19-MAY-2026

Designing A Smart Task Management System With Oracle APEX

From Concept to Collaboration

Celia Mikhael

code of change

Hyand

About me

How it started... ... and where I ended up



2013
BS in IT with a concentration in DB Administration

I'll start with databases... how hard can it be?

2019
Started working with APEX

Wait... I can build applications directly on the database?

2022
Became a consultant at Hyand

Welcome to the customer's side of reality!

Our Key Facts

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Germany

- Brunswick
- Ratingen
- Hamburg
- Dortmund
- Frankfurt
- Munich
- Berlin

Poland

- Wrocław

Lithuania

- Vilnius
- Kaunas

Romania

- Cluj-Napoca

India

- Pune

25+
Customers with > 1 billion € revenue

110+
million € turnover (2024)

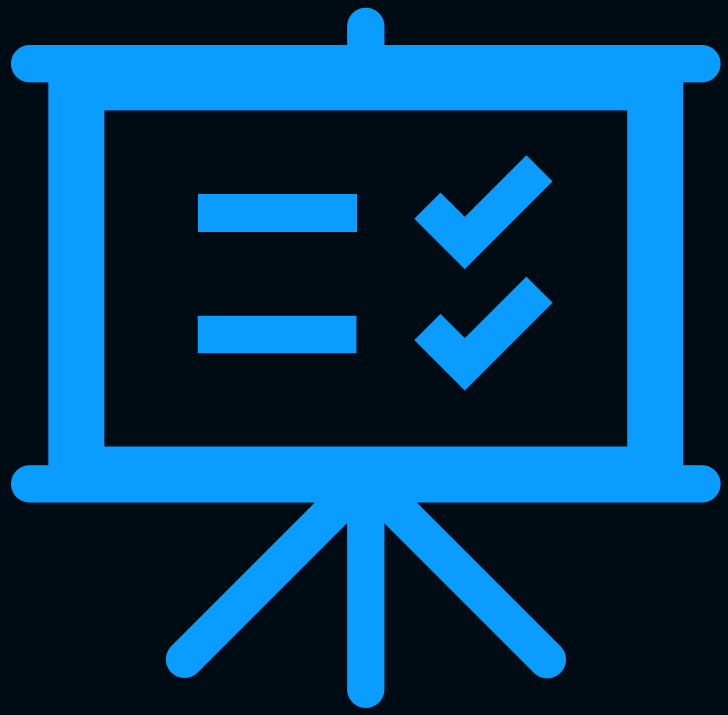
750+
Employees

40
APEX devs

6
Oracle ACEs

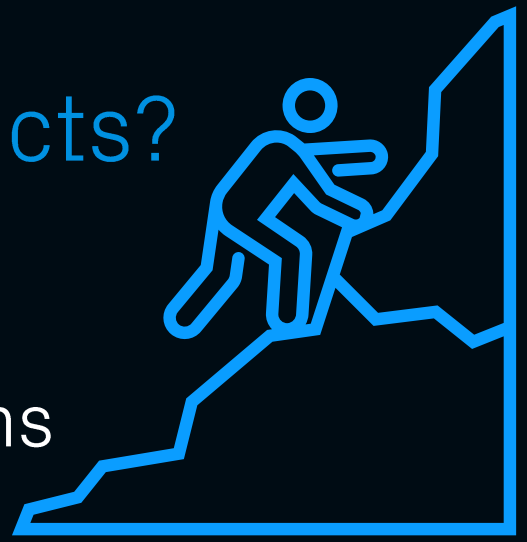
Outline

1. Problem & Motivation
2. Solution
3. Main Features
4. Demo



PROBLEM & MOTIVATION_

What Pushed Us Away From Market Products?



- High cost due to user-based licensing + add-ons
- Forced cloud migration strategy (Server → Cloud)
- API-based integrations → latency + complexity
- Data duplication across systems → no single source of truth

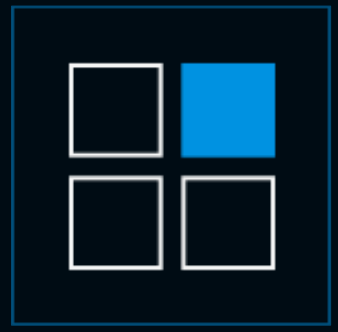
Costs & Rising Prices



Licensing costs



Number of users



Additional costs

Data Privacy & Compliance Concerns



Data in the Cloud



Sensitive Data



Data Storage

We needed a SOLUTION!

We needed ...

A tool for maintenance, support & release management directly integrated into the APEX ecosystem!

We needed ...

A tool that we understand, control and can develop ...

We needed ...

A tool that has direct access to the Oracle Database!

We needed ...

A tool that adapts to our needs ...

... and not the other way around!

And we needed it ...

