



SAP Analytics Cloud, analytics designer

Overview and Roadmap

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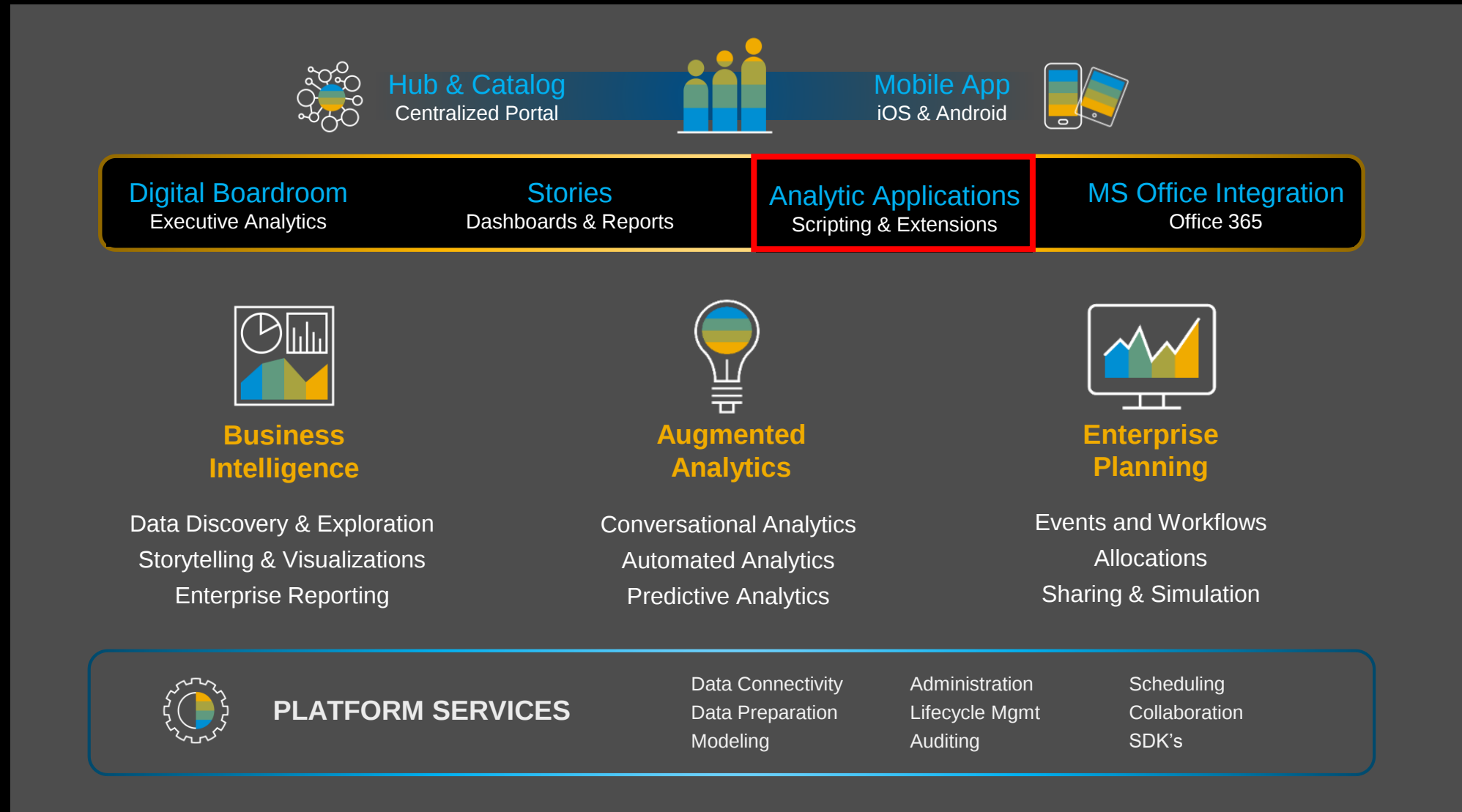
Agenda

