Solution Development 2.0 – Provision and Roll-out of Solution Packages with Social Networking

Johannes Müller, Yannick Bietenholz, Michel Griga,
José Martin Gallardo, Thomas Niessen, Peter Stiphout

Siemens Switzerland Ltd.
Building Technologies Division, Security Solutions
Gubelstrasse 22, CH-6301 Zug, Switzerland

j-mueller@siemens.com (representing all authors)

Abstract: Security Solutions (SES) is a globally acting business unit within the Siemens' division Building Technologies. A part of the headquarters' activities is the development and provision of solution packages for the regional sales organizations. In the past, this was a very centralist process with limited or none participation and feedback of staff coming from regional organizations. To improve this situation, we introduced an interactive and fully transparent process motivating regional colleagues to directly participate during all process stages (requirement collection, technical development, global roll-out, solution lifecycle). We identified relevant experts and grouped them in a 'SES Solutions Community', which is networked not only by personal meetings, but also by several Web 2.0 instruments.

1 Introduction

Since January 2008, Siemens is structured into three sectors – Industry, Energy, and Healthcare – which are sub-divided in 15 divisions in total. Building Technologies (BT) is one out of six divisions belonging to the Industry sector employing a global workforce of about 34,000 persons. The BT division acts as service provider, system integrator, and product manufacturer. It is headquartered in Zug, Switzerland, and consists of five business units: Building Automation (BAU), Electrical Installation Technology (ET), Fire Safety and Security Products (FS), Heating, Ventilation and Air Conditioning Products (HVP) and Security Solutions (SES).

SES develops solutions and provides services in the field of electronic and physical security addressing focused vertical markets and related customer needs from threat analysis to implementation. The solutions and services are built on a strong technology portfolio, covering applications built on intrusion detection and alarm systems, video and wide-area surveillance, video analytics, personal identification, access control, danger management, command and control systems, scanning & screening, and others. These disciplines include the development of software, integration platforms, pre-configured solution packages, and certain services for maintenance or migration.

In many cases, the solutions, which are required by the customers and implemented within the projects, are designed and engineered just from scratch. This results in comparatively high realization costs. To overcome this problem, one of the SES business targets is the development, provision and maintenance of pre-configured and tested solution packages, which can be easily adapted to the specific customer needs. The solution packages are provided in three different levels of content:

1. *Value Package*
   a. Full-size solution for applications in focus vertical markets having differentiation potential, incl. complete marketing material
   b. Overview in References@BT (see chapter 2.2), documents, presentations, etc. (≥ 30) in SharePoint, full set of localizable marketing/sales tools, sales/technical training, roll-out support (in several languages)
   c. Roll-out by HQ
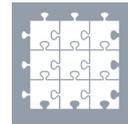
2. *Instant Solution*
   a. Selected solution/service module with high replication potential, based on a realized project, leveraging global product portfolio, reducing risk/engineering efforts in regional organization
   b. Documentation incl. attachments (≤ 10) in References@BT: Customer presentation, topology, technical documentation (in English, all editable)
   c. Roll-out by HQ

3. *Regional Solution*
   a. A well-documented project providing service/solution modules, well described to allow an easy re-use within other projects
   b. Documentation incl. attachments (≤ 5) in References@BT: Project description, relevant wiring diagrams and product datasheets (in English)
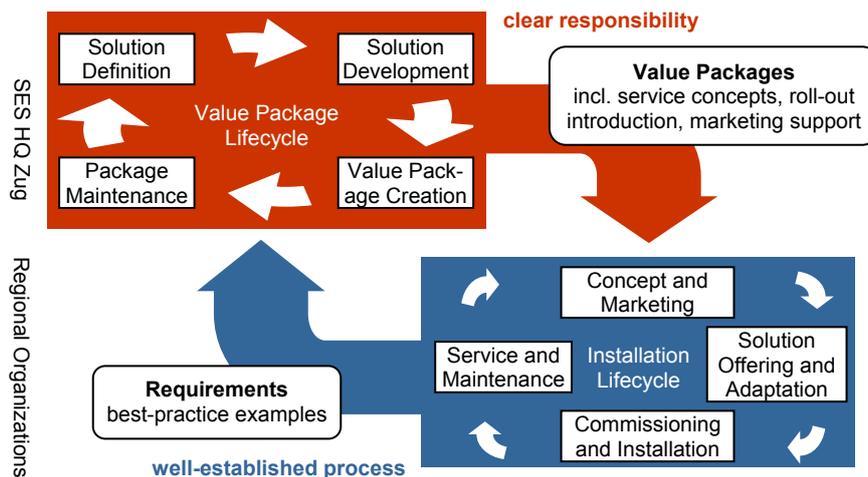   c. Promotion (but without roll-out) by HQ

Fig. 1: Continuous interaction between regional organizations and HQ [Bi08]

From a global point of view, these solution packages provide a generic framework for future implementations at various customer sites. But from a local perspective, each implemented solution – even if it is adapted from a solution package – is unique.