YESTERDAY





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THE SOLUTION_

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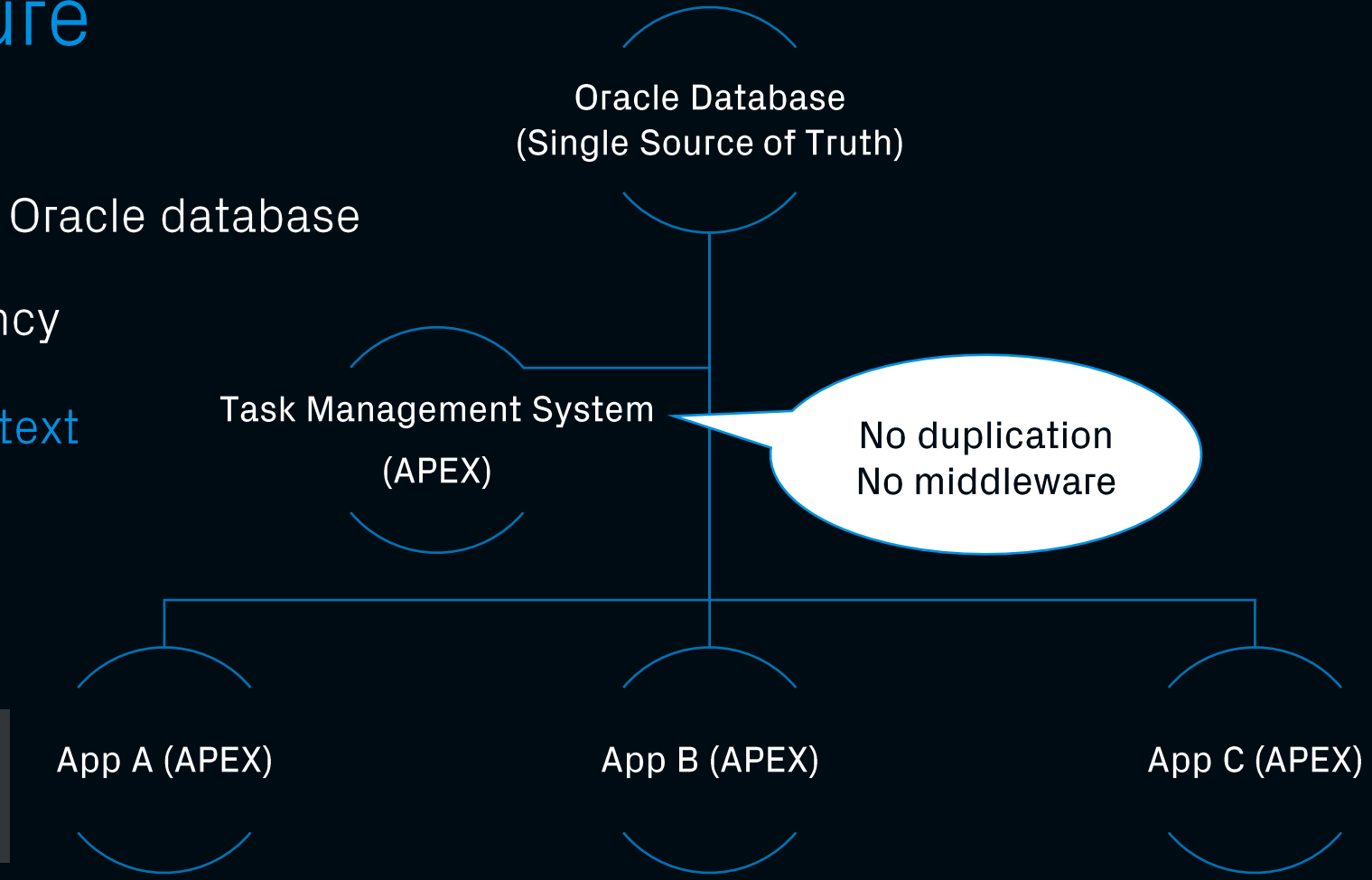
Solution Architecture

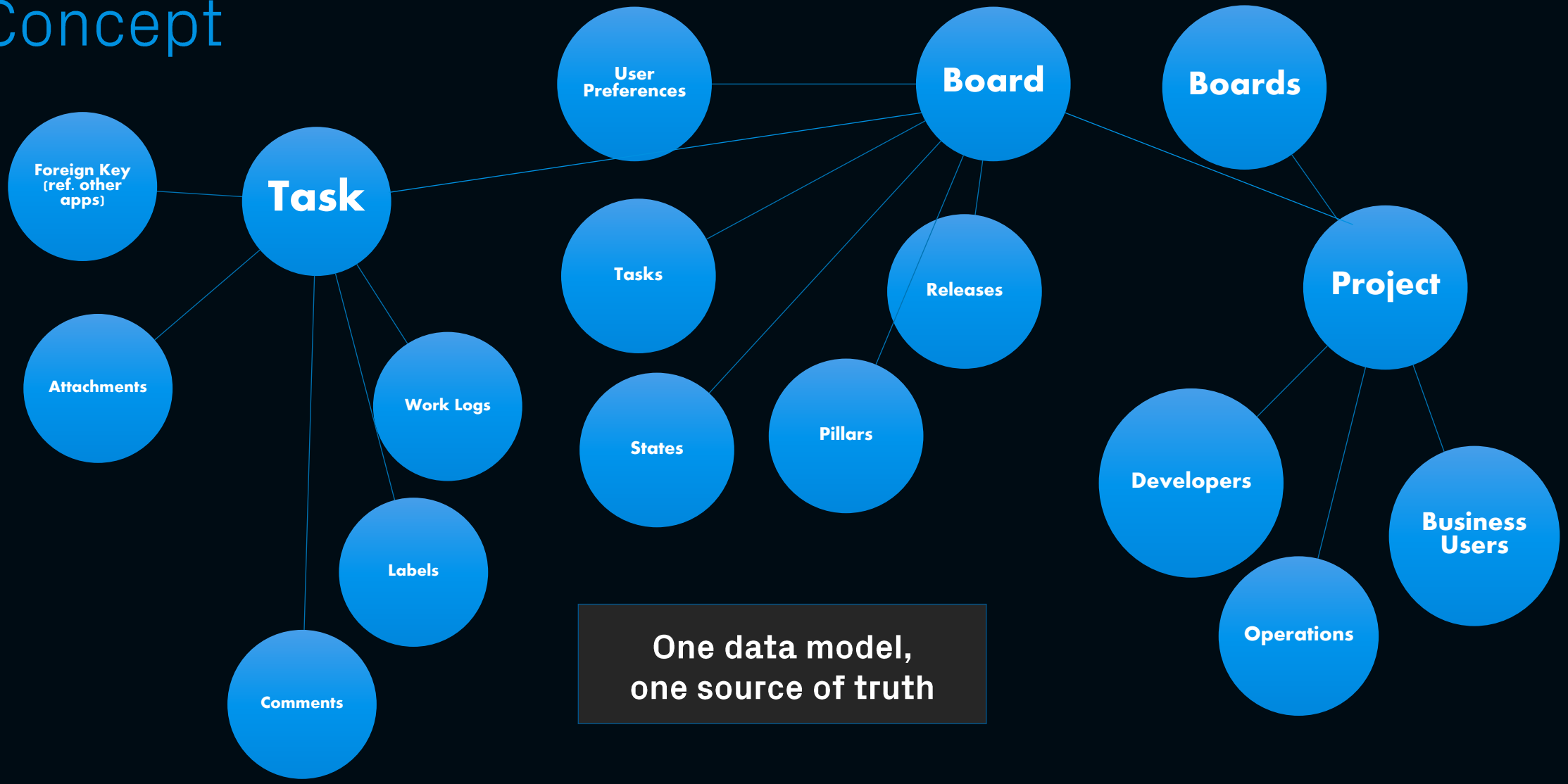
- Direct access to the existing Oracle database
- No integration layer, no latency
- Shared platform, shared context

