



Software
Translation
Artwork
Recording

Introduction to GRIPS



STAR AG

Wiesholz 35
8262 Ramsen
Switzerland

© Copyright by STAR AG 2014

All parts of this document are copyright protected.

Any usage outside the limits of the copyright is not permitted without the written permission of the publisher. This applies in particular to the reproduction, distribution, or translation of this manual, or parts thereof, as well as for the storage and processing of the contents of electronic data processing systems.

Impressum

Document name: Introduction to GRIPS
Editor: Matthias Gutknecht
Filename: GRIPS_Short_Introduction.docx
Release: July 10, 2014

Table of contents

1	Advantages of GRIPS	1
2	Semantic single sourcing	2
3	Authoring and information processing model.....	3
4	Intelligent real-time authoring support	4
5	Object-oriented review and release process	5
6	Information-mining environment.....	6

1 Advantages of GRIPS

Internet companies such as Google, Microsoft, and Wolfram, already tap into the huge potential of semantically linked information models. Since the end of 2012 Google is displaying results of searches for companies or names of famous persons not only as lists of web sites, but describes relevant and useful additional information (such as company contact info, location on a map, stock rate, name of CEO, etc.) in a knowledge graph box. Likewise, GRIPS enables similar intelligent processing capabilities by linking information objects. By supporting a geographically distributed and multi-lingual authoring of structured and linked information units, GRIPS is not only supporting the creation of product knowledge, but enables semantically linked knowledge management on all business-critical objects in addition to its intelligent processing. This benefits not only product communication, but also marketing, sales, after sales, and the end customer.

- **Enhanced re-use, standardization, cost reduction, and quality:** The semantic approach improves the efficiency of capturing information. Many information units can be re-used and do not have to be entered again. The system's authoring support works in a precise domain context, such that information units can be efficiently re-used. This enhances re-use, content standardization, and the consistency and quality of all information products. The enhanced re-use reduces the number of newly authored information units, which reduces not only authoring costs but also translation costs for each target language as existing translations of re-used information units are re-used as well.
- **Improved sustainability and protection of investments:** Based on the product-centric, domain-based, stable, detailed, and granular semantic information modeling and management, future requirements can be accommodated without needing to restructure or migrate the content base or to add new metadata to existing information units. If, for example, in the near future technicians are working with smart glasses to perform installation and maintenance tasks, GRIPS will have to manage 3D models of the products with information about orientation (view angle, rotation, etc.). Based on those models, installation instructions can be positioned at the right location in the field of vision of the glasses. GRIPS already supports 3D models and linking (via the product model) of additional information (e.g. torque, tools, etc.). Supporting smart glasses would simply require the implementation of a new publishing channel.
- **Scalability, seamless integration, and product information logistics support:** The optimal balance between server and client-side processing in GRIPS results in low network load and excellent scalability. Through support of information exchange standards – both generic ones (e.g. XML, XSLT), domain-specific ones (e.g. IGES for CAD, ODX/OTX for diagnostics) and standard exchange formats (e.g. DITA) – GRIPS provides seamless integration into the existing business system environment. Together with the product-centric approach and the two-way communication support (publishing and feedback) this enables an end-to-end coverage of the entire product information logistics

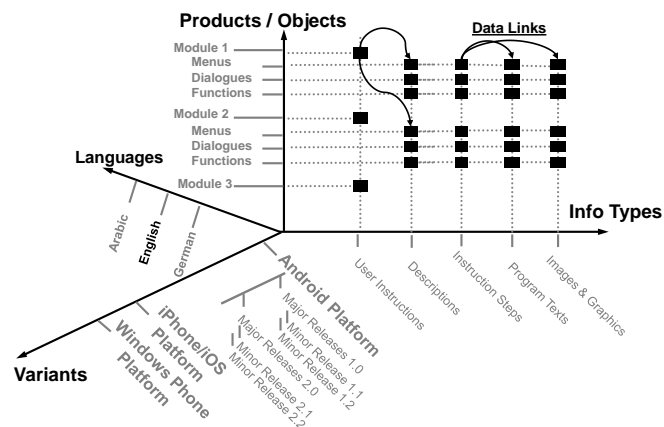
from R&D/development/engineering, production to marketing, sales, after sales, customer service and support.

- **Semantic (meaning driven) authoring support and processing:** In addition to modeling information structures, GRIPS also supports the modeling of relationships and dependencies among product components, variants, and product families. The granularity of modeling can be down to micro components of a product. As all information is captured in a specific context (product, variant, info type, and language), all context-dependent metadata and attributes (e.g. product or variant name and description, components and relationships) are automatically inherited and provided to the author.