- **Introduction to Analytics Designer**
- **Use Cases**
- **Product Highlights & Live Demos**
- **Reference Customer**
- **Roadmap**

Introduction



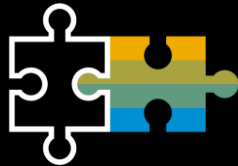
SAP Analytics Cloud



The SAP Analytics Designer Vision

Application development framework in SAP Analytics Cloud

COMPLETE



Extend SAP Analytics Cloud capabilities

FAST



Reduce Time to Roll-Out

INTEGRATED



Script BI, Planning, and Predictive together

Analytics Designer **Use Cases**



Typical Analytics Designer Use Cases 1)

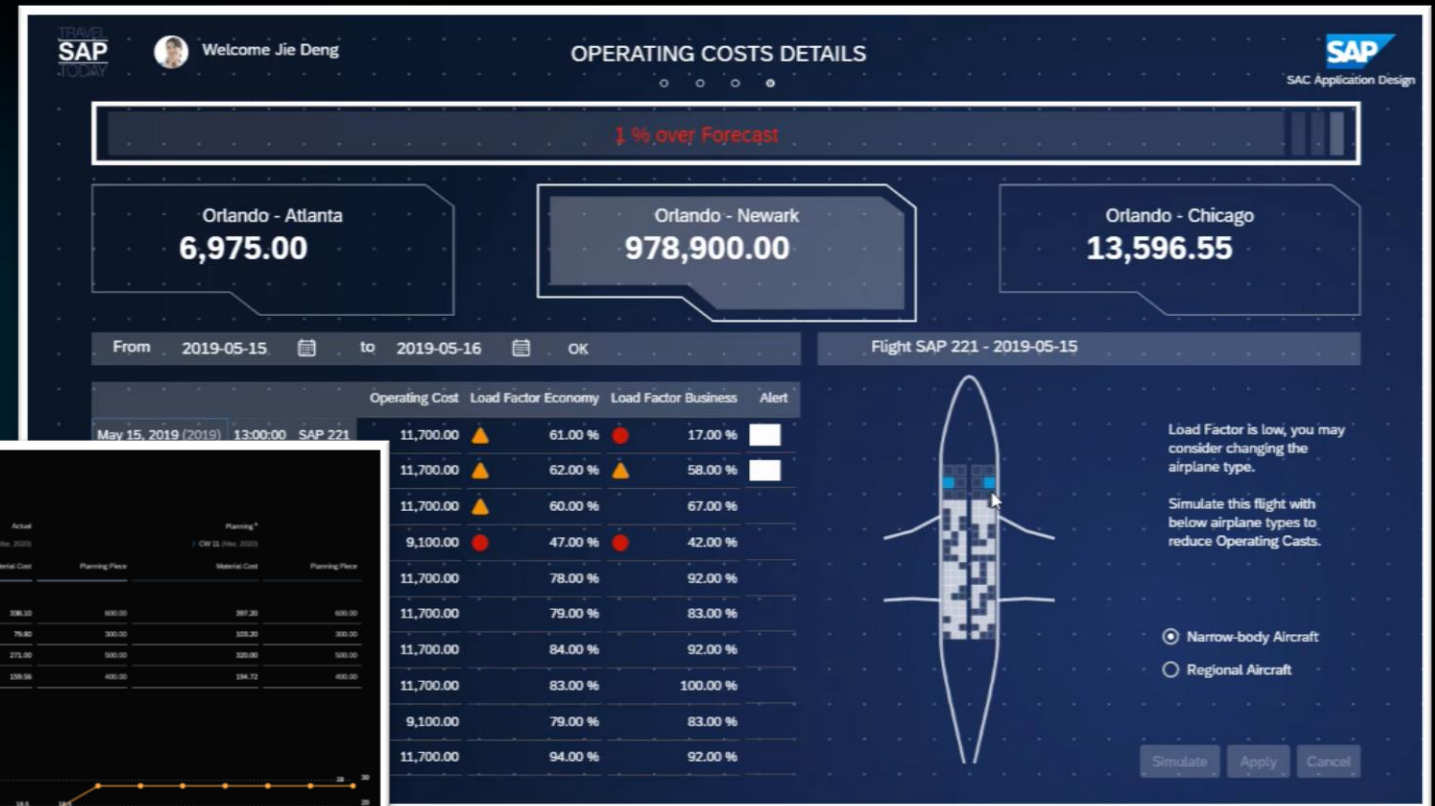
- Generic Applications like Data Analyzer or Lumira generic analysis
 - Table-centric slide-dice analysis
 - Adding dimension/key figure/filter etc. at application runtime

