

# Building a Collaborative Content Platform with the Control Panel

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Dot All 2023 · Moritz L'Hoest

# Introduction

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- Frontend for users → User Experience (UX)
- Backend for authors → Author Experience (AX)

# Introduction

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- Frontend for users → User Experience (UX)
- Backend for authors → Author Experience (AX)
- Authors are captive users

# Introduction

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- Frontend for users → User Experience (UX)
- Backend for authors → Author Experience (AX)
- Authors are captive users
- What if you need to provide AX for non-captive users?

# Table of Contents

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- 1. Case Study “Begabungslotse”**
- 2. Content Modelling and Migration**
- 3. Defining Workflows and Boundaries**
- 4. Inviting Contributions with a Custom Dashboard**
- 5. Creating Strong Administration Tools**

# Case Study “Begabungslotse”

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# Key facts

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- Database for education programs in Germany
- Registration for external collaborators
- Relaunched with Craft 3 in 2021
- Updated to Craft 4 in 2022
- Website: [begabungslotse.de](http://begabungslotse.de)

# Suche

Volltextsuche

bildung

Standort

Postleitzahl ...

Inhalte

Alle anzeigen

Zielgruppe

- Schüler/in 1,320
- Lehrkraft/Lehrende 838
- Eltern 565
- Bildungspraktiker/in 541
- Schüler/in Sek. I 434

+ Mehr anzeigen

Fach

- Mathematik und Naturwissenschaften 382
- MINT 201
- Technik- und Ingenieurwissenschaften 155
- Musik, Kunst, Gestaltung und Sport 139
- Technik 119

+ Mehr anzeigen

Thema

- Berufsorientierung 287
- Unterrichtsentwicklung 163
- Persönlichkeitsbildung 125
- Schulentwicklung 75
- Digitalisierung 62

+ Mehr anzeigen

2,087 Ergebnisse

Anbieter Institution, Verein, Verband

**Bildung & Begabung**

gemeinnützige GmbH

Bildung & Begabung

Kortrijker Str. 1

53177 Bonn



Medien Buch, Zeitschrift

**Bildung braucht Beziehung.  
Selbstkompetenz stärken- Begabungen  
entfalten**

**Autor:** Prof. Dr. Julius Kuhl, Dr. Susanne Müller-Using, Prof. Dr.

Claudia Solzbacher, Wiebke Warnecke (Hrsg.)

**Verlag:** Herder

Medien Buch, Zeitschrift

**Bildung braucht Persönlichkeit**

Wie Lernen gelingt

**Autor:** Gerhard Roth

**Verlag:** Klett-Cotta

Medien Buch, Zeitschrift

**Bildung? Bildung!**

26 Thesen als Herausforderung im 21.  
Jahrhundert

**Herausgeber:** Andreas Schlüter, Peter Strohschneider

**Verlag:** Berlin Verlag

Medien Buch, Zeitschrift

**Bildung in Deutschland 2012**

Umwertungen Autorengruppe Bildungswissenschaften

# Content Modelling and Migration

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# Content modelling

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- Keep it simple

# Content modelling

---

- **Keep it simple**
- **No extra fields for every edge-case**

## Subjects and Topics

### Subject

- Subject one ×
- └── ● Subject two ×
- └── ● Subject three ×

+ Select subjects

### Topic

- Topic one ×
- + Select topics

### Additional subjects

Some more subjects ...

380

### Additional topics

Some additional topics ...