Logically linked applications, no loose integrations



➡️ From "complex tool ecosystem"
➡️ to "clean, database-driven architecture"

Concept



One data model,
one source of truth

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Proof of Concept: Stats

11+	49+	33+	1449+
PROJECTS	BOARDS	ACTIVE USERS	TASKS

Let’s Talk Money and Effort

≈ 3 months	0€	+∞
Development & Deployment	Additional Costs	Additional Features

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MAIN FEATURES_

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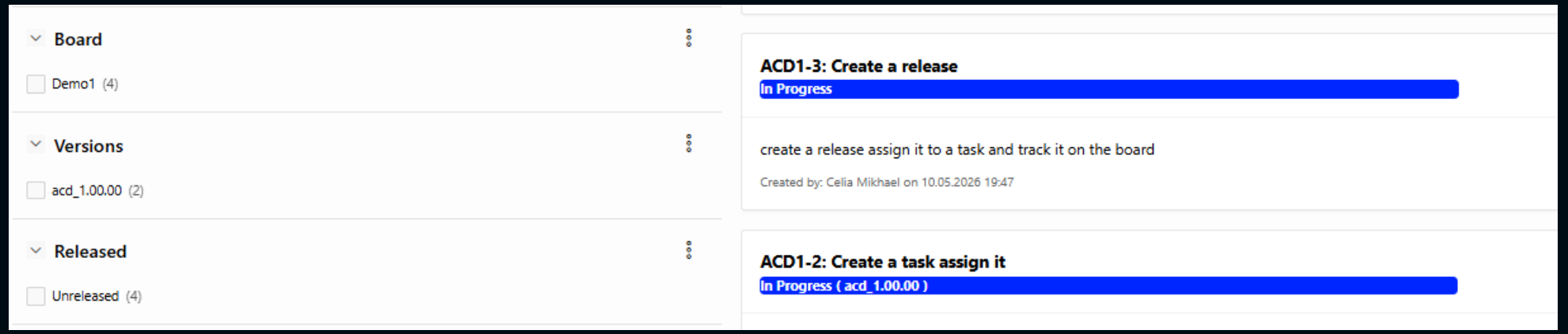
Core User Experience & Task Management

Dashboard-Centric Workflow

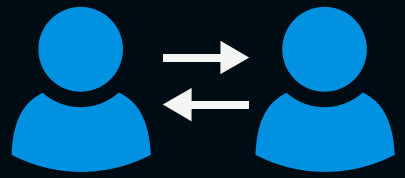
- ✓ Tasks displayed as interactive card components
- ✓ Smart search for fast lookup across all tasks
- ✓ Faceted search for multi-dimensional filtering (status, project, assignee)



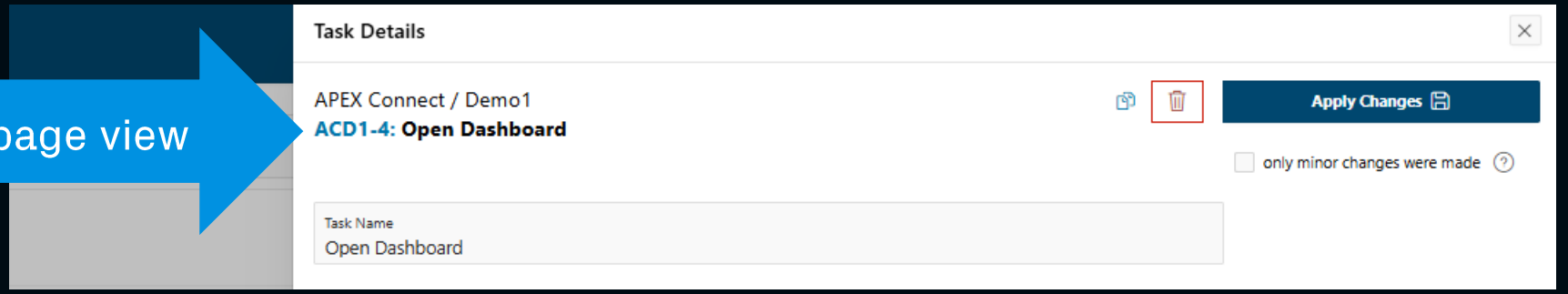
Core User Experience & Task Management

Seamless Task Interaction

- ✓ Open tasks in modal dialog for quick edits
- ✓ Switch to full-page view for deep analysis



Link to redirect to full-page view



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Modern Collaboration Features