The screenshot displays the SAP Analytics Designer interface for a data source named 'B4H_PM_SALES'. The main area shows a table with columns for 'Measures' and three specific measures: 'Net Value stat curr', 'Open order quantity', and 'Open order stat curr'. The rows are categorized by 'Region (SAP NW Demo)' and 'Product Category'. The right sidebar contains the 'Builder' panel with 'Available Items' and 'Data Source' sections. The 'Available Items' section lists 'Measures' and 'Dimensions'. The 'Data Source' section shows the 'B4H_PM_SALES' data source with 'Rows' and 'Columns' sections. The 'Rows' section lists 'Region (SAP NW Demo)' and 'Product Category'. The 'Columns' section lists 'Measures'.

	Measures	Net Value stat curr	Open order quantity	Open order stat curr
Region (SAP NW Demo)	Product Category			
	Mobile Devices	EUR1 869 361 405,00	2 640 PC	EUR110 885 062,00
	Monitors	EUR2 558 679 148,00	2 640 PC	EUR117 270 346,00
	Notebooks	EUR3 509 101 463,00	2 640 PC	EUR110 123 242,00
> EMEA	Totals	EUR7 937 142 016,00	7 920 PC	EUR338 278 650,00
	Mobile Devices	EUR1 546 654 385,00	2 112 PC	EUR90 669 116,00
	Monitors	EUR1 945 962 792,00	2 112 PC	EUR89 383 220,00
	Notebooks	EUR2 854 652 102,00	2 112 PC	EUR89 394 836,00
> America	Totals	EUR6 347 269 279,00	6 336 PC	EUR269 447 172,00
	Mobile Devices	EUR3 416 015 790,00	4 752 PC	EUR201 554 178,00
	Monitors	EUR4 504 641 940,00	4 752 PC	EUR206 653 566,00
	Notebooks	EUR6 363 753 565,00	4 752 PC	EUR199 518 078,00
^ Worldwide	Totals	EUR14 284 411 295,00	14 256 PC	EUR607 725 822,00

