Web to Print Knowledge Experience

A Case Study of the Government of Hessen, Germany's Half-Time Report



Halbzeitbilanz The Half Time Report



An transparency initiative by the government of Hessen, Germany to publish its achievements and mid-term performance for the various stakeholders -- the Citizens, the Parliament, the Press, and the Policymakers.



Halbzeitbilanz 18. Legislaturperiode

Bitte Suchbegriff eingeben

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Hessen setzt auf eine sichere Zukunft – Mutige Entscheidungen für unser Land

Zur Halbzeit der 18. Legislaturperiode befindet sich unser Land auf dem Weg in die Vollbeschäftigung. Noch nie waren in Hessen so viele Menschen erwerbstätig, während das "Nord-Süd-Gefälle" bei der Arbeitslosigkeit nicht mehr existiert, obwohl wir auch hierzulande von der größten Wirtschafts- und Finanzkrise seit der Nachkriegszeit nicht verschont blieben.



Wieso steht Hessen so gut da? Einerseits konnten wir auch in Krisenzeiten auf unsere bundesweit einzigartige Wirtschaftskraft bauen, denn in keinem anderen Bundesland erarbeiten die Menschen pro Kopf so hohe Erträge wie hier. Andererseits konnten sich die Bürgerinnen und Bürger auf die Hessische Landesregierung verlassen. Wir haben gehandelt und die Entscheidungen getroffen, die nötig



HALBZEITBILANZ INDIVIDUELL ZUSAMMENSTELLEN

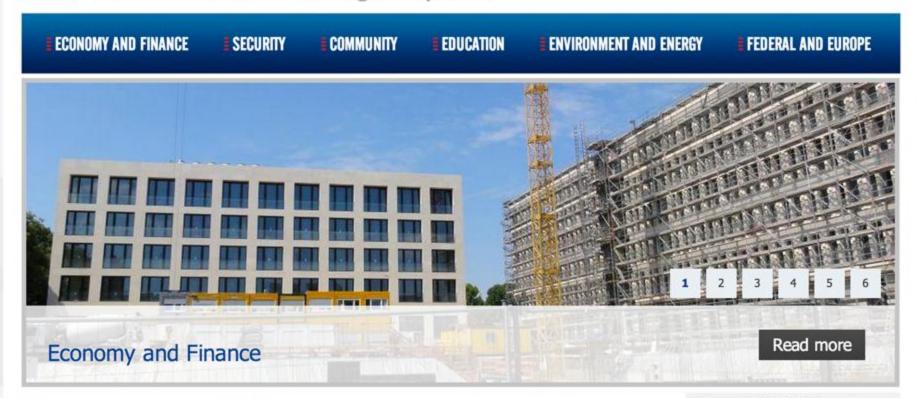
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eingeben



Hesse uses a secure future -Courageous decisions for our country

At half-time of 18 Legislature is our country on the path to full employment. Never before have so many people in Hesse-employed, while the "North-South divide" in unemployment no longer exists, although we were also not spared from this country the greatest economic and financial crisis since the war.



Hesse Why is there so much? On one hand, we were able to build on our unique nationwide economic power in times of crisis, as in any other state develop people per capita income as high as here. On the other hand, the citizens were able to rely on the Hessian state government. We have acted and made the decisions that were necessary to protect the strength and prosperity of our country. So we were given the opportunity to show the people of Hesse that the



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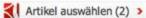


"Vielfältig, Nachhaltig, Hessisch" – 500.000 Besucher bei erstem

Startseite » Umwelt und Energie » Umwelt und Natur







umfassenden

Ausgewählte Artikel

Umwelt und Natur

- "Vielfältig, Nachhaltig, Hessisch" 500,000 Besucher bei erstem Nachhaltigkeitstag
- Gemeinsam an einem Strang ziehen: Nachhaltigkeit beginnt auf lokaler Ebene
- CO2-Fußabdruck der Landesverwaltung: Auf dem Weg zur ausgeglichenen Klimabilanz
- Nationalpark Kellerwald-Edersee als UNESCO-Weltnaturerbe geadelt
- neuer Onlineplattform verfügbar
- Ausbau besonders geschützter Kernzonen im Biosphärenreservat Rhön gesichert
- Hochwasserschutz weiterentwickelt: Vorhersagezentrale in Betrieb genommen