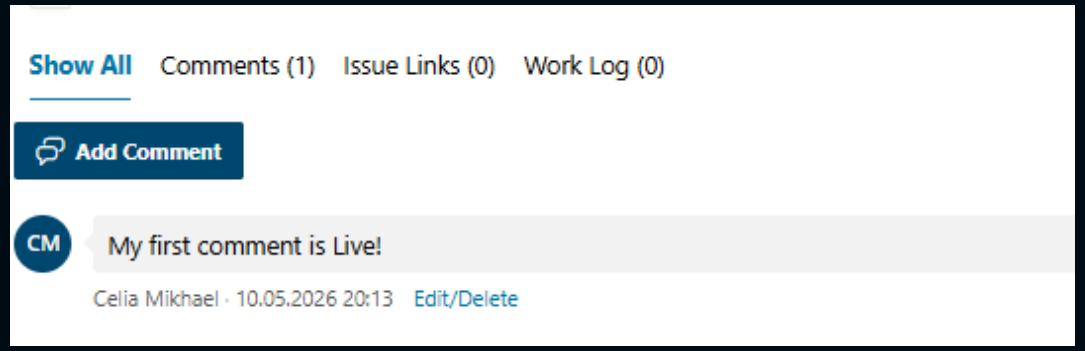
Rich Text Editor with:

- ✓ Copy & paste screenshots (no attachments needed)
- ✓ @mentions for direct user notifications

Task Dependencies:

- ✓ Threaded comments inside tasks
- ✓ Relational tasks
- ✓ Threaded worklog entries



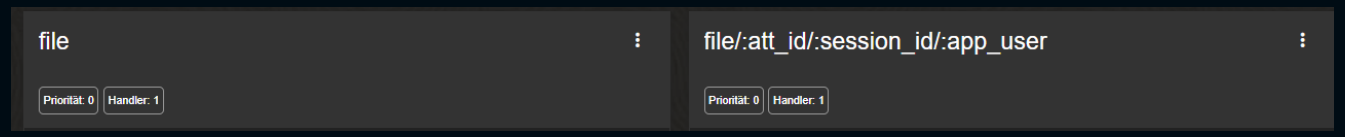


Rich Text Editor

- APEX 24.2 introduced a Rich Text Editor with an ORTL (Oracle Rich Text Library).
- Enable features such as:
  - Copy&Paste
  - @mentions

[CKEditor Documentation Website]

- REST modules to POST and GET screenshots:




```
// configure the uploader
 options.editorOptions.simpleUpload = {
          uploadUrl: '/ords/mt_apexo/ckeditor/file',
          withCredentials: true,
          headers: {
              "Session-Id": sessionId
            , "User-Id": mtaId
            , "Object-Id": taskId
            , "Apex-User" : apexUser
            , "Att-Request" : attRequest
          }
  };

// Add a button to upload an image in the toolbar
let toolbar = options.editorOptions.toolbar;
toolbar.push('uploadImage');

options.editorOptions.toolbar = toolbar;
// Configure the image toolbar
options.editorOptions.image.toolbar = [
     'imageStyle:inline',
     'imageStyle:wrapText',
     'imageStyle:breakText',
    //  '|',
    //  'imageResize',
     '|',
     'toggleImageCaption',
     'imageTextAlternative',
     '|',
     'LinkImage'
 ];
```

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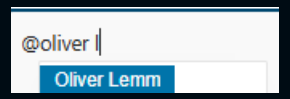
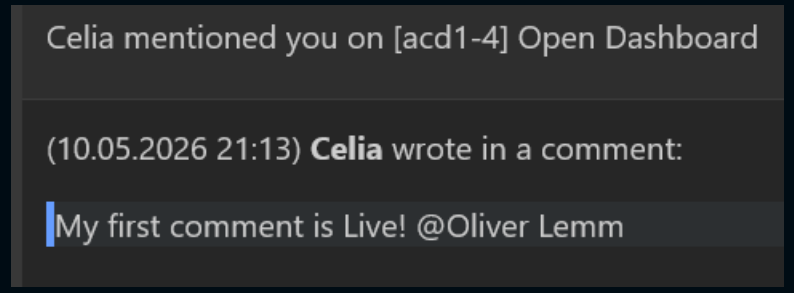
Rich Text Editor @mentions

Code Editor - Code

```
let mentions ={'mtaId':[]};

const elements = document.getElementsByClassName('mention');
if (elements.length > 0){
  for (i=0; i<elements.length; i++) {
    mentions.mtaId.push($(elements[i]).data('user-id'));
  }
  apex.item("P5_MENTIONS_EMAIL").setValue(JSON.stringify(mentions));
  // console.log(JSON.stringify(mentions));
}
else {
  apex.item("P5_MENTIONS_EMAIL").setValue();
}
```






```
function MentionCustomization( editor ) {
editor.conversion.for( 'upcast' ).elementToAttribute( {
  view: {
    name: 'a',
    key: 'data-mention',
    classes: 'mention',
    attributes: {
      'data-user-id': true
    }
  },
  model: {
    key: 'mention',
    value: viewItem => {
      const mentionAttribute = editor.plugins.get( 'Mention' ).toMentionAttribute( viewItem, {
        // Add any other properties that you need.
        userId: viewItem.getAttribute( 'data-user-id' )
      } );

      return mentionAttribute;
    }
  },
  converterPriority: 'high'
} );

editor.conversion.for( 'downcast' ).attributeToElement( {
  model: 'mention',
  view: ( modelAttributeValue, { writer } ) => {
    if ( !modelAttributeValue ) {
      return;
    }

    return writer.createAttributeElement( 'a', {
      class: 'mention',
      'data-mention': modelAttributeValue.id,
      'data-user-id': modelAttributeValue.userId
    }, {
      priority: 20,
      // Prevent merging mentions together.
      id: modelAttributeValue.uid
    } );
  },
  converterPriority: 'high'
} );
}
```

