

# **A flexible approach for web-based, personalised sustainability reporting**

Jorge Marx-Gómez, Daniel Süpke

Department für Informatik, Very Large Business Applications  
CvO Universität Oldenburg  
Ammerländer Heerstr. 114-118  
26129 Oldenburg  
suepke@wi-ol.de  
marx-gomez@wi-ol.de

**Abstract:** Sustainability reporting is a form of corporate reporting that aims to give a comprehensive overview of a company's performance, aimed at all stakeholders. While this provides various benefits like central information access, comparability etc, there are also disadvantages involved. This is due to the fact, that the techniques used for sustainability reporting still do not reflect the possibilities of web based communication systems. Using these potentials, a company can provide a target oriented, flexible reporting that provides tailored reports for the informational needs of every related stakeholder. In this paper, the current situation is analysed and a software system is presented that utilises web based systems to allow a flexible, efficient and stakeholder oriented sustainability reporting.

## **1 Sustainability reports as a presentation medium for a company's performance**

Binding stakeholders to a company has always been of great importance, but with the vastly increased flow of information and possibilities of modern web-based data systems, providing positive information about a company is of much higher importance than ever before. Stakeholders and especially customers are able to get an impression of a company very fast and may even share their experiences with other persons over the web. Thus, not only the presentation of financial performance is important, but also the communication of environmental, social, and other relevant aspects. One possibility to provide this data is using sustainability reports, as they combine content of many different areas and thus may reach a potentially very high stakeholder base.

A modern sustainability report, containing all information a company wants to publish about itself, can be used as a comprehensive document for information retrieval and presentation of a company's performance for all stakeholders interested (see also [Cl02], p.9). Further on, they serve as a good medium to comply with legal requirements, e.g. regular environmental and fiscal reporting as it is legally required for instance by the Eco-Management and Audit Scheme (EMAS)

For this reasons, sustainability reports have grown to be a major form of corporate reporting, as they provide a solution to only use one document instead of many small reports for different agendas, thus simplifying the process of structuring and presenting a company and its data. Former ways of contacting stakeholders were instead designed in a very specific way; investment related stakeholders were directly addressed with business reports regarding financial data, environmental groups could be directly addressed with data about pollution etc. Every group had a specific document aligned to the concerns of it, providing exactly the required data. But with the upcoming of sustainability reports this orientation to a specific target audience had to be sacrificed, as now all types of information were provided and it was not determined who would read the document.

This "one size fits all approach" has some inherent disadvantages: Because of the compilation of all available data in a single report and no further usage of specialised stakeholder reports, the amount of information is becoming much larger while the information processing capacities of the users remains the same (see [Ro07], p.2). Therefore, finding relevant information becomes a) more time-consuming, as lots of information has to be scanned, or b) suboptimal in terms of not recognising suitable information. The situation got even worse with the upcoming of easy access to information using the internet, as now everyone could anonymously access the provided data without the companies knowing to what type of audience the document would be delivered.

While on one hand anonymous information access is very widespread today, using information systems and web sources on the other hand potentially also provides the solution for the problems of generalised sustainability reports. Because under the terms of creating a computer system that would allow stakeholders to access and adjust sustainability reports would not only allow companies to provide a customised document for the users but also to use just one source of data to generate all types of reports for any target audience again.

## **2 An overview of current reporting systems**

Before suggesting a new way of utilising the potential benefit of web based reporting systems, a classification of the current status will be presented to demonstrate and classify possible, more flexible systems. Christian Lenz proposed a classification for systems that deal with communication between companies and users (see [Le03], p.227).

He differentiates between three types of system adaption<sup>1</sup>: Adapted systems provide orientation on information needed by users only at the time of implementation; usually oriented towards a homogeneous group. Adaptable systems allow users to adapt a system during run time according to their needs. This provides a more flexible (and complex) system, usable by heterogeneous groups. Adaptive systems finally are self adapting systems, automatically analysing the currently needed information. This often results in very flexible, but intransparent systems.

Further on, he differentiates between the detail in which different kinds of users or groups are addressed by a system<sup>2</sup>: Typisation concerns addressing information to general user groups with similar needs for information. Individualisation is used if single persons can be addressed by the system, but the specific person is not of importance, while personalisation happens if specific persons are addressed by the system.