Landwirtschaft

INHALTSÜBERSICHT

HALBZEITBILANZ

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ZUSAMMENSTELLEN

Umwelt und Energie

NATUREG: 300,000 Naturschutzdaten auf

Energie

Verbraucherschutz

Nachhaltigkeitstag







Nicht mehr Bäume fällen als neue nachwachsen. So können Eltern ihren Kindern beschreiben, was "Nachhaltigkeit" bedeutet. Zwar stammt dieses Prinzip aus der Forstwirtschaft und wird auch weiterhin dort angewendet, jedoch erstreckt sich Nachhaltigkeit heute auf viele weitere Bereiche. Die Hessische Landesregierung erkennt die heutigen

ökologischen, ökonomischen und sozialen Herausforderungen an und

mit

einer

2008

antwortet bereits seit Nachhaltigkeitsstrategie.

Um das Bewusstsein für unsere Umwelt in all ihren Facetten zu stärken und in allen Teilen der hessischen Bevölkerung zu wecken, lud die Landesregierung am 23. September 2010 zum "1. Hessischen Tag der Nachhaltigkeit" ein. Vom klimafreundlichen Essen oder Bäume einpflanzen, über Podiumsdiskussionen und Infostände, bis hin zum Tag der offenen Tür in Unternehmen - mit über 300 Aktionen, 700 Akteuren und einer halben Million Besuchern war der Nachhaltigkeitstag, der

Eine halbe Million Besucher nahmen am "1. Hessischen Tag der Nachhaltigkeit" teil © M. Mertens

unter dem Motto "Vielfältig - Nachhaltig - Hessisch" stand, ein großer Erfolg.

Die Nachhaltigkeitsstrategie der Hessischen Landesregierung bündelt viele Programme und Aktionen. Weitere Informationen sind unter http://www.hessen-nachhaltig.de abrufbar.

Umwelt und Energie

Gemeinsam an einem Strang ziehen: Nachhaltigkeit beginnt auf lokaler Ebene

Brand- und Katastrophenschutz

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Ausgewählte Artikel

Hochschule Demographie Finanzen

+

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Halbzeitbilanz An eco-friendly initiative

Seen as a green initiative, the web platform moves away from the existing practice of printing and distributing voluminous annual reports which results in considerable wastage of paper. Preparation and distribution of such reports also wastes considerable time.

The web platform also allowed users to create customized sets of reports, which was not possible with the print editions.



Halbzeitbilanz

Drupal CMS: A perfect fit

A big challenge was to manage and organize enormous volumes of documents, spread across various verticals of the government.

Drupal was chosen because it is a ready to use, secure and scalable platform and allows for organizing and managing large amount of distributed content in a highly structured manner. Drupal has a community of thousands of engaged developers contributing code and modules.

Advanced theming features and modularity of the Drupal administrative interface allows for creation of dashboards for even the most non-technical of content managers.

Halbzeitbilanz

Highlights

- Comprehensive categorization and information architecture using Drupal used as the content publishing platform.
- Powerful Apache Solr Search for free text searching and tag-based filtering of articles.
- Print PDF E-Mail module to create a customised annual report of user selected articles on-the-fly with advanced customization.
- Enhanced UI and UX design enabling users to see all the reports of the government in one single view and select relevant articles.
- Custom modules and extensions like "My Report" and "Article Queue."



Features Overview

Information Architecture

HTR had huge volumes of documents spread across various verticals of the government. HTR also had very extensive tagging vocabulary (thesaurus) of their library terms. These were organized as What, Where and Who lists, which represented nature of articles, geographies they represented, and people they were associated with, including authors.