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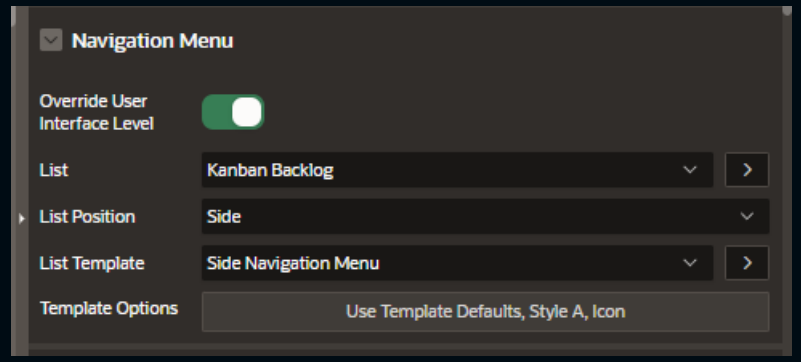
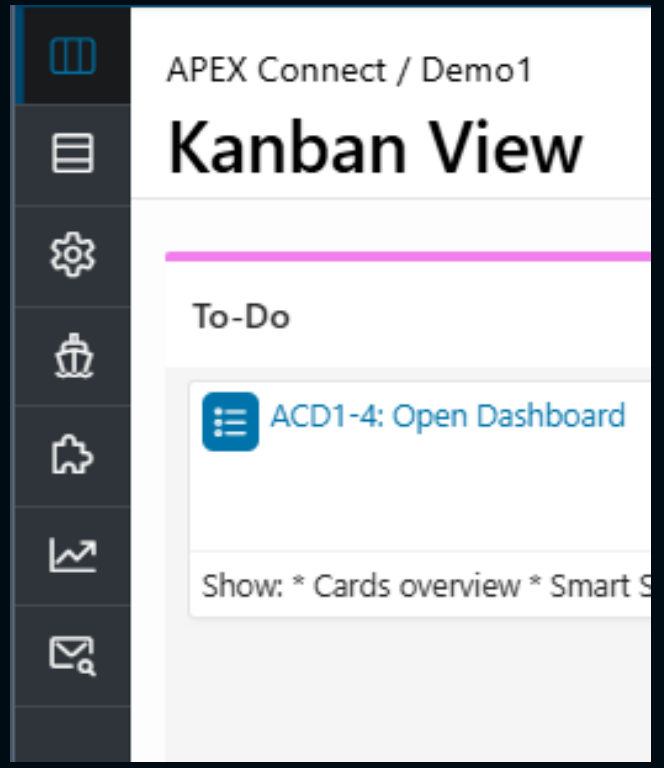
Project, Boards & Architecture Integration

- Project-Centric Access Model
- Boards & Release Management
- Additional Navigation for Boards





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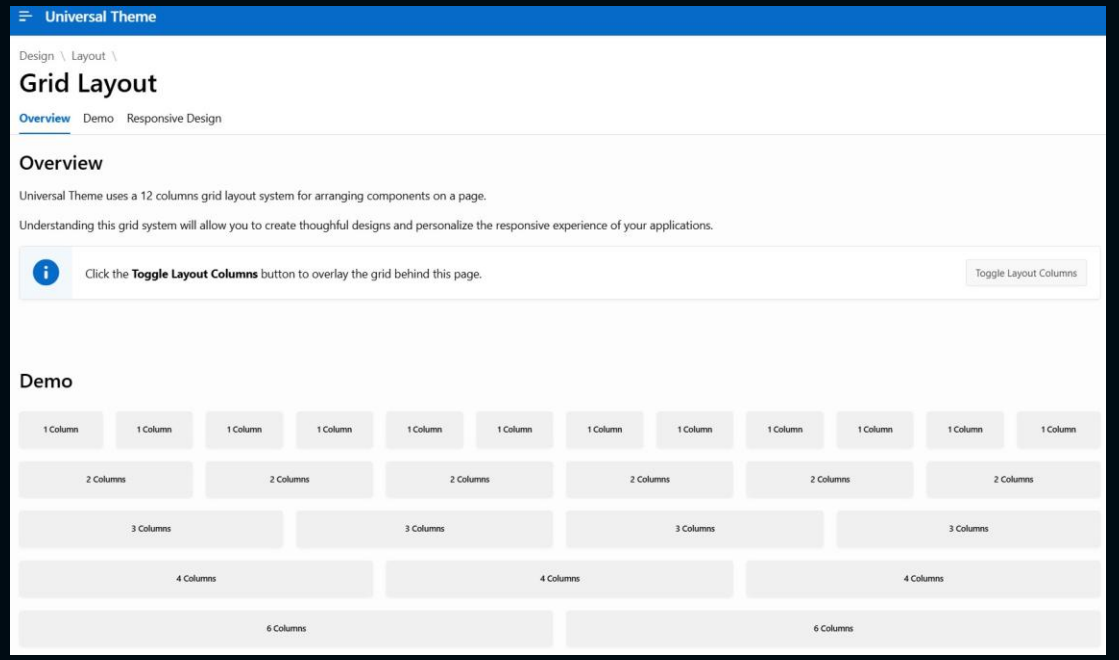
Native APEX Architecture