2 Semantic single sourcing

Structured authoring has become the standard in technical writing. Since its inception in the 1960s, numerous methods (functional design, information mapping, etc.), standards (DITA, SPEC1000D, etc.) and systems have emerged and been established on the market. The key to success lies in the modeling of different information types, which serve as the basis for information categorization. The goal is to store and manage each piece of information only once. This approach is called "single sourcing". STAR has further developed the methods of structured authoring and principles of single sourcing to the concept of semantic single sourcing and has implemented this in the ground-breaking GRIPS semantic content management system.

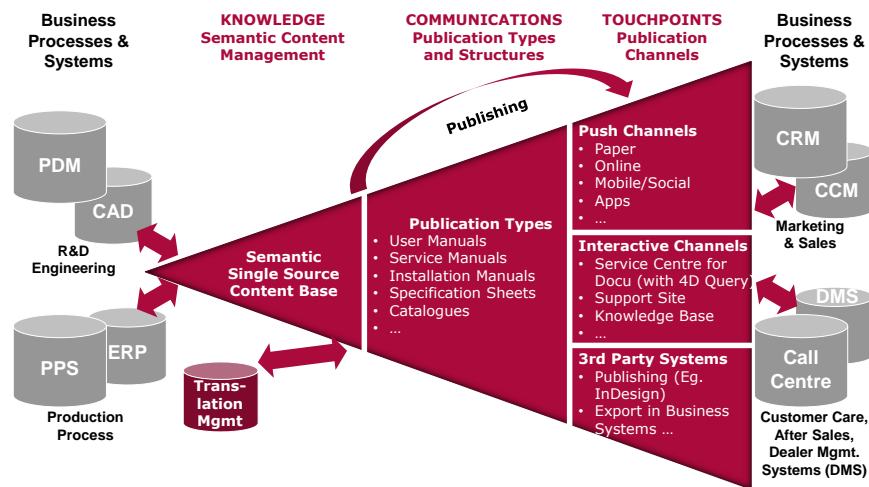
The concept of the semantic single sourcing draws upon approaches, methods, and standards of structured authoring of categorized information types and augments them with three additional categories: the product/object category to describe objects and their components/modules; the variant category for product variants; and the language category for structuring content and foreign languages. As it is captured, a content/information unit¹ is related to an entry in each of the four categories; it can then reference other information units via data links. The picture below illustrates the four categories using a highly simplified structure for capturing and managing content for mobile phone apps.



¹Information unit: A unit of meaning (semantic closure) to answer a question.

“Positioning” each information unit in an exact context of product/object, variant, information type, and language establishes the meaning of each information unit. Based on the four categories, GRIPS implements efficient and sustainable semantic content management across product, variant, and country/language boundaries. The semantic representation increases re-use, reduces costs, makes it future-proof and enables machine-based information discovery, interpretation, and processing.

3 Authoring and information processing model



The GRIPS authoring and information processing model² distinguishes three Layers of information processing and works bi-directionally:

- **Semantic content base layer:** Information units and their references (links) are captured in the context of product, variant, and authoring language. Each information unit automatically “inherits” the complete set of existing properties, rules, and relationships that facilitate and reduce authoring efforts. Information units are captured, content checked, released and translated where needed regardless of publication/document type and channel. The overall authoring process can be accelerated by working in parallel on independent information units with different release statuses. The product-centric representation also facilitates exchange/synchronization of content with R&D, engineering, production and suppliers.
- **Publication/document types and structures layer:** Content and publication structures are defined for each type of publication/document/communication. This is achieved by hierarchically linking information units from the GRIPS content base. The publication structure is generic and not yet specialized according to the requirements and restrictions of particular publication channels. Therefore, it is well-suited for channel-independent content reviews.
- **Publishing channels layer:** The rule-based channel-specific publishing, including layout and formatting, is performed for paper, online, mobile/social, and business system exchange channels. Push channels (with targeted audience and distribution) as well as interactive