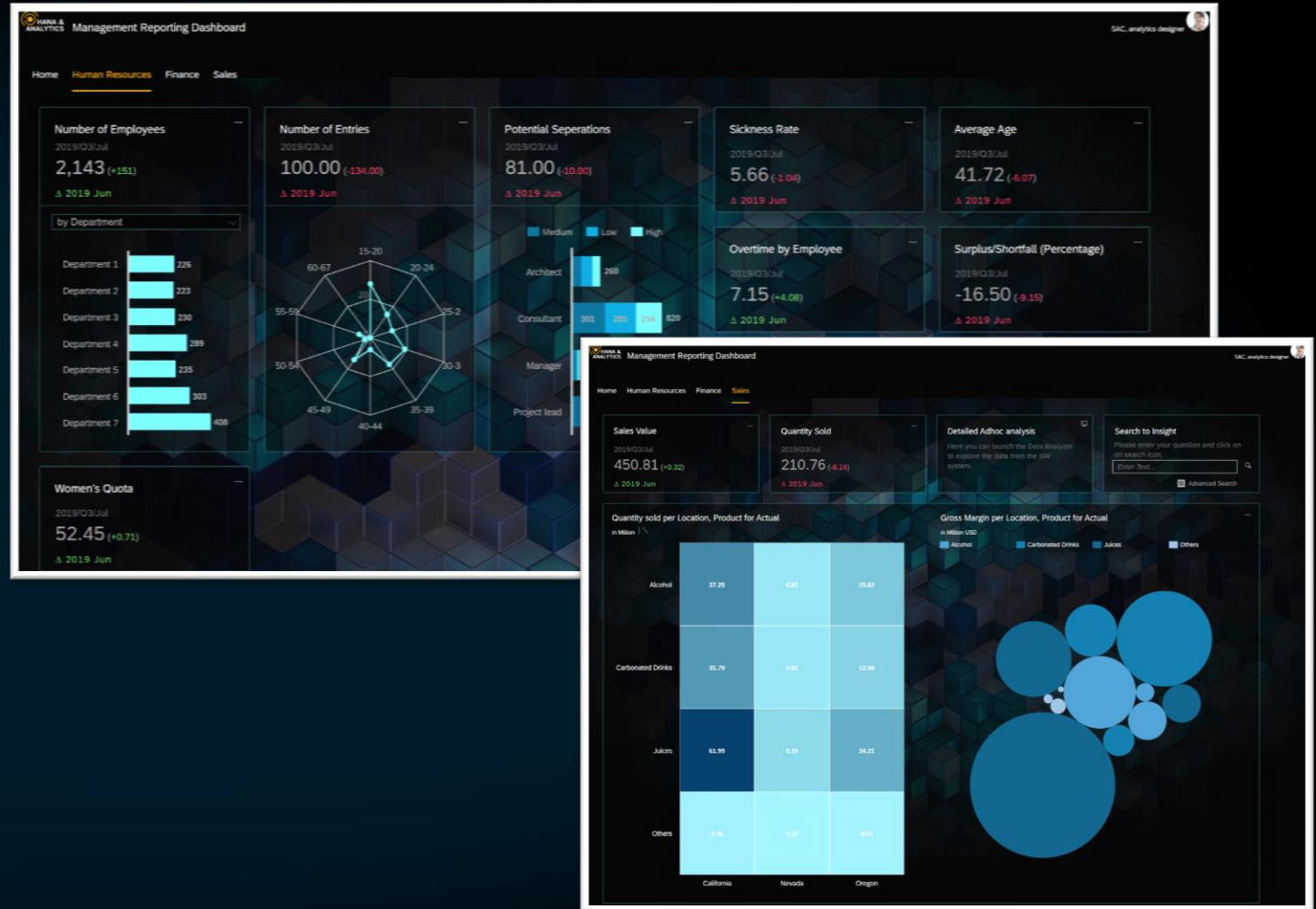
Typical Analytics Designer Use Cases 2)

- Guided analytic applications
 - Provide end user guidance /analysis path
 - Support closed loop scenarios (notification → analyze issue → simulation → take actions)