351

# Content modelling

---

- **Keep it simple**
- **No extra fields for every edge-case**
- **Reduce the number of categories**

# Content modelling

---

- Keep it simple
- No extra fields for every edge-case
- Reduce the number of categories
- Not everything needs to be a repeatable field

# Content modelling

---

- **Keep it simple**
- **No extra fields for every edge-case**
- **Reduce the number of categories**
- **Not everything needs to be a repeatable field**
- **Finally, drop the fax field ;-)**

# Migration

---

- Import content using migrations



```
$json = file_get_contents(__DIR__ . '/data.json');
$entries = json_decode($json, true, 512, JSON_THROW_ON_ERROR);

foreach ($entries as $entryData) {
    $section = $this→sections→getSectionByHandle('offer');
    $entryType = $section→getEntryTypes()[0];

    $entry = new Entry();
    $entry→sectionId = $section→id;
    $entry→typeId = $entryType→id;
    $entry→slug = $entryData['slug'];
    $entry→title = $entryData['title'];

    $entry→setFieldValues([
        'description' => $entryData['body'],
        // Set additional fields ...
    ]);

    $success = Craft::$app→getElements()→saveElement($entry);

    if (!$success) {
        echo '### ERROR: FAILED SAVING ENTRY' . PHP_EOL;
        echo sprintf('Validation errors: %s', print_r($entry→getErrors(), true));
        return false;
    }
}
```

# Migration

---

- Import content using migrations
- Use the migration to clean up data

```
// Replace <h4> tags with <h3>
$html = str_replace(
    ['<h4>', '</h4>'],
    ['<h3>', '</h3>'],
    $html
);

// Remove disallowed tags and decode entities
array $allowedTags = ['p', 'h3', 'em', 'strong', 'a', 'ol', 'ul', 'li', 'br'];
$html = strip_tags($html, $allowedTags);
$html = html_entity_decode($html, ENT_QUOTES | ENT_HTML5, 'UTF-8');

// Remove empty tags (like <p> tags inserted for spacing)
return preg_replace(
    "/<[a-z]{1,10}>(?:\s|&nbsp;|\cdot)*<\/[a-z]{1,10}>/",
    '',
    $html
);
```

# Migration

---

- Import content using migrations
- Use the migration to clean up data
- Not every special case can be handled - and you shouldn't try to



```
$number = $entryData['phone_number'];
$phoneNumberUtil = PhoneNumberUtil::getInstance();

try {
    $phoneNumber = $phoneNumberUtil→parse($number, 'DE');
} catch (\Throwable $e) {
    echo sprintf(
        '### WARNING: Dropping invalid phone number %s. Error: %s',
        $number,
        $e→getMessage()
    ) . PHP_EOL;
}
```

# Defining Workflows and Boundaries

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---

- Where are the boundaries between frontend and backend?

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- Where are the boundaries between frontend and backend?
- Set basic permissions to limit access

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- Fix some issues using hooks

# Defining workflows and boundaries

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- Where are the boundaries between frontend and backend?
- Set basic permissions to limit access
- The “Workflow” plugin - Editorial review process
- Fix some issues using hooks
  - Permissions for entry types

```
/* UserPermissions :: EVENT_REGISTER_PERMISSIONS */
public function defineWorkflowPermissions(RegisterUserPermissionsEvent $event)
{
    $section = Craft::$app->sections->getSectionByHandle('offer');
    $entryTypes = $section->getEntryTypes();

    $entryTypePermissions = [];
    foreach ($entryTypes as $entryType) {
        $permission = 'workflowAccess:' . $entryType->uid;
        $entryTypePermissions[$permission] = [
            'label' => "Access entry type {$entryType->name}"
        ];
    }

    $event->permissions[] = [
        'heading' => 'Custom workflows',
        'permissions' => $entryTypePermissions,
    ];
}
```

```
● ● ●

/**
 * Entry::EVENT_DEFINE_ENTRY_TYPES
 */
public function limitEntryTypesByUserGroup(DefineEntryTypesEvent $e)
{
    $user = Craft::$app->getUser()->getIdentity();
    if (!$user) {
        return;
    }

    if ($e->sender->getSection()->handle != 'offer') {
        return;
    }

    $allowedEntryTypes = array_filter(
        $e->entryTypes,
        fn (EntryType $entryType) => $user->can('workflowAccess:' . $entryType->uid),
    );

    $e->entryTypes = $allowedEntryTypes;
}
```