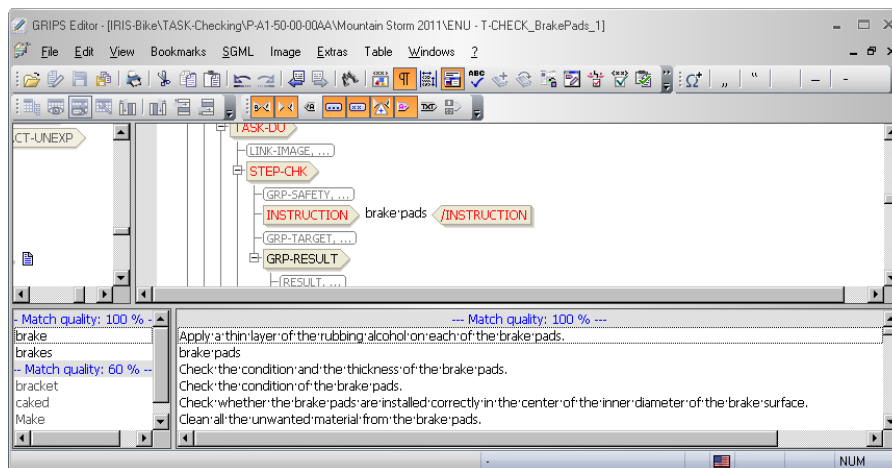
² Authoring Model: Consists of information, process and role models for information development and management.

channels and export/import channels to and from business systems (e.g. to InDesign, dealer management systems, or DITA solutions) are enabled. The information logistics can therefore be easily extended by new and future channels to support new customer touch points.

- **Two-way communication:** GRIPS is not just working one way (outbound), but can also receive input, feedback, and usage statistics from users or systems and link it to the appropriate information units. This enables continuous improvement of the information and process quality as well as organizational learning.

4 Intelligent real-time authoring support

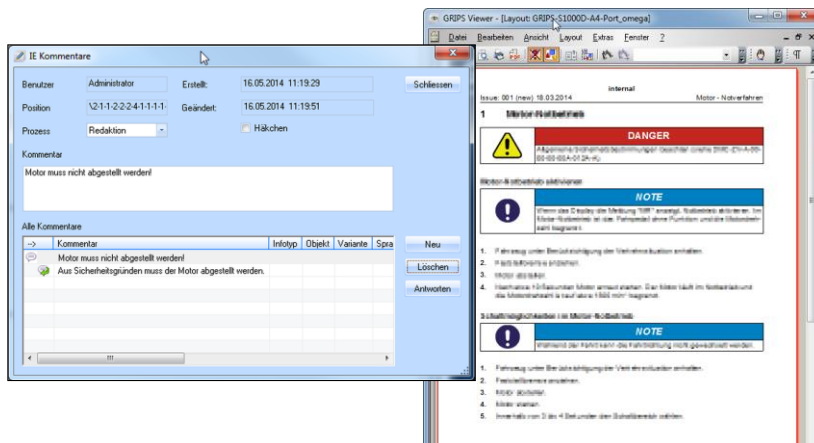
The GRIPS Editor is an integral part of the GRIPS software. It supports the editing of information units independently of document type and layout. The focus lies on content discovery and capturing guided by pre-defined structures from the GRIPS information model. The GRIPS Editor makes use of the following functionalities: display and navigation of structures; display and editing of content; linking among information units; MindReader suggestions (see below); terminology and spell checking; preview of images and graphics. The screenshot below shows the GRIPS Editor with the MindReader suggestions.



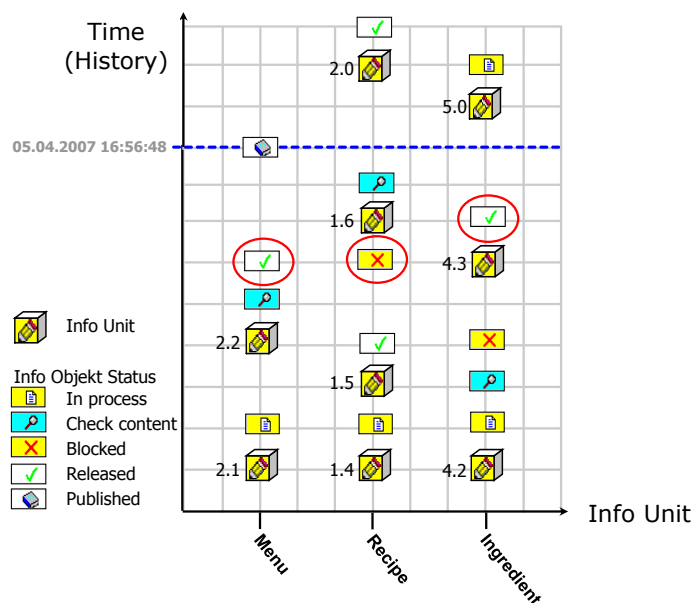
The GRIPS MindReader component enables intelligent real-time authoring support. MindReader indexes all previously captured and approved content and makes context-sensitive suggestions (including indication of match quality) during the writing process. Appropriate content suggestions can be copied with a click of the mouse. MindReader can also identify the corresponding information unit, which contains the content suggested. The information unit as a whole can then be referenced – and hence re-used – if appropriate with the added advantage that all translations available for that unit are also re-used. As all suggestions refer to approved and released content, only the correct content and terminology are being re-used. In the example above, the author starts typing “brake pads” at the beginning of an instruction and MindReader suggests among others “Check the condition and the thickness of the brake pads.” Furthermore, the terminology checker (TermStar/WebTerm) also recognizes terms that should not be used and suggests the preferred term.

