher expectations. Thus, employees, customers, suppliers and local authorities but also investors and financial analysts, want target group tailored reports that are truly meeting their specific needs in content, form, media and distribution principles. Environmental reporting merely via one uniformed report on print media may hardly fulfil emerging requirements and future challenges in information supply, stakeholder dialogue, feedback and interactivity.

Within a number of industries – particularly in the pharmaceutical, chemical, mining, transport, electronics and automotive sectors – there is empirical evidence that corporate environmental reporting has already become of competitive relevance and strategic importance, at least to a certain extent. Companies that have learned their lessons are clearly benefiting from environmental reports used as ‘green management tools’, e.g. for decision making with internal and external value, especially in terms of cost reduction, resource control, accounting, materials and waste management, stakeholder dialogue, image, reputation and compliance.

This IJESD special issue edition covers five main subjects describing latest developments in corporate environmental reporting:

- current *empirical findings* and *emerging trends* in the field (von Ahsen, Lange and Pianowski)
- a concept for *standardisation* of environmental reporting (Steven)
- a framework for a *customised environmental reporting system* that provides target group tailored or even personalised communication vehicles (Brosowski and Lenz)
- insights and movements pushing the field towards *sustainability reporting* (Kolk; Isenmann in *IJESD* Vol. 3, No. 2)
- developments in information management and ICT-applications, described in terms of *automated generation* of environmental reports (Marx Gómez), XML-based document engineering (Amelung and Marx Gómez in *IJESD* Vol. 3, No. 2) and an approach on environmental reports using *topic maps* (Arndt and Günther).

Anette von Ahsen, Christoph Lange and Mathias Pianowski present an empirical study addressing current trends in corporate environmental reporting released to the public. As a vivid example, they survey British and German environmental statements according to the ‘European Eco-Management and Audit Scheme’ (EMAS). Based on their findings they outline major developments that the field will probably take in the near future.

Next to empirical insights, Marion Steven proposes a comprehensive concept for the standardisation of corporate environmental reporting. This proposal has its basis in widely

accepted financial accounting standards. Contributing to an environmental reporting approach that provides a better basis for comparison, the concept for standardisation comprises basic reporting principles, a proposal for structuring environmental reports and methods for evaluating environmental impacts.

Corresponding to efforts of standardisation, Jan Brosowski and Christian Lenz throw some light onto customisation. They give an outline of a customised environmental reporting system, intended to provide a number of target group tailored reports, even one-to-one communication vehicles, produced on different media, disseminated through various channels and presented in several styles, while fully exploiting the unique capabilities offered by the internet and reaping technical benefits provided by other associated technologies.

Ans Kolk gives a wide-ranging overview of worldwide trends in the emerging area of sustainability reporting, based on a series of surveys carried out since the early 1990s. In particular, she highlights frequencies and motivations of reporting companies, report contents and significance of sustainability issues actually implemented and internalised in companies. She has observed a substantial increase in reporting on sustainability matters over the past decade, regardless of nationality, differences in country results and within several industrial sectors.

Closely linked to the former contribution, Ralf Isenmann describes features of sustainability reporting that is fully supported by an underlying ICT-infrastructure based on internet technologies and services (see *IJESD* Vol. 3, No. 2). He presents a developing path how to moving away from premature reporting stages towards a more advanced one, while fully exploiting the unique capabilities such as computer-based method may offer. This path is illustrated to make progress in environmental reporting along three dimensions: integration of financial and social issues, provision of reports on various media and fine tuning reports to users' needs and preferences.

Jorge Marx Gómez presents an ICT-supported approach for the creation of environmental reports in an automated manner, illustrated by a case study on a German brewery. Such an automated creation would not work well without exploiting the capabilities of current internet technologies, employing XML and using a proper document type definition (DTD). All these ICT-prerequisites are improving the performance of the underlying reporting workflow, including administration, creation, distribution and presentation of environmental reports.

Based on the same case study mentioned above, Mario Amelung and Jorge Marx-Gómez describe how to design a suitable XML-based DTD for environmental reports (see *IJESD* Vol. 3, No. 2). Such a DTD is a declaration defining overall structure and possible contents of a certain group of documents. It represents the heart of any sophisticated ICT-application, also for a (web) content management system that may be used for maintaining companies' websites, intended to make environmental reports accessible on the www, perhaps via download in PDF (Portable Document Format) and/or online in HTML (Hypertext Markup Language).

Emphasising the unique capabilities of XML, Hans-Knud Arndt and Oliver Günther present a new approach to how to perform information management that underlies the overall environmental reporting workflow. Instead of using a common XML-based approach and thus using a single XML-document for the whole environmental report, they propose another method, splitting the content into several components (XML-entities) finally leading to so-called topic maps. Such topic maps are used as a standardised

4 *J.M. Gómez and R. Isenmann*

representation scheme for environmental reports, finally, as it is argued, extending flexibility and broadening the area of software applications.

The subjects covered in this special issue illustrate the considerable progress companies have made since the inception of the field two decades ago. Closely linked to the development of the whole field, the subjects are also setting the scene for forward-looking approaches. While its orthodox practice was primarily focused on single, free-standing environmental reports, predominantly produced on print media and usually prepared as 'one size fits all' universal document, in future the focus of corporate environmental reporting will likely become cross media, customised and more comprehensive, also disclosing how environmental issues are linked with financial and social aspects, perhaps concurring with the triple bottom line approach and finally leading to sustainability reporting.