Kanban implemented using APEX 12-column grid

12 col span - Auto								
12								1 pillar
6				6				2 pillars
4			4			4		3 pillars
3		3		3		3		4 pillars
7 (divided into 12 parts)				5 (divided into 12 parts)				
2,3 (1/3 of 7 col span)		2,3		2,3	2,5 (1/2 of 5 col span)		2,5	5 pillars
Auto (6 equal spans divided into 12 col span)				Auto (6 equal spans divided into 12 col span)				
2	2		2		2	2		6 pillars
7 (divided into 12 parts)				5 (divided into 12 parts)				
1,75 (1/4 of 7)	1,75	1,75	1,75	1,67 (1/3 of 5)	1,67	1,67		7 pillars
Auto (6 equal spans divided into 12 col span)				Auto (6 equal spans divided into 12 col span)				
1,25 (1/4 of 6)	1,25	1,25	1,25	1,25	1,25	1,25	1,25	8 pillars



Built entirely on Oracle APEX + Oracle Database

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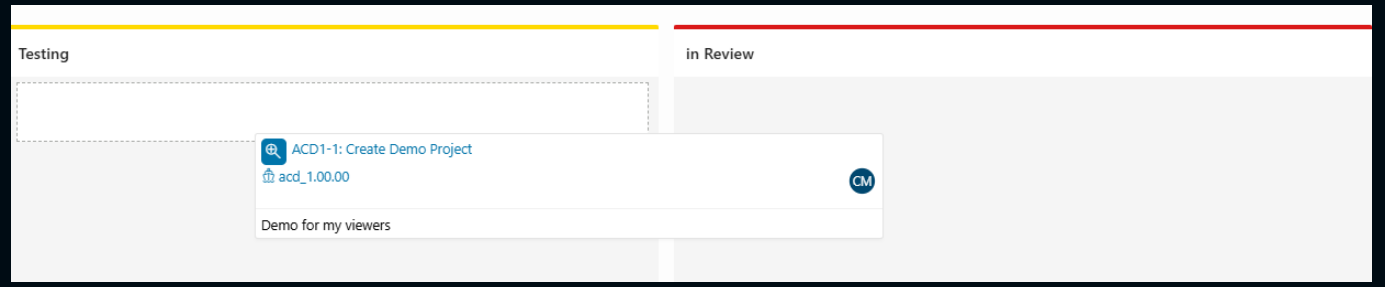
Kanban Implementation

Features:

- ✓ Fully responsive board
- ✓ Drag & drop task handling
- ✓ Column-based workflow



Advantages:

- ✓ Pure APEX → no external JS framework
- ✓ Flexible layout using native components

Draggable Cards Regions



Approach

- ✓ Custom Dynamic Action Plugin for drag & drop
- ✓ Applied to card regions (Kanban / Backlog)
- ✓ Designed to extend APEX



Backend Integration

- ➢ On drop → triggers AJAX callback
- ➢ PL/SQL **handles:**
  - Status updates
  - Sorting **/ ranking**
  - Persistence in DB



How it works

- ➢ Enables draggable behavior via JavaScript
- ➢ Uses placeholders to visualize drop targets
- ➢ Captures (task / card → column / position)
  - Target
  - Source

```
{
  "sourceCardsZone": "2",
  "sourceCards": [
    "3136"
  ],
  "targetCardsZone": "3",
  "targetCards": [
    "3135",
    "3137"
  ]
}
```

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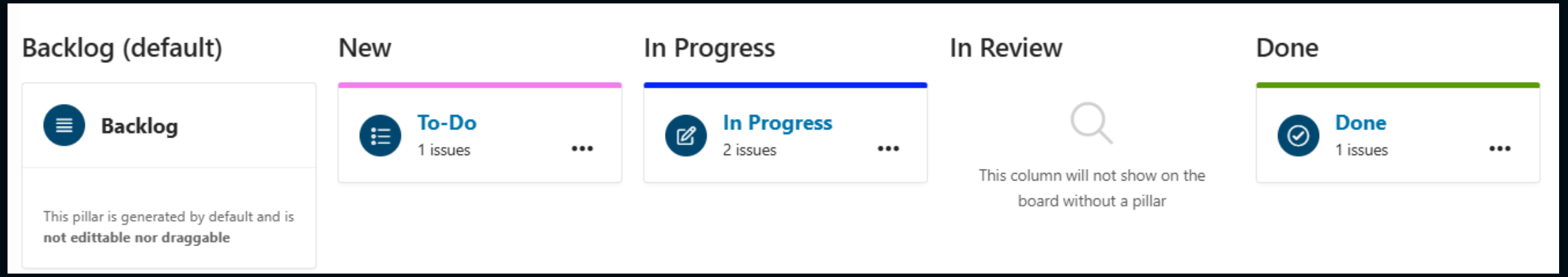
Draggable Cards Regions

Draggable regions include:

- ✓ Kanban
- ✓ Backlog
- ✓ Kanban Settings



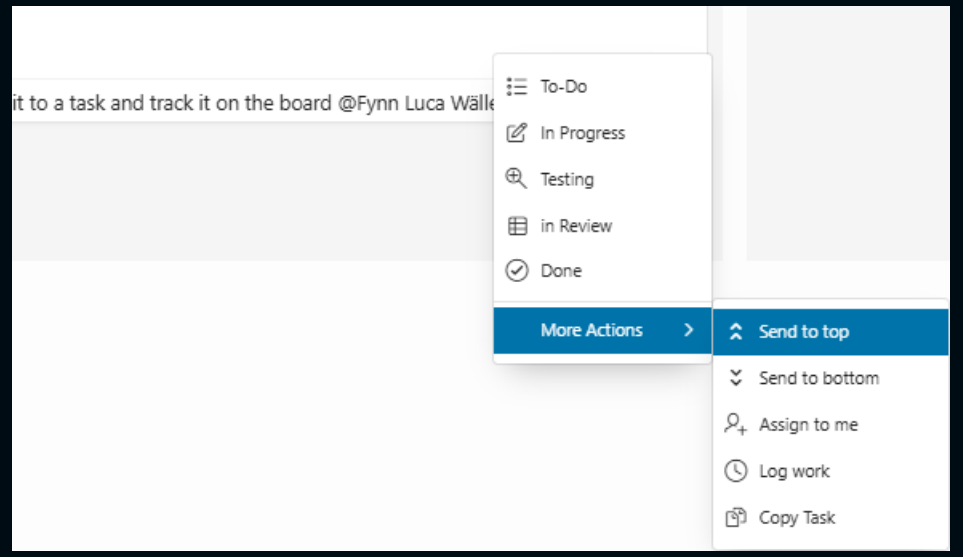
Advanced Interaction: Context Popup Menu