Today's usage of web systems for sustainability reports is not utilising its potential benefits (see [IM08], p.11). The status quo of reporting still remains at converting a print report into a static HTML or PDF document and provide this as it is on a company's website, not regarding different informational needs. These systems are to be classified under Typisation, as no different persons or even groups are addressed, one report is provided for all users. Further on, the contents may not be changed later on, every user is being provided the same, static report (adapted systems).

While the possibilities of web based reporting systems are not used in general, there is one exception to this, demonstrating some of the potential benefits of web based computer systems:

The British telecommunication provider O<sub>2</sub> took a leading role in providing a much more flexible reporting functionality; on their website the user is able to generate a report based on a selection chosen by himself/herself [O2]. The final document then is presented as a web page in HTML or PDF format, providing exactly the information previously selected. This way of creating a report is based on an approach similar to shopping carts, where the user can select various articles to include in the final report and in the end may download a customised report based on the content of the cart.

Though O<sub>2</sub> made an important step towards a more flexible reporting, the customisation is still very inefficient. Every report has to be created from scratch with articles selected from different topics. The user is not guided through the process and a suggestion of related content is not proposed. Because of the possibility to change the content at run-time, but not addressing different users, O<sub>2</sub>'s system is classified under typisation and adaptable.

---

<sup>1</sup> Original terms (German): Adaptiert, adaptierbar, adaptiv

<sup>2</sup> Original terms (German): Typisierung, Individualisierung, Personalisierung

The next step is to provide a system, which is adaptable and individualisable according to the systematic of Christian Lenz. That means providing a way that the arrangement of information is customisable for different, predefined groups/individuals (individualisable) and giving users the possibility to change the output furthermore according to their individual informational needs on runtime (adaptable), in contrast to the current situation with commonly used "static" reports (see **Figure 1**). This is a step considerably further than the approach of O<sub>2</sub>.

<i>Degree of user modelling</i>	<b>Personalisation</b>			
	<b>Individualisation</b>		?	
	<b>Typisation</b>	Status quo	O <sub>2</sub>	
		<b>Adapted</b>	<b>Adaptable</b>	<b>Adaptive</b>
	<i>Degree of system adaptation</i>			

Figure 1: Classification of reporting systems (based on [Le02])

### 3 A new way of flexible sustainability reporting

An adaptable, individualisable system needs to provide an additional step besides customisation e.g. by using functionality similar to shopping carts. For this reason, a system using three steps was developed. In the first step, the user may choose a stakeholder group that reflects his informational background and interests the most. This selection will be used to provide a predefined shopping cart content, that can be further customised, providing more benefits compared to O<sub>2</sub>'s approach, as the user is able to:

- get adequate report content without time consuming, manual selection of every relevant article interesting,
- automatically get relevant content that might otherwise be missed by manual selection,
- get reports that match special profiles, e.g. a report matching the EMAS standard (Eco-Management and Audit Scheme),
- get a report that is not only oriented in content according to the selected target group's needs, but also specifically designed and structured to match information and presentation.

The first task towards a target oriented system was the examination of technical literature regarding stakeholder relations and sustainability reports. This literature was used in three steps to create and refine a table to research the stakeholder groups being most important with their according need for information.

The first step within this was listing all occurrences of stakeholder names in a table to quantify how often a group was discussed in different literature and thus give an indicator on how important this group is. It turned out, that the denomination of stakeholder names is not standardised yet. Often, basically the same group was mentioned with different names in different literature, while other times different groups were given the same name. Therefore, in a second step, similar groups were unified under a unique name, giving a more heterogeneous view of the results. In a third step, the most relevant groups were selected for the first version of the software for target oriented reporting, using the number of entries, the general relevance for sustainability, and the applicability for defining a specific information profile. Nine groups, including the special profiles GRI (Global Reporting Initiative) and EMAS were selected, including e.g. customers, employees, and suppliers.

GRI and EMAS were included, because the GRI G3 are the most important guidelines for sustainability reporting (see [GRI06]), whereas EMAS is a European wide used management system including environmental reporting [EU01], which can be easily extracted from a comprehensive sustainability report.

The next step was to provide a computer structure in XML to store that data. This was combined with a previously digitalised sustainability report of the Otto GmbH. Finally, a web system was implemented which allowed the users to create a tailored report in three steps:

1. Selecting a stakeholder profile for a preselected shopping cart content
2. Refining the shopping cart content for individual adaption
3. Choosing the output format, in HTML, XML, PDF, or PS (see **Figure 2**)

## **4 Conclusion and Outlook**

The problem of all-purpose reports has been solved, as it is now possible to create specialised reports for a specific target audience again. Not only does this allow companies to create reports in an efficient way, but also allows them to use one data source for complying with different legal demands and provides users a solution to create reports according to their specific needs.