The continuous interaction between the regional sales organizations and the headquarters (HQ), including horizontal and vertical collaboration [HB07], is depicted in figure 1 [Bi08]. This approach is used within SES since end of 2007. The deployed Web 2.0 instruments and the concerning process are described in the following two chapters.

2 Application Overview

According to the motto "How can people and computers be connected so that - collectively - they act more intelligently than any individuals, groups, or computers have ever done before?" [CCI07], we focused on a community approach [Bu07] based on social networking, pooling the know-how of various experts and interested colleagues [BG08]. Since these persons are located in several countries around the globe, web applications are mandatory for successful knowledge exchange, interaction, and networking. As shown in figure 2 and explained in the following, we decided to use MS SharePoint and References@BT, which are well-known applications across all regional BT units. The combination of these two platforms allows an easy exchange of information and know-how combined with workflow and document management functions, ideal for our needs:

1. MS SharePoint for tasks requiring workflow and document management features,
2. References@BT for tasks requiring interactive social networking features.

Using two platforms was a pragmatic decision: MS SharePoint allows individual access permissions on site and module levels, whereas References@BT is intentionally open for any employee with access to the Siemens intranet. Furthermore, several useful workflow and document management features are provided by SharePoint off-the-shelf, whereas References@BT is very strong in social networking and subscription mechanisms.
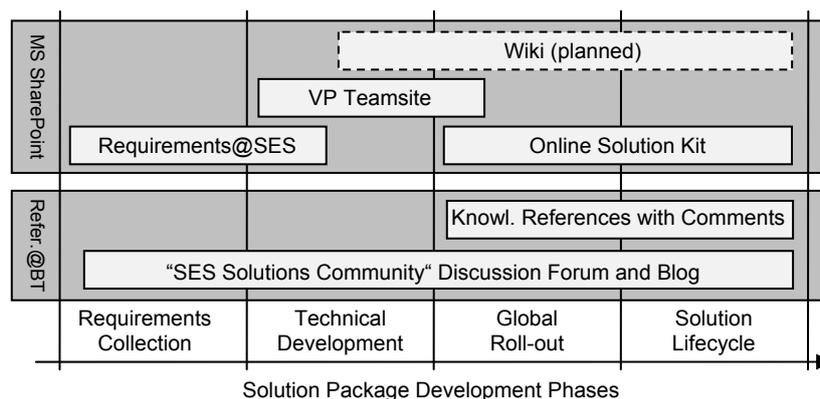

Fig. 2: Deployed Web 2.0 applications during the solution development process

2.1 MS SharePoint

Microsoft SharePoint is an integrated suite of server capabilities that can help improve organizational effectiveness by providing comprehensive content management and enterprise search, accelerating shared business processes, and facilitating information-sharing across boundaries for better business insight [Mi08]. MS SharePoint allows a quick configuration of new modules (e.g. document library, task lists, etc.) without any programming. Each module can be assigned with individual access permissions for certain users or user groups. BT uses MS SharePoint for global document management, collaboration and workflow management.

Within the described development and lifecycle process, the workflow module was used for Requirements@SES (see figure 4). For the Online Solution Kit (see figure 5), we set up several document libraries, picture libraries and custom lists. We configured specific views and web pages for each Value Package and also implemented mashup pages, which let the SharePoint server import dynamic content from References@BT.