Smart Context Interaction

- ✓ Context menu enabled with a right-click on task cards
- ✓ Eliminates unnecessary navigation and dialog switching

Context-Aware Actions

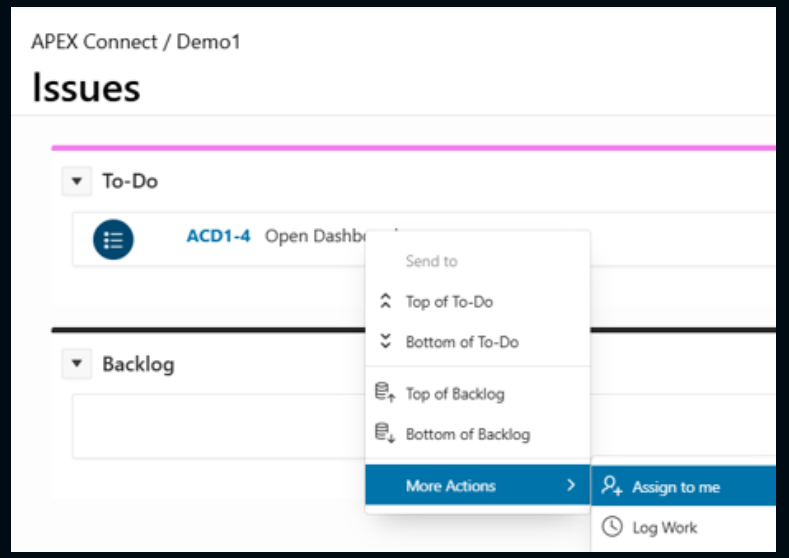
- ✓ Workflow transitions
- ✓ Sorting options
- ✓ Worklog entry
- ✓ Assign user
- ✓ Copy task



Technical Implementation: Context Popup Menu

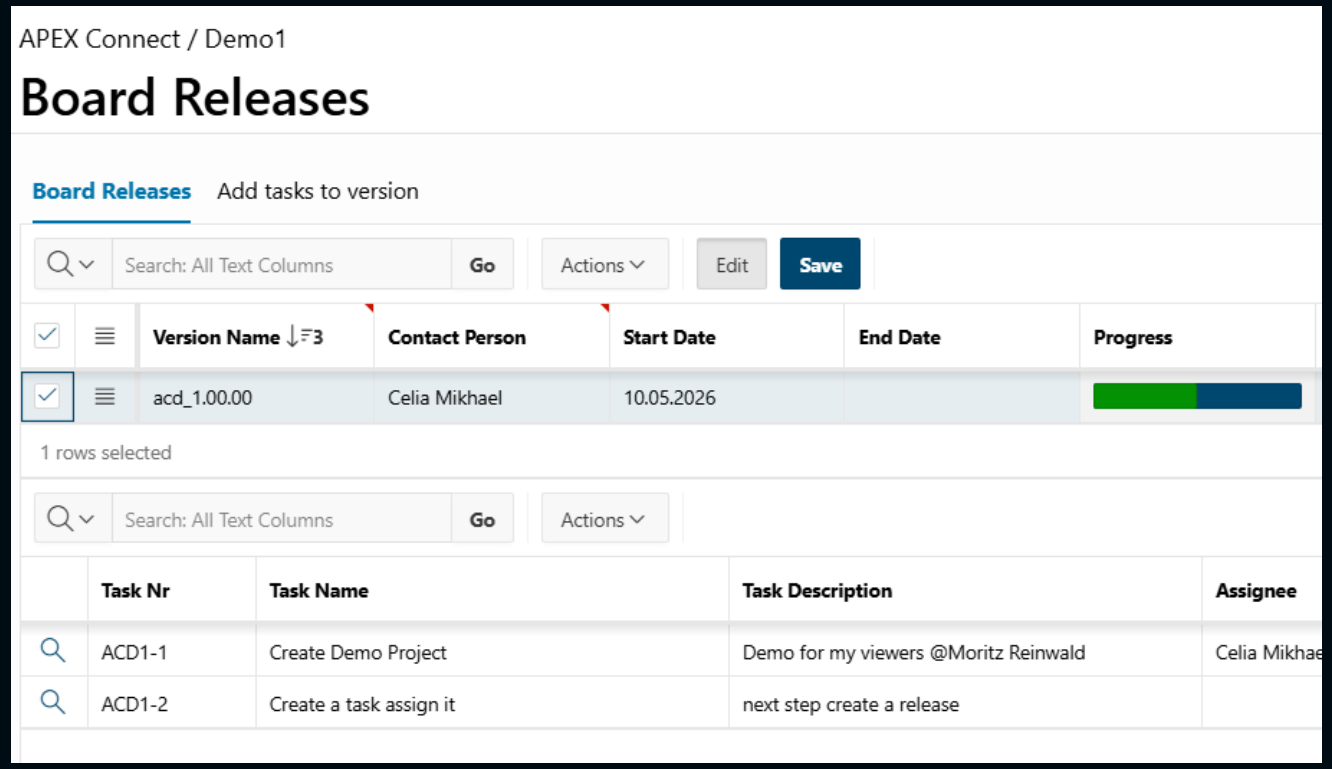
- Event Handling
  - Dynamic Action to detect the object ID
  - Functional Actions Implemented