The potential benefits of web bases communication systems are demonstrated with this software system. It allows for a more flexible communication with all kinds of stakeholders. Yet, the communication is still only targeted in one direction, from the company to the user. Research now has to be focussed on how the potential of web systems, especially in terms of user interaction and Web 2.0 can be utilised to allow a bidirectional communication and thus enables users to give feedback to companies, to involve stakeholders in the processes of structuring, discussing and evaluation a company's performance and public appearance.

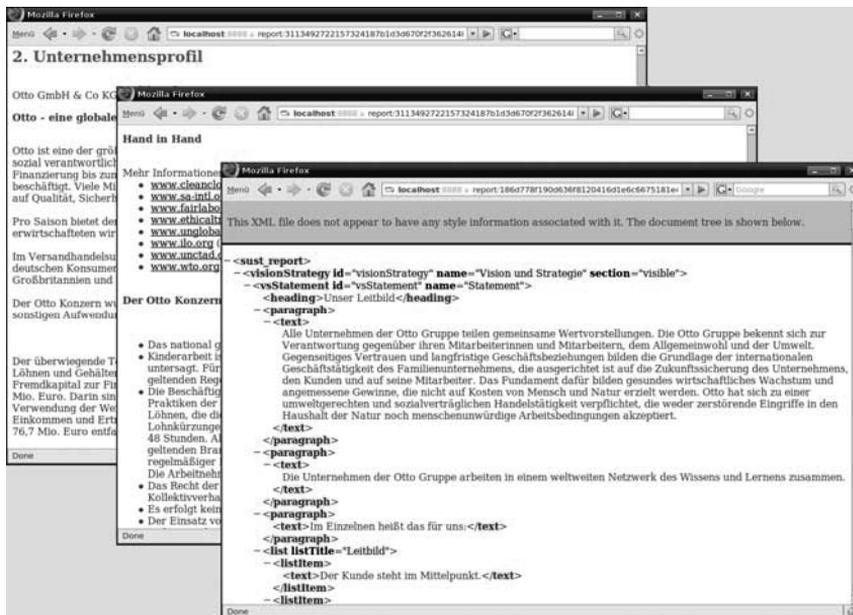


Figure 2: A customised report in HTML and XML

## Bibliography

- [Le03] Lenz, C.: Empfängerorientierte Unternehmenskommunikation. EUL Verlag, Lohmar, 2003.
- [Ro07] Roth, D.-S.: Personalisierung internetbasierter Nachhaltigkeitskommunikation. Peter Lang, Frankfurt, 2007.
- [O2] O<sub>2</sub> Website: Personalised reporting: Accessed on May 01, 2008: <http://www.o2.com/cr/resource/personalisedreporting.asp>
- [GRI06] Global Reporting Initiative (GRI): Sustainability Reporting Guidelines (G3). Online available at (accessed on May 01, 2008): <http://www.globalreporting.org/ReportingFramework/G3Online/> 2006.
- [EU01] European Union: Verordnung (EG) Nr. 761/2001 des Europäischen Parlaments und des Rates über die freiwillige Beteiligung von Organisationen an einem Gemeinschaftssystem für das Umweltmanagement und die Umweltbetriebsprüfung (EMAS). 2001.
- [IM08] Isenmann, R.; Marx Gómez, J.: Einführung in die internetgestützte Nachhaltigkeitsberichterstattung. In (Isenmann, R.; Marx-Gómez, J. Hrsg.): Internetbasierte Nachhaltigkeitsberichterstattung. Erich Schmidt, Berlin, 2008.
- [Cl02] Clausen, J.; Loew, T.; Klake, K.; Raupach, M.: Der Nachhaltigkeitsbericht - Ein Leitfadens zur Praxis glaubwürdiger Kommunikation für zukunftsfähige Unternehmen. In: Institut für Ökologische Wirtschaftsforschung, imug Institut für Markt - Umwelt - Gesellschaft e.V. (Hrsg.): Nachhaltigkeitsberichterstattung - die Praxis glaubwürdiger Kommunikation zukunftsfähiger Unternehmen. Erich Schmidt, Berlin, 2002