2.2 References@BT

References@BT [Mü07a] is a self-developed web application specially designed for globally sharing knowledge, experiences and best-practices. Similar to other Siemens-internal platforms supporting knowledge management [DP02] [Mü04] and according to the principles of Web 2.0, the application intends to connect colleagues across organiza-
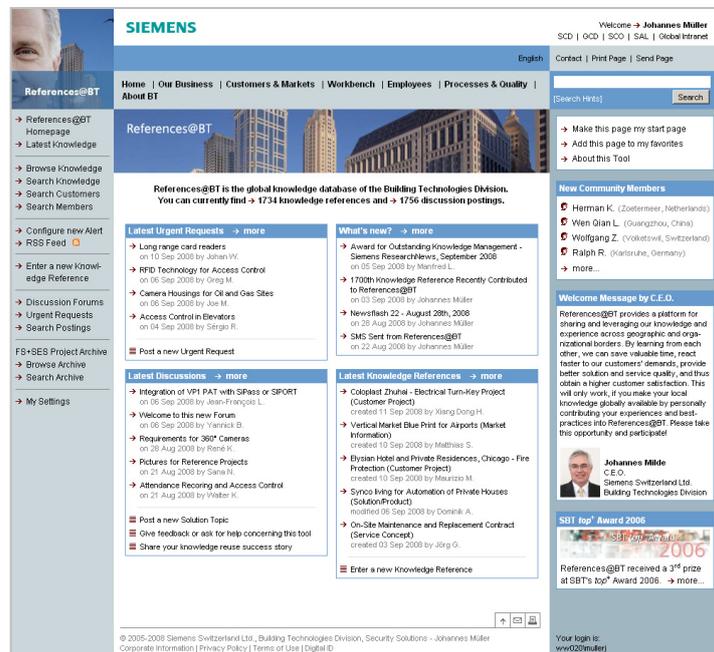

Fig. 3: Screenshot of the References@BT homepage

tional and geographical borders and animates them to get in touch and communicate directly with each other. In References@BT, Siemens employees can publish and exchange both personal experiences (as 'Knowledge References') and business-related questions (as 'Urgent Requests'). Any user can subscribe certain contributions and receive them via e-mail in daily or weekly frequency according to the individual fields of interest. All contributions are marked with the author's name linked to the respective member page, which displays organizational affiliation, various contact data, photo, current position and personal competences.

Within the Building Technologies Division, the application References@BT is well known. Currently, the user community comprises about 5,500 members located in 73 countries. The thereby initiated knowledge transfer occurs not only within the application itself, but also by bilateral communication in parallel [Mü07b].

References@BT is not restricted to a closed user group only. All employees with access to the Siemens intranet can participate as readers and as contributors.

3 Development and Lifecycle Process for Solution Packages

The process to develop a solution package can be roughly divided into four phases:

1. Requirements Collection
2. Technical Development
3. Global Roll-out (incl. communication and training)
4. Solution Lifecycle

If the requirements collection shows a good market potential, the HQ management will decide to invest in the further solution development. (In case of a negative decision, the whole process is stopped immediately.) After technical development and roll-out, the sales activities for a particular solution package can start in the regions. The solution lifecycle includes the maintenance and continuous improvement of the solution package, which then might be implemented at various customer sites. In the following chapters 3.1-3.4, the above mentioned process phases and the accompanying applications for social networking are explained.

3.1 From Market to Headquarter – Collection of Requirements

While the processes for product development are well established, there is no unified or standardized process how requirements are systematically collected from various inputs like sales force, regional portfolio management, solution management, or service hotlines. Furthermore, many decisions about which solutions to develop, which interfaces to program or which products to include in a regional portfolio were often centrally driven in the past with only limited knowledge of the local markets or the various customer needs. Due to this, most of the information about potential customer requirements bypassed the central SES organization, leading to a potential disconnection between the SES HQ and the local markets.

To generate a solid base for future business decisions, we wanted to consequently gather, evaluate and track the various kinds of requirements, since the sum of the requirements coming from the market would significantly help to identify the areas of highest need for improvement on the product side and indicate the most exciting market segments for future solution developments [Ni08].

The new requirements collection tool Requirements@SES allows an approach with knowledge sharing and social networking, combined with a structured requirement gathering process. The published data is searchable by several attributes to give information to the contributor, which kinds of requests have been already processed in a certain field of technology, product, or vertical market. The standard way for information gathering should be like this:

1. Check References@BT for suitable customer projects.
2. Check Requirements@SES for published workarounds or similar requests.
3. Check SES SharePoint for lifecycle information and migration solutions.
4. Enter a new requirement, if information found in 1., 2., or 3. is not sufficient.