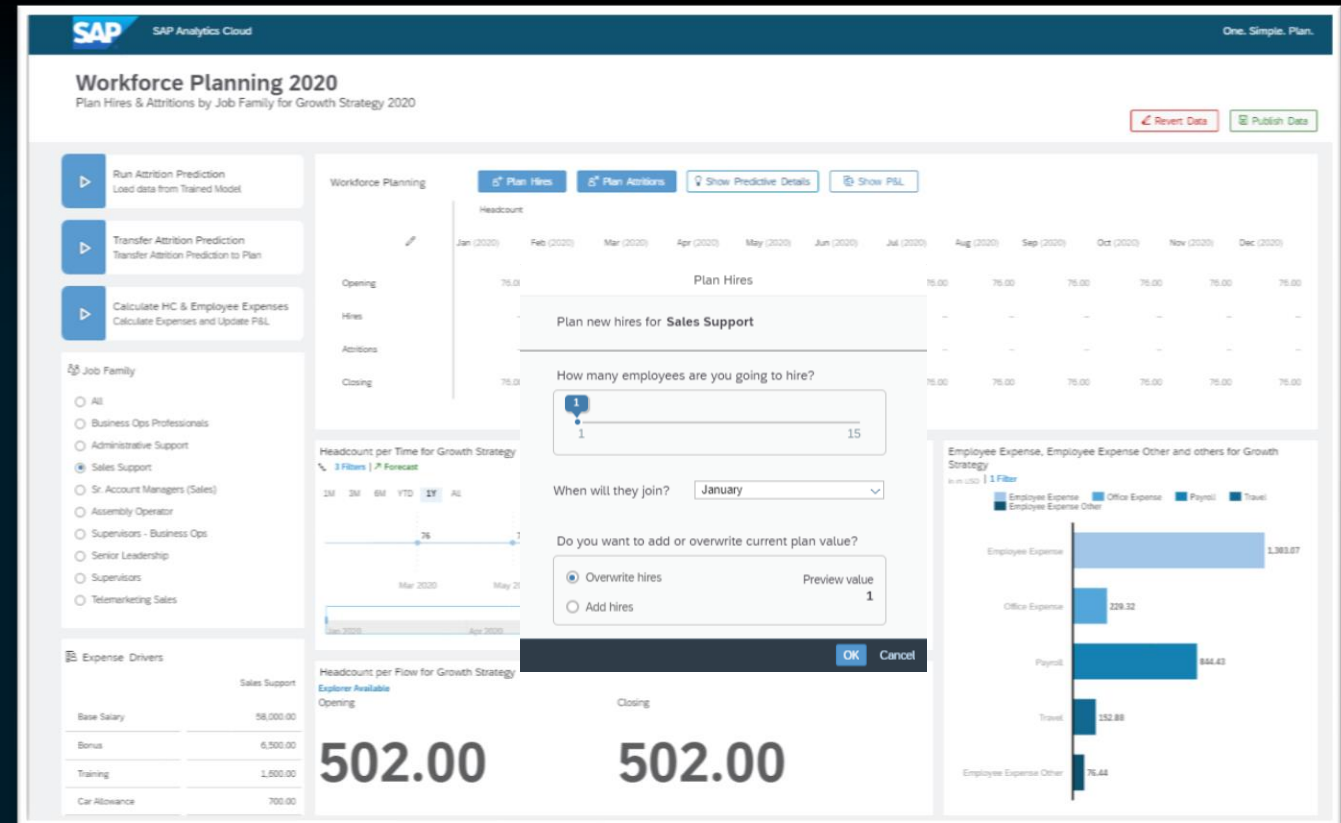
Typical Analytics Designer Use Cases 3)

- Dashboarding including flexible interactions and layout
 - Complex navigation and interaction
 - Flexible Layout / Responsive layout



Typical Analytics Designer Use Cases 4)

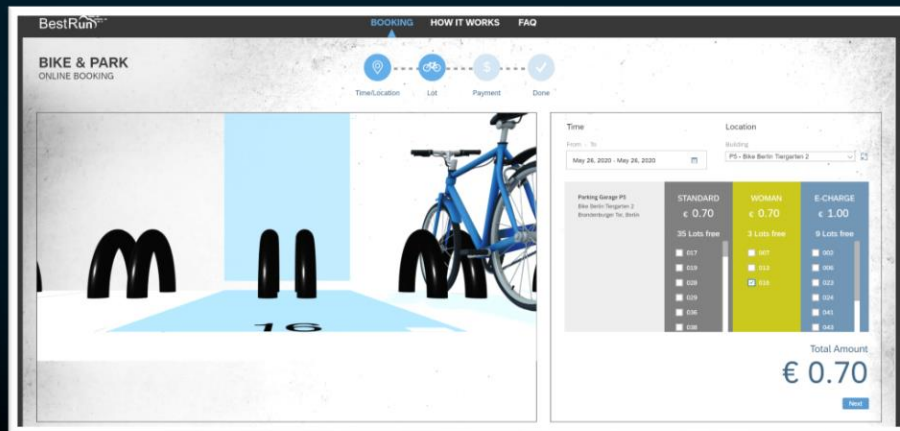
- Planning applications (customized planning UI)
 - Guided planning experience
 - More user friendly and tailored UX for planning users
 - Mobile usage