5 Object-oriented review and release process

GRIPS provides an object-oriented commenting function to support content and document reviews, usability tests, and approval processes. When capturing a comment for a text or picture in the Viewer, GRIPS automatically allocates and stores the comment with the corresponding information unit in the content base (GRIPS Oct. 2014 Release, see picture below). This facilitates the authors' updates and changes. The search for and identification of information units corresponding to a commented content unit is not necessary. Comments from reviews of different document or publication types that re-use the same information unit can be considered and integrated in a single update. Therefore, the object-oriented commenting function increases the efficiency and consistency of the update and change management processes.

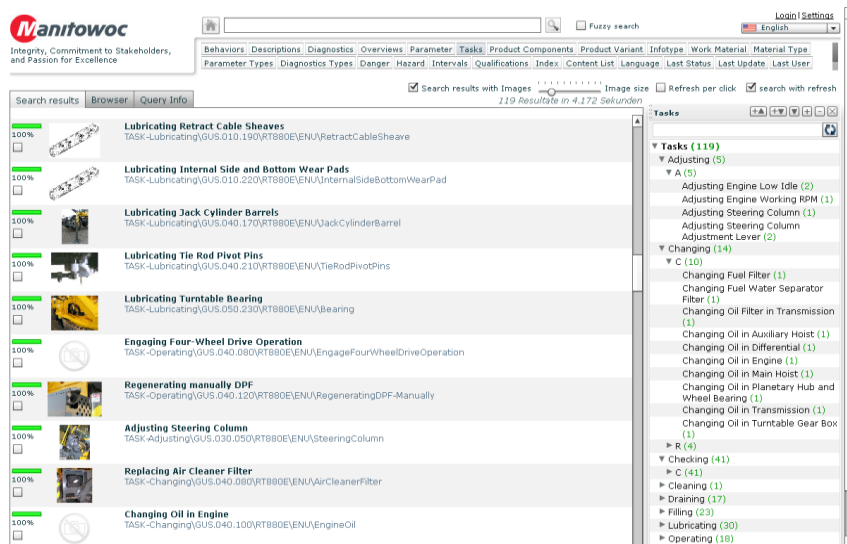


GRIPS controls the release process via its object oriented status model. Each information unit is versioned independently and passes different statuses, which are recorded in its unique individual history. When an information unit is released ("released" status), it can enter a final publication. Draft publications (e.g. for previews) as in the example below can also include objects that have yet to be checked ("check content" status). The history mechanism supports the seamless tracking of the change history and previous statuses of each individual information unit.



6 Information-mining environment

In many content management systems, information units are only directly accessible to the authors. All other stakeholders receive information only as publications in the form of user and service documents, online support, diagnostic sites, etc. Consequently, in those publications only questions anticipated by the authors are publicly addressed. All other questions and information needs are not addressed (e.g. Which parts can be replaced on this product? Which adjustment tasks can I perform on this product to maximize its performance?). The knowledge units³ and thus the work of the authors yield only a fraction of their potential benefits. Therefore, an information-mining environment has been developed for GRIPS: 4dQuery. In 4dQuery users can run queries, filter, and navigate on an exported extract of the GRIPS content base. With 4dQuery, questions and information needs that have not been anticipated by the authors can be answered. In the example below, technicians can use 4dQuery for a particular product variant to list all possible work tasks related to making changes or adjustments to the machine.



The user interface of 4dQuery can be adapted to the needs of a customer or group of users. The selection of a particular product component for a query or navigation step can also be supported using a bill of material picture of a product such that the user can visually and interactively explore the information space for that component: “What can I do with this component? How can I adjust it, maintain it, replace it? Which failure modes and functions relate to that component based on which causes, and how can I fix those malfunctions?”

With 4dQuery, GRIPS becomes an information-mining environment and source of knowledge, which dynamically delivers user-specific answers for unanticipated and potentially complex questions on demand. The organizational knowledge accumulated in the semantic content base helps users with different skill levels and tasks to get answers to their questions, to learn, to increase productivity, enhance value, and to develop new organizational knowledge.

³ Knowledge unit: Semantically linked information unit with closure of content and meaning.