Requirements@SES is mainly used by the global SES Portfolio Management Community, which contains about 200 experts on products and/or vertical markets based in several countries. Every intranet user has reading access to the site. For the time being, writing access (e.g. submission of new requirements) is only possible for members of the SES Portfolio Management Community. Thereby, unverified entries as well as multiple identical requirements are avoided and a pre-qualification of the requirements by the local portfolio organizations is always ensured.
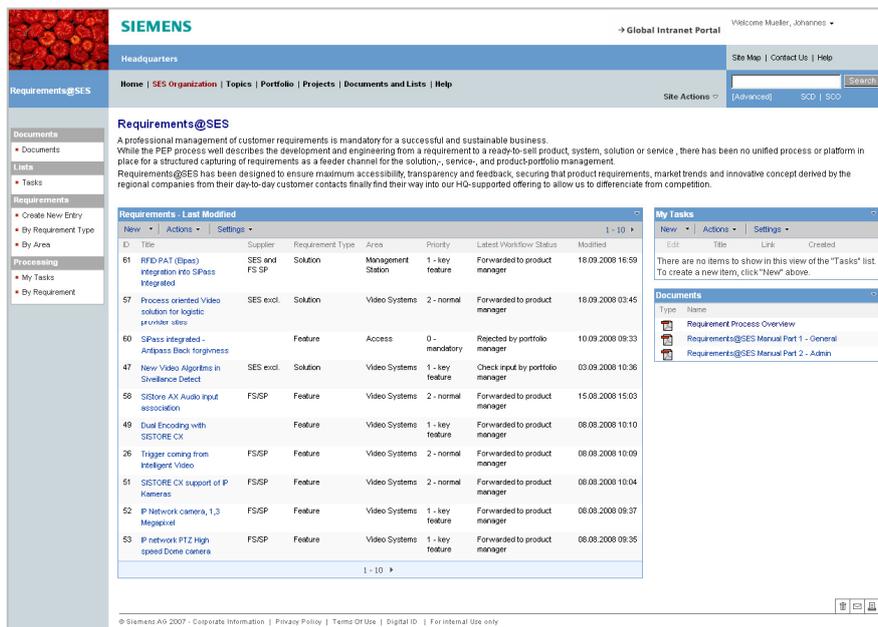
Fig. 4: Screenshot of the Requirements@SES homepage

J. Müller, Y. Bietenholz, M. Griga, J. Martin Gallardo, T. Niessen, P. Stiphout: Solution Development 2.0 – Provision and Roll-out of Solution Packages with Social Networking. Proceedings of 5th Conference on Professional Knowledge Management (Solothurn, 2009), GI-Edition, ISBN 978-3-88579-239-0, pp. 87-96. © Gesellschaft für Informatik e.V., Bonn, Germany, 2009.

Page 6 of 10

3.2 Technical Development

There are three possible methods to develop a new solution package:

- *Re-Using*
  References@BT already offers several hundreds of SES projects and implemented solutions. Suitable proven solutions have to be generalized and in collaboration with the mentioned experts provided as solution package, usually as Instant Solution or as Regional Solution.

- *Partnering*
  If given requirements cannot be realized with the own product/system portfolio, we consider (together with portfolio management and procurement) to partner with an external supplier. Instead of a time-consuming and costly self-development, this accelerates the solution development significantly, if a certain technology is available anywhere else. Such a solution will be provided as Value Package or as Instant Solution.

- *Developing*
  If the planned solution package includes a differentiating key-technology, the solution development is usually done in-house. The HQ will provide the full marketing support and will roll-out the solution as Value Package.

As some of the teams working on the different Value Packages are located in different organizations and countries, a separate MS SharePoint site – the so-called VP Teamsite (see figure 2) – was created. This platform is used either during the solution development phase or during the preparation of the Value Package, to share internal organizational documents (meeting minutes, templates, etc.) or enable the collective review of drafts before publishing. The access to this platform is possible for identified team members only. This should avoid any confusion due to the use of incomplete documents, because of frequent content modifications until the final release of the Value Package.

Members of one Value Package Team have on purpose access to the documents of other teams as well, as one of the ideas behind this platform is to create synergies leveraging best-practices from other teams.

3.3 From Headquarter to Market: Global Roll-out of New Solution Packages

All officially released and centrally managed documents of the Value Package are stored within a comprehensive document library on MS SharePoint, called "Online Solution Kit". In addition, every solution package is contributed as separate knowledge reference to References@BT, which is linked to the respective MS SharePoint site. This allows the direct interaction of all community members using several Web 2.0 features. It is possible to assign tags and to give feedback comments to any knowledge reference.