The articles are organized in the Drupal backend using an enhanced implementation of the Book module and extensive Taxonomies.



My Report UI & UX

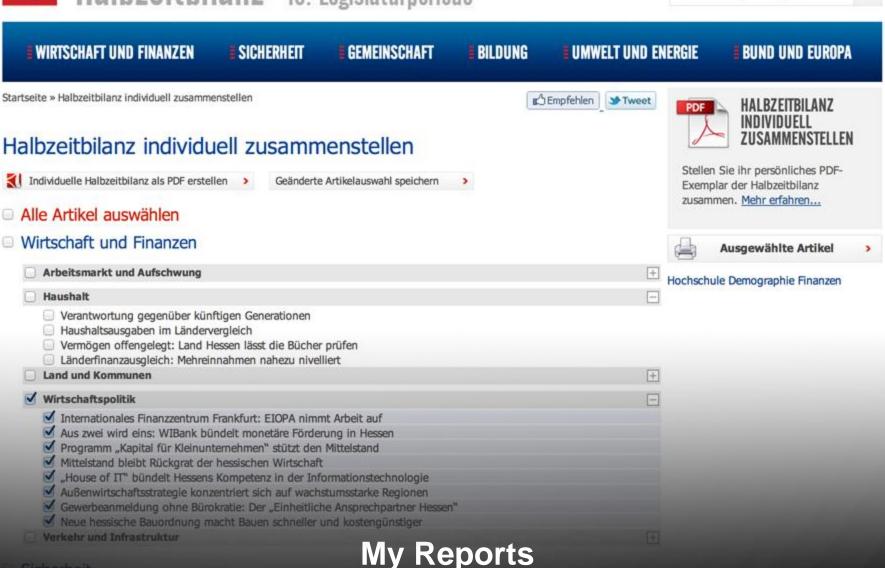
Users can browse all articles, select and add them to a cart (similar to online shopping) and then prepare a custom booklet of reports in PDF format. Azri provided an elegant option to have a custom front and back cover, configurable for each instance of the booklet. We also designed a detailed automated indexing of the booklet, resulting in a more rewarding user experience online. The site menus were designed to resemble a book. Users can *flip* back and forth as in a book of articles.





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Dynamic PDF Generation

The My Report module generates in real-time, a downloadable PDF of the user's selection. The PDF maintains the book structure, with the Table of Contents, Cover Sheet, Prefix, Preface, Imprint, and images. The entire PDF generation is handled through the custom module using API from the Print, PDF, Email module in Drupal using the wkHTMLtoPDF library.

We made sure the generated PDF document carried proper font styles. Minute details were observed. For instance, PDF generation should not break the image in the middle. We wrote custom stylesheets for the PDF so that PDF output could be sent directly to a printer.



Dynamic PDF Generation Print PDF EMail

One of the highlights of this project is to allow users to select a set of articles within established categories and then download them as a book. We used this module and heavily customized the implementation, allowing us to generate the PDF on-the-fly based on user's custom selection.



Dynamic PDF Generation WKHTMLtoPDF

Also, we utilized the Print PDF Email module API in combination with wkHTMLtoPDF (PDF generation library) to generate dynamic PDFs. wkHTMLtoPDF library was chosen for its flexibility and an advanced conversion toolset. We finalized on this library after a full comparative analysis with dompdf, tcpdf for its ability to render HTML content preserving the formatting styles, and found superior feature sets.

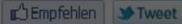


Dynamic PDF Generation

Customization and Enhancements

An important requirement was to include a Table of Content, Cover Sheet, Prefix, Preface and Imprint information, in addition to the user selected articles in the PDF in the downloadable book. wkHTMLtoPDF is the only library which supports this requirement but the Print PDF Email module does not support to add Cover Sheet, Prefix, Preface and Imprint. We customized and extended the Print PDF Email module and added user configured Cover Sheet, Prefix, Preface, Imprint to be included in the generated PDF.