# Defining workflows and boundaries

---

- Where are the boundaries between frontend and backend?
- Set basic permissions to limit access
- The “Workflow” plugin - Editorial review process
- Fix some issues using hooks
  - Permissions for entry types
  - Make drafts selectable in entries field



```
/**  
 * Entries::EVENT_DEFINE_SELECTION_CRITERIA  
 */  
public function allowDraftsAsRelatedInstitute(ElementCriteriaEvent $e): void  
{  
    if ($e->sender->handle != 'institutes') {  
        return;  
    }  
  
    $e->criteria = [  
        'drafts' => null,  
        'draftOf' => false,  
        'savedDraftsOnly' => true,  
    ];  
}
```

Closed

## BaseRelationField::normalizeValue doesn't fire an ElementCriteriaEvent #9963

MoritzLost opened this issue on Oct 14, 2021 · 3 comments



brandonkelly commented on Oct 15, 2021

Member

Just made this possible for the next release. Made the change in the private `_all()` method, not `normalizeValue()`, so it only affects internal field queries; not the default results you'd get in your own templates. So you will still need to add `.drafts(null)` when querying for the relations in your templates, if you want them to include any related drafts.

```
{% set related = clone(entry.myEntriesField)
    .drafts(null)
    .all() %}
```



That said, I would encourage you to `not` set `drafts => null` on the criteria without also setting these:

- `draftOf => false` – Only allow selecting *unpublished drafts*, rather than drafts of normal entries. This is important because if you were to relate to a draft of a normal entry, that relation would get deleted as soon as the draft was applied to its entry.
- `savedDraftsOnly => true` – Ignore any unpublished drafts which have never actually been edited (e.g. where someone clicked "New entry" and then immediately discarded the draft).

```
Event::on(
    Entries::class,
    Entries::EVENT_DEFINE_SELECTION_CRITERIA,
    function (ElementCriteriaEvent $e) {
        $e->criteria += [
            'drafts' => null,
            'draftOf' => false,
            'savedDraftsOnly' => true,
        ];
    }
);
```



# Defining workflows and boundaries

---

- Where are the boundaries between frontend and backend?
- Set basic permissions to limit access
- The “Workflow” plugin - Editorial review process
- Fix some issues using hooks
  - Permissions for entry types
  - Make drafts selectable in entries field
  - Assigning existing entries to new authors

```
● ● ●

/**
 * Entry :: EVENT_AFTER_SAVE
 */
public function changeAssetAuthorWithEntry(ModelEvent $e)
{
    if (ElementHelper::isDraftOrRevision($e→sender)) {
        return;
    }

    $affectedAssets = Asset::find()→relatedTo([
        'sourceElement' ⇒ $e→sender→id,
        'field' ⇒ ['user_image', 'user_logo', 'user_files'],
    ])→all();

    foreach ($affectedAssets as $asset) {
        $asset→uploaderId = $e→sender→authorId;
        Craft::$app→elements→saveElement($asset);
    }
}
```

# Inviting Contributions with a Custom Dashboard

---

# Custom dashboard widgets

---

- The dashboard is great, but the default widgets aren't super useful

# Custom dashboard widgets

---

- The dashboard is great, but the default widgets aren't super useful
- Examples for custom widgets

BL Begabungslotse MK

**Dashboard**

**Welcome Message**

In the beginning the Universe was created. This has made a lot of people very angry and been widely regarded as a bad move. Isn't it enough to see that a garden is beautiful without having to believe that there are fairies at the bottom of it too? In the beginning the Universe was created. This has made a lot of people very angry and been widely regarded as a bad move.

Arthur suggested they go for a walk. Anything that, in happening, causes something else to happen, causes something else to happen. "Some factual information for you. Have you any idea how much damage that bulldozer would suffer if I just let it roll straight over you?"