Typical Analytics Designer Use Cases 5)

Embedding/Extending applications

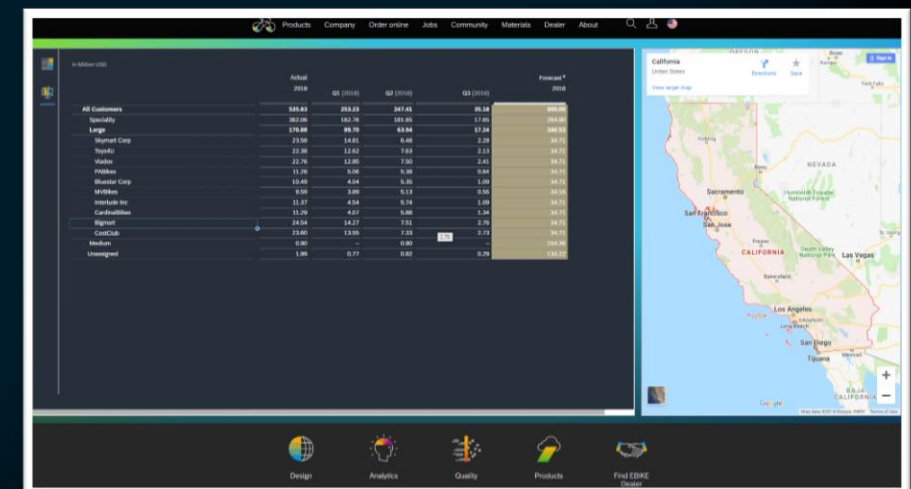
- Any external page can be embedded into analytic applications
- Or analytic applications can be embedde to any external page
- Analytic applications and external pages can communicate to each other by using post message API
- Extending Applications via custom widget SDK