Mid-term combined individually

Create individual mid-term review as PDF

Save changed item selection

- Select all items
- Economy and Finance
 - Labor market and growth
 - Hesse's economy is booming
 - Number of employees in Hesse
 - ▼ Household
 - Responsibility to future general
 - ▼ Household expenditure across
 - Assets disclosed: Hesse can ex
 - Firm Policy: More income near
 - State and local
 - ▼ Economic Policy

 - W Two become one: WIBank but
 - Program "Capital for Small Busin

Transport and Infrastructure

- Medium-sized business is the ba
- ▼ "House of IT," Hesse combines expertise in information technology
- ✓ Foreign economic strategy Dynamic PDF Generation
 ✓ Business registration no bureaucracy: the "single contact Hesse"
- New building regulations Hessian makes building faster and cheaper



Performance Optimization Challenges

PDF generation on the fly proved to be a major performance sink. Selecting multiple articles and then generating the PDF book of those articles, on the fly, could result in several minutes of wait time.



Performance Optimization

Optimization Techniques 101

- 1. Cache the output of every article which need to render in PDF using drupal cache API.
- Cache the generated PDF with the selected article combinations. So if a
 user downloads the PDF with same articles combination it will not regenerate the PDF. It will simply use the existing PDF document and send
 that to the user.
- 3. To improve front-end and page load performance, we used Drupal core page and block cache in custom configurations.



Apache Solr Search

Advanced Faceted, Filtered Search

Apache Solr is highly scalable, providing distributed search and index replication, and it powers the search and navigation features for many of the world's largest internet sites. Apache Solr was custom configured to the project's exacting needs and performance requirements.

Major features include: powerful full-text search, hit highlighting, faceted search, dynamic clustering, database integration, rich document (e.g., Word, PDF) handling, and geospatial search.

Faceted search feature implementation was customized to filter the search by Topic, by Relevancy and Popularity.

Highlighted Modules

Content-type

The articles in the HTR are organized in chapters, taking on the "book" analogy. The user is able to see the next and previous page titles and navigate via the book page navigation. We created a customized "book" content-type and created all articles as book pages within the specified hierarchy of that category and topic. All articles are uploaded to the site as book pages.



Ubercart

User Selection Cart

My Report page is structured as a shopping cart. When users navigate the articles through Book navigation, they select the select the articles for print and proceed to read other articles through navigation. When users access My Report page, the selected articles are checked out. Users can also select articles for print from My Report Page. So instead of building Cart feature again, we used Ubercart Cart page and heavily customized the cart view to focus on this feature. We styled and themed the cart to match the UI design and flow.



Print PDF Email

in combination with wkHTMLtoPDF

As already demonstrated earlier, this module in combination with the wkHTMLtoPDF library allowed us to offer users the ability to create PDF "Book" versions of their customized selection of articles. By tweaking and customizing configurations we were able to also implement highly detailed user experience refinements. A very high level of performance optimization was achieved when generating dynamic PDF reports in real-time.



Apache Sol

Advanced Search

This module was used to integrate Drupal with the Apache Solr search platform. We used Apache Solr search for main search, and for taxonomy term view also used the apache solr search results. Apache Solr is an extremely powerful search engine and rendered with advanced features, such as autocomplete, faceted search, tagged search and much more.



Piwik Web Analytics

Analytics and Stats

HTR was already using Piwik web analytics and tracking -- an open source advanced analytics engine. See www.piwik.org.

We integrated this analytics tool using Piwik API into their Drupal instance.



In Conclusion

Azri and the Govt of Hessen, Germany worked together to successfully design and deploy an e-gov solution that is:

- Green and Efficient
- Scalable and Secure
- Innovative and Flexible
- Offers Rewarding User Experience
- Open Source: Used Drupal and other OSS technology to organize, publish and deliver a complex content management solution.



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