I don't want to buy a ticket, I just want to buy the zoo. I am omniscient and omnipotent, extremely vain and, what is more, I come in a handy self-carrying package. Let's be straight here. If we find something we can't understand we like to call it something you can't understand, or indeed pronounce.

"Forty-two," said Deep Thought, with infinite majesty and calm. Life was so pleasant and relaxed these days, there was time to let things sink in. He was a little man in a strange hat and he sold them a ticket. So we'll have to tell you something you already know but make it sound like news, eh?

Any such things that came his way were referred to others, who had, in turn, other people to refer such things to. Laser light flickered all over him as if he were a packet of biscuits at a supermarket check-out. Arthur Dent was grappling with his consciousness the way one grapples with a lost bar of soap in the bath.

Placeholder text generated by [dontpanic ipsum.moritzlost.de](#)

**Submit News**  
Have a suggestion for our news blog?  
Submit it here and we'll take a look!

**Link / URL**

**Message**

**Suggest news**

**Shortcuts**

- + Add institution
- + Add offer type one
- + Add offer type two
- + Add offer type three
- + Add offer type four

**My Drafts**

- My first draft
- My second draft

**My Submissions**

- Submission for "My first draft" on 9/28/2023, 3:41PM 3:41PM

- Custom widget “Welcome Message” to display introductory instructions

The screenshot shows the Craft CMS dashboard with a dark theme. On the left, there's a sidebar with navigation links: Dashboard, Entries, and Assets. The main content area has a title "Dashboard". Below it is a "Welcome Message" section containing placeholder text from [dontpanicipsum.moritzlost.de](https://dontpanicipsum.moritzlost.de). To the right are several widgets:

- Submit News**: A form with fields for "Link / URL" and "Message", and a "Suggest news" button.
- Shortcuts**: Buttons for adding institutions and offer types (one, two, three, four).
- Links**: Links to "View my entries", "Edit my account", "Support inquiry", and "Go back to the homepage".
- My Drafts**: A list with "My first draft" and "My second draft".
- My Submissions**: A list showing a single submission: "Submission for 'My first draft' on 9/28/2023, 3:41PM 3:41PM".

- Built-in widget “My Drafts” to show unsubmitted drafts
- Customized Workflow widget “My Submissions” to show pending submissions

## Dashboard

### Welcome Message

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Placeholder text generated by [dontpanic ipsum.moritzlost.de](#)

### Submit News

Have a suggestion for our news blog?  
Submit it here and we'll take a look!

#### Link / URL

#### Message

[Suggest news](#)

### Shortcuts

[+ Add institution](#)

[+ Add offer type one](#)

[+ Add offer type two](#)

[+ Add offer type three](#)

[+ Add offer type four](#)

### Links

[View my entries](#)

[Edit my account](#)

[Support inquiry](#)

[Go back to the homepage](#)

### My Drafts

[My first draft](#)

[My second draft](#)

### My Submissions

● Submission for "My first draft" on  
9/28/2023, 3:41PM  
3:41PM

- Custom widget “Shortcuts” to all entry types
- Custom widget “Links” to other areas

BL Begabungslotse MK

**Dashboard**

Welcome Message

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Placeholder text generated by [dontpanic ipsum.moritzlost.de](#)

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**Message**

**Suggest news**

**Shortcuts**

+ Add institution  
+ Add offer type one  
+ Add offer type two  
+ Add offer type three  
+ Add offer type four

**My Drafts**

My first draft  
 My second draft

**My Submissions**

● Submission for "My first draft" on 9/28/2023, 3:41PM 3:41PM

**Links**

[View my entries](#)  
[Edit my account](#)  
[Support inquiry](#)  
[Go back to the homepage](#)

- Custom widget “News submission” to hold a tiny piece of functionality

# Custom dashboard widgets

---

- The dashboard is great, but the default widgets aren't super useful
- Examples for custom widgets
  - Welcome message
  - Drafts and pending submissions
  - Quick links and shortcuts to create content
  - News submission