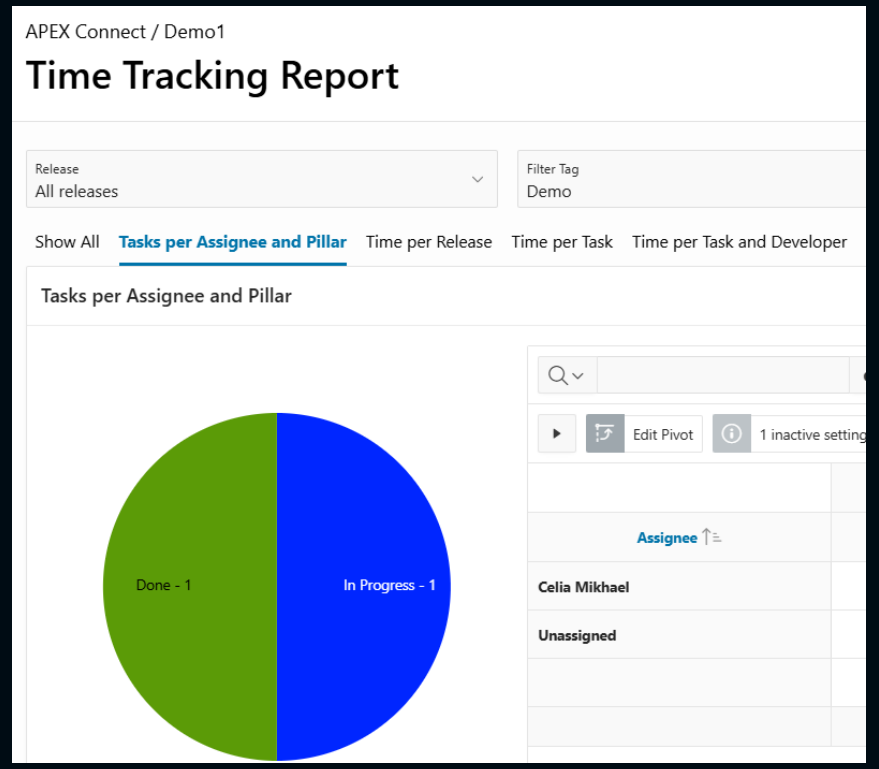
```
    apex.actions.add({ //context menu "send to top"
        name: "101",
        action: function(event, focusElement) {
            update_sorting_order('top');
        }
    });
```




```
const myEvent = this.browserEvent.originalEvent;

myEvent.preventDefault();
const myElement = apex.jQuery(this.triggeringElement);
const title = getCardTitle(myElement);

apex.item("P4_CLICKED_CARD_NR").setValue( title );

apex.item("P4_CLICKED_CARD_DATA_ID").setValue( apex.jQuery( myElement ).attr( "data-id" ) );
$( "#context_menu" ).menu( "toggle", myEvent.pageX, myEvent.pageY );
```

Boards Elements





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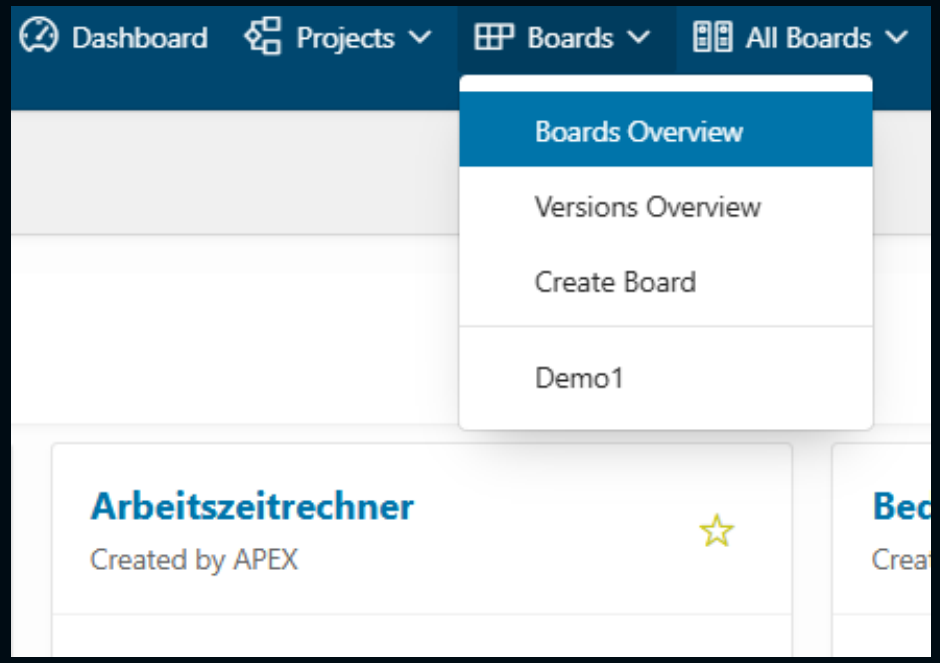
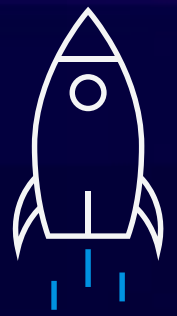
Interactive and Dynamic Navigation Bar

Favorites and Defaults

- ✓ Select favorite boards and projects
- ✓ Navigation bar for quick access





DEMO_

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What You Just Saw!

- ✓Task created in seconds
- ✓Collaboration inside the app
- ✓Seamless navigation (Dashboard → Task → Board → Release)
- ✓No integration layers
- ✓No external dependencies

This is not just task management —
it is application lifecycle management
inside APEX

Questions?

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Let‘s stay connected!





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