3D custom widgets integrated into analytic application



Embedding applications into other web pages

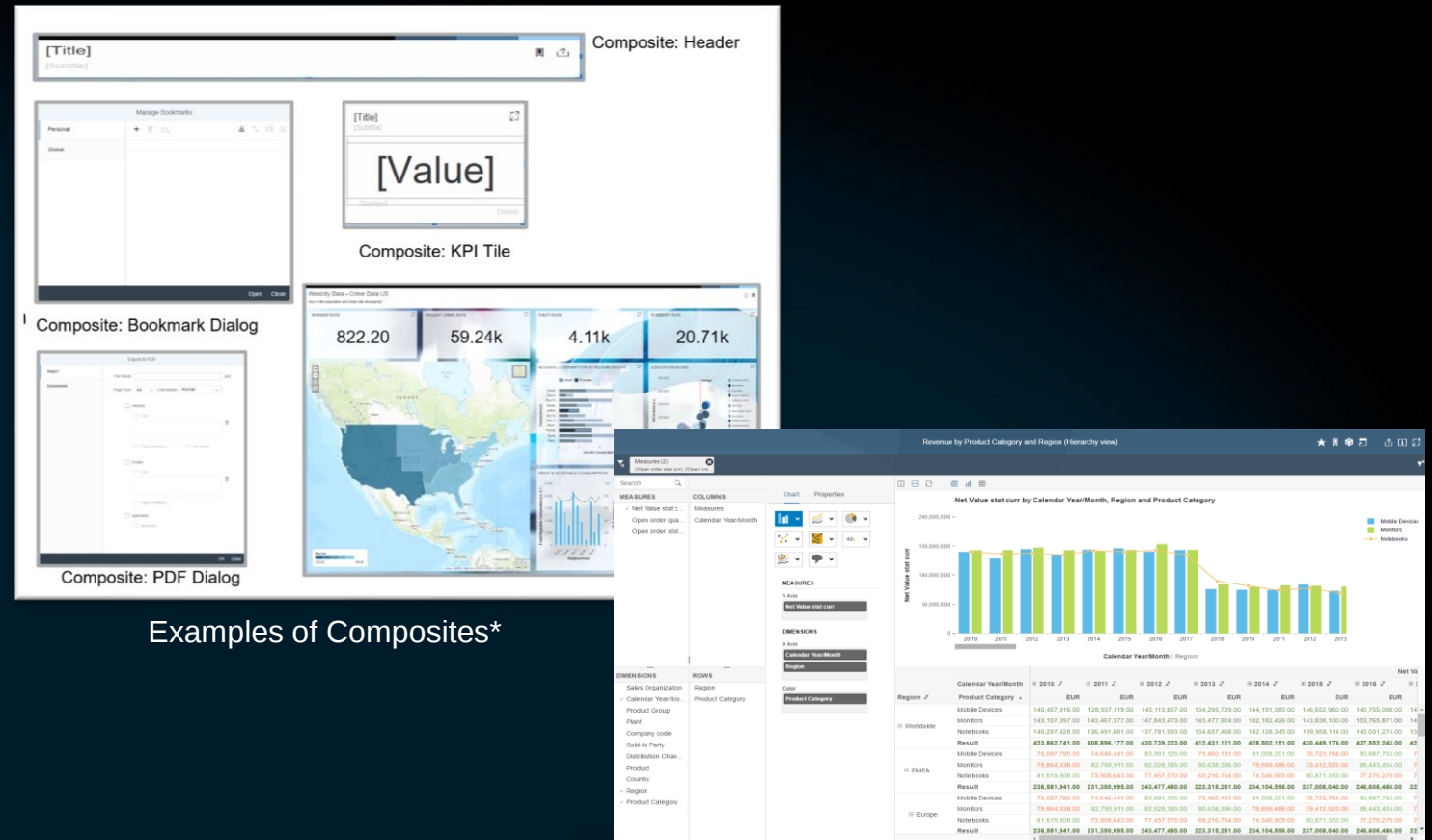


Communicating with other web pages

Typical Analytics Designer Use Cases 6)

Template*, Composite*etc.

- Application template
- Commenting Dialog, Bookmark Dialog etc.