# Modifying the default dashboard

---

- No configuration options for changing the default dashboard widgets

# Modifying the default dashboard

---

- No configuration options for changing the default dashboard widgets
- “Default Dashboard” plugin

# Modifying the default dashboard

---

- No configuration options for changing the default dashboard widgets
- “Default Dashboard” plugin
- Ensure default dashboard widgets on login with a hook

```
/*
 * User::EVENT_AFTER_LOGIN
 */
public function ensureDefaultDashboardWidgets(User $user): void
{
    $existingWidgets = Craft::$app->dashboard->getAllWidgets();
    foreach ($existingWidgets as $widget) {
        Craft::$app->dashboard->deleteWidget($widget);
    }

    $defaultWidgets = [
        Craft::$app->dashboard->createWidget([
            'type' => 'modules\\Workflow\\widgets\\AdminNotes',
            'colspan' => 2,
        ]),
        Craft::$app->dashboard->createWidget(
            'modules\\Workflow\\widgets\\Shortcuts'
        ),
        Craft::$app->dashboard->createWidget(
            'modules\\Workflow\\widgets\\QuickLinks'
        ),
        // More widgets ...
    ];

    foreach ($defaultWidgets as $widget) {
        Craft::$app->dashboard->saveWidget($widget);
    }
}
```

# Creating Strong Administration Tools

---

# Creating Strong Administration Tools

---

- Custom diff view of changes in drafts

## Custom diff view (changed)

Entwurf 1



Vorschau

Ansicht

Entwurf anwenden

Entwurf speichern

Inhalt

SEO

Intern

Änderungen vergleichen

## Titel

Custom diff view

Custom diff view (changed)

## Beschreibungstext

<ul><li>Any such things that came his way were referred to others, who had, in turn, other people to refer such things to.</li><li>He had kept it ever since because he found it useful to carry a form of currency that no one would accept.</li><li>The ground was hanging menacingly above his head.</li></ul>

<ul><li>Any such things that came his way were referred to others, who had, in turn, other people to refer such things to.</li><li>It can be very dangerous to see things from somebody else's point of view without the proper training.</li><li>The ground was hanging menacingly above his head.</li></ul>

## Unterzeile / Einleitungstext

The Sandwich Maker almost sliced his thumb off.

Arthur Dent almost sliced his thumb off.

## Tags

Don't (1201111)

Panic (1201112)

Panic (1201112)

## Bild

Daniel Leone 197357 unsplash (1200888)

Etienne Delorieux 267370 unsplash (1200892)

## Weiterführende Links

<https://dontpanic ipsum.moritzlost.de/> | Dummy text generated with Don't Panic Ipsum

<https://dontpanic ipsum.moritzlost.de/> | Dummy text generated with Don't Panic Ipsum by Moritz L'Hoest

## Standort

Händelstraße 26

50674 Köln

NRW

Deutschland

50.9350682 | 6.9368545 | 15

Händelstraße 25

50674 Köln

NRW

Deutschland

50.9346217 | 6.9361193 | 15

## Anbieterart

Schule (136)

Beratungsstelle (137)

Hochschule (962924)

Schule (136)

Beratungsstelle (137)