A specially designed discussion forum called "SES Solutions Community", which is hosted on References@BT, allows the direct communication, interaction and networking of experts independent of time and location. All members of the Portfolio Management

Community are subscribers of this forum, i.e. they will be notified about relevant postings via e-mail), but any interested colleague can participate (read, contribute, subscribe) as well. Similar to other companies' approaches [HS08], this forum can also be used like a personal blog, too.
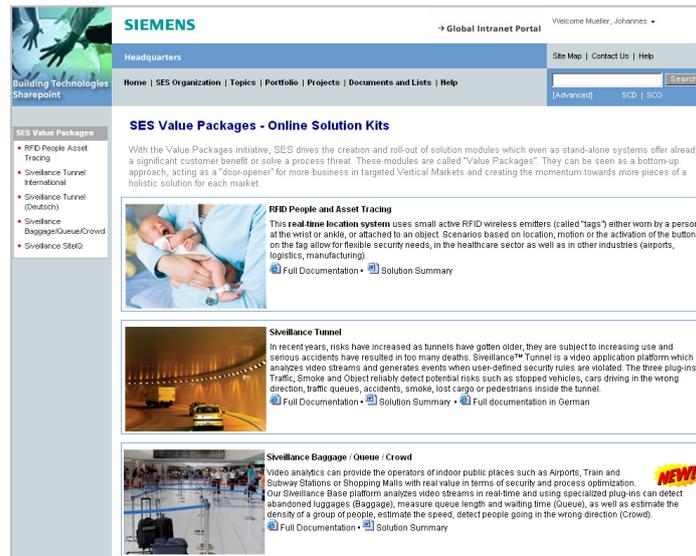

Fig. 5: Shortened screenshot of the "Online Solution Kit" homepage

3.4 Solution Lifecycle: It's all about Communication

Instead of communicating just as one-way broadcast, we heavily use the just mentioned "SES Solutions Community" discussion forum for any solution-related issues such as questions, feedback, proposals, etc. For a seamless information flow, we set an notification alert for all community members right at the beginning, which assures that they will be informed on a daily basis of new postings within this discussion forum. In parallel to these ongoing discussions, we also use this forum for important HQ messages, such as e.g. sales releases of new solution packages, training announcements or successful project implementations. (We don't send related messages via e-mail anymore. If the distribution list is to be extended, we simply add new colleagues to the subscriber list of the forum as anyone can do by him/herself.) This has three advantages:

- Any reader can comment any posting. The comments are immediately visible for all other readers. It is possible, to comment other comments as well.
- Any user of References@BT can subscribe to or unsubscribe from this forum at any time. The Solutions Community is not restricted, since all modules of References@BT are open for all Siemens employees with access to the intranet.
- Any new interested community member can quickly find all previous postings. (This would not be possible, if all previous communication is done via e-mail to a restricted group of recipients.)

J. Müller, Y. Bietenholz, M. Griga, J. Martin Gallardo, T. Niessen, P. Stiphout:
Solution Development 2.0 – Provision and Roll-out of Solution Packages with
Social Networking. Proceedings of 5th Conference on Professional Knowledge
Management (Solothurn, 2009), GI-Edition, ISBN 978-3-88579-239-0, pp. 87-96.
© Gesellschaft für Informatik e.V., Bonn, Germany, 2009.

Page 8 of 10

4 Discussion and Conclusion

By social networking, we can combine intelligence, expertise and best-practices of many colleagues [BG08]. Doing so, we significantly motivate the global community to influence the development of new solution packages and to participate in the continuous improvement of existing ones. Providing interactive and easy-to-use web applications, we can observe a high willingness to share own experiences concerning a certain solution package or a certain customer requirement. During an international conference with SES solution experts in September 2008, we received several positive feedbacks, e.g.:

- "SharePoint is very good – important information is always available online."
- "Quality is outstanding compared to what was available before."
- "Very good document and information structure!"
- "I appreciate that all colleagues can contribute own ideas and viewpoints."

Concerning References@BT, a user survey was performed in September/October 2008. The users have been asked to indicate their organizational affiliation and usage frequency as well as to rate availability, usability, functions/features, content quality and subjective helpfulness of References@BT on a scale from 3 (very good) to 0 (insufficient). Furthermore, the saved working time should be specified with "several days" (calculated as 3 days), "one day", "several hours" (calculated as half day), and "nothing". In total, 607 responders participated.