Slug

custom-diff-view

Autor

ML ● Moritz L'Hoest ✖

Eintragsdatum

22.09.2023 17:06



Ablaufdatum



STATUS

Aktiviert



NOTIZEN ZU DIESER VERSION

ID

1201123

Status

● Aktiv

Erstellt am

22.09.2023, 17:06

Aktualisiert

22.09.2023, 17:07

```
/*  
 * Normalize the given value to a string representation.  
 */  
public function normalizeValue(mixed $value): string  
{  
    if (is_array($value)) {  
        $value = implode(PHP_EOL, array_map($this->normalizeValue( ... ), $value));  
    }  
    if (is_bool($value)) {  
        $value = Craft::t('app', $value ? 'Yes' : 'No');  
    }  
    if ($value instanceof DateTime) {  
        $value = Craft::$app->getFormatter()->asDatetime($value, 'medium');  
    }  
    if ($value instanceof MultiOptionsFieldData) {  
        $value = $this->normalizeValue(ArrayHelper::getColumn($value, 'label'));  
    }  
    if ($value instanceof SingleOptionFieldData) {  
        $value = $value->label;  
    }  
    if ($value instanceof Address) {  
        $value = $this->normalizeAddress($value);  
    }  
    if ($value instanceof ElementQuery) {  
        $value = $this->normalizeValue($value->all());  
    }  
    if ($value instanceof SuperTableBlockElement) {  
        $value = $this->normalizeSuperTableBlock($value);  
    }  
    if ($value instanceof User) {  
        $value = "{$value->fullName} ({$value->id})";  
    }  
    if ($value instanceof Element) {  
        $value = $value->hasTitles()  
            ? "{$value->title} ({$value->id})"  
            : $value->id;  
    }  
    return (string) $value;  
}
```

# Creating Strong Administration Tools

---

- Custom diff view of changes in drafts
- Dashboard widgets for admins

# Creating Strong Administration Tools

---

- Custom diff view of changes in drafts
- Dashboard widgets for admins
- Optimized entry lists

## Entries

All

Search



View

+ New entry

All entries

ANBIETER &amp;

Anbieter

Angebot

ANGEBOTE I

Förderange

Beratungsan

Veranstaltu

Medien

Plattformen

WEBSITE CON

Singles

News

Glossarbegri

Datensätze A-Z

Info-Seite

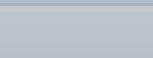
Themen

ADDITIONAL V

Themen

ADDITIONAL

SEO-Übers



Anbieterart

Post Date

Author

Last Edited By

Beratungsangebote
Veranstaltungen
Medien
Plattformen
WEBSITE CONTENT
Singles
News
Glossarbegriff
Datensätze A-Z
Info-Seite
Themen
ADDITIONAL VIEWS
SEO overview



Label

SEO overview

Entry Criteria

Section

is one of

Begabungsorte

Datensätze A-Z

Glossar

Glossarbegriff

Home

Info-Seite

Kalender

News

News-Übersicht

Suche

Themen

+ Add a filter

Default Sort

Title



Default Table Columns

Choose which table columns should be visible for this source by default.

 SEO title SEO description Preview image Entry Type Post Date URI Link Section Author

Cancel

Save



● Katholisches Bildungsforum Leverkusen



● Grundschule Strullendorf



● FVA GmbH

&gt; 1-100 of 2,640 entries

● Weiterbildungsanbieter

9/15/2021



Import Import

● Institution, Verein, Verband

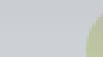
9/14/2021



Import Import

● Institution, Verein, Verband

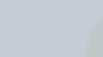
9/13/2021



Import Import

● Institution, Verein, Verband

9/1/2021



Import Import

Export...

# Summary

---

- Consider using the Control Panel for its great AX, and to reduce development and maintenance costs.

# Summary

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- Consider using the Control Panel for its great AX, and to reduce development and maintenance costs.
- Simplify the data model as much as possible to pave the way for good AX.

# Summary

---

- Consider using the Control Panel for its great AX, and to reduce development and maintenance costs.
- Simplify the data model as much as possible to pave the way for good AX.
- Use migrations to clean up existing contents and fit them into your new data model.

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- Custom Dashboard widgets provide a great entry point to the Control Panel.
- Save time where you can, so you can spend time where it really matters.

# Thank you!

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- Slides and code examples  
[github.com/MoritzLost/dot-all-2023](https://github.com/MoritzLost/dot-all-2023)
- Work  
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  - Discord:* MoritzLost
  - Stack Exchange:* MoritzLost