Usage Frequency (# responders)	sporadic (283)	monthly (115)	weekly (164)	daily (45)	all (607)
Availability	2.58	2.72	2.77	2.69	2.67
Usability	1.78	1.99	2.07	2.24	1.93
Functions/Features	1.70	2.01	2.07	2.17	1.89
Content Quality	1.76	1.76	1.91	2.11	1.85
Helpfulness	1.06	1.50	1.50	1.68	1.31
# days saved per year	0.47	0.73	0.94	1.16	0.70

Tab. 1: Results derived from the References@BT User Survey 2008
and dependent on the responders' usage frequency

The results (shown in table 1) indicate a strong correlation of usage frequency and given ratings. In other words: Higher usage frequency results in higher ratings (i.e. easier handling, easier location of high-quality content) and thus higher perceived benefits.

Furthermore, it turned out that responders from SES gave higher ratings and specified higher time savings compared to responders from other business units. This can be explained by the high amount of content and networking features, which are provided in References@BT especially for SES-related issues.

Social networking helps to accelerate the solution development and to improve the resulting solution quality significantly. With more transparent process steps, more col-

leagues can participate and thus more knowledge can be taken into account for realizing better and more innovative solution packages. Now we are able to provide 4-6 Value Packages and 8-12 Instant Solutions annually – despite of quite limited resources.

Our described approach was recognized by the divisional management as a success – it is currently being adopted by two other business units.

Acknowledgements

References

[BG08]   Back, A.; Gronau, N.: Web 2.0 in der Unternehmenspraxis. Oldenbourg, 2008, p. 4.

[Bi08]   Bietenholz, Y.: Value Packages – Context, Definition, Goal. Company-internal white paper, 2008, p. 12.

[Bu07]   Budak, C.: Building a Global Online Community. In (Kazi, A.S.; Wohlfart, L.; Wolf, P.; editors): Hands-On Knowledge Co-Creation and Sharing: Practical Methods and Techniques, KnowledgeBoard, 2007, pp. 111-133.

[CCI08] Homepage of the Center for Collective Intelligence, Massachusetts Institute of Technology, see: http://cci.mit.edu/

[DP02]   Davenport, D.H.; Probst, G.J.B.: Knowledge Management Case Book, Publicis Corporate Publishing, Erlangen, 2002.

[HB07]   Heidecke, F.; Back, A.: E-Collaboration within the dispersed sales force training process of multinational pharmaceutical companies. In: Association of Information Systems (AIS), 2007 - 13th Americas Conference on Information Systems (AMCIS), Keystone (Colorado), see: http://www.alexandria.unisg.ch/Publikationen/39494.

[HS08]   Hain, S.; Schopp, B.: Unternehmensinterner Multiblog der Namics AG. In (Back, A.; Gronau, N.; editors): Web 2.0 in der Unternehmenspaxis, Oldenbourg publishing, Munich, 2008, pp. 187-198.

[Mc08]   McGonigal, J.: Engagement Economy – the future of massively scaled collaboration and participation. Technology Horizons Program, Institute for the Future, September 2008.

[Mi08]   Microsoft: Microsoft Office SharePoint Server 2007 product overview. Web page, see: http://office.microsoft.com/en-us/sharepointserver/

[Mü04]   Müller, J.; Baumann, F.; Manuth, A.; Meinert, R.: Learn and Change Faster by Leveraging and Capitalizing Knowledge in Siemens: The 'Com ShareNet' Case Study. In Proceedings "Thailand International Conference on Knowledge Management 2004: KM for Innovation and Change", Bangkok, Thailand, 2004, pp. 41-49.

[Mü07a] Müller, J.: Global Exchange of Knowledge and Best-Practices in Siemens Building Technologies with 'References@SBT'. Proceedings of the 2007 International Conference on Knowledge Management (Vienna, August 2007), World Scientific, pp. 55-64.

[Mü07b] Müller, J.: References@SBT – Globaler Wissensaustausch durch 'Social Networking' bei Siemens Building Technologies. In (Bentele, M. et.al.; editors): "Mehr Wissen - mehr Erfolg", Proceedings KnowTech 2007 (Frankfurt/Main, November 2007), pp. 349-357.

[Ni08]   Niessen, T.: Requirements@SES – Process and Tool Description. Company-internal document, 2008.