Examples of Composites*

Examples of Templates*

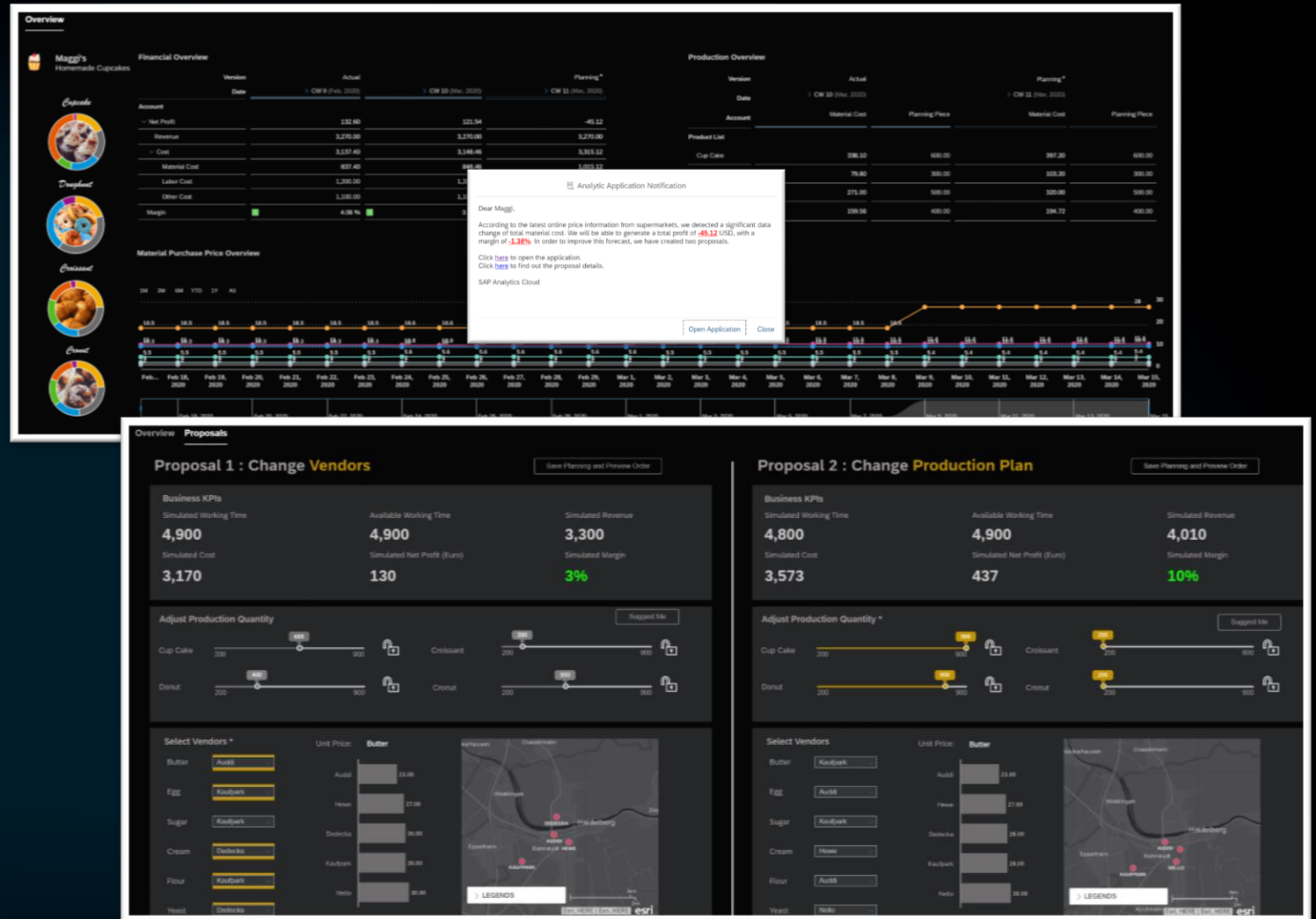
* Planned for the future releases

Analytics Designer **Feature Highlights & Live Demo**



Analytics Designer

- Mobile Support
 - Support of running applications in safari browser on iPad within embedded use cases
 - Native mobile browser support for Microsoft Edge on windows surface tablet (Controlled Release)
- Scheduling and Publication : Auto/manual generating PDF, Distributing PDFs with different bookmarks and script variables, BW Prompt support, Sending notification or email via scripting API
- Integration with SAP Data Warehouse Cloud: Creating applications within DWC space
- Copy widgets from story to app and across browser tabs at application design time
- Scripting API Enhancements: Remove/Copy Variable, Remove and Range support for Filter API and Scripting API for instantly loading bookmark, Table property APIs: show and hide attributes, zero suppression and compact display
- Dynamic layout enhancement by changing parent widget at runtime
- Tab strip enhancements: rename, re-order and synchronize with outline
- OData Enhancements



Scheduling Analytic Application

- Analytic applications can be scheduled and distributed as the PDF file.
- PDF file can be generated either automatically or based on a certain event defined in analytic applications
- End user will receive an email with PDF file as attachment and the link to analytic application
- BW and HANA Prompt Variable is supported
- Scheduling jobs can be configured with the following options
 - Start, Recurrence, Topic, Message
 - Script Variable
 - Bookmark
 - Recipients
 - PDF Settings, including appendix and comments
- Status of the scheduling job can be seen in the calendar

The image displays three screenshots of the SAP Analytics Cloud interface for scheduling and distributing analytic applications as PDFs.

Schedule Publication (Main Form):

- Share Analytic Application by E-mail:** With access to SAP Analytics Cloud, you can share an analytic application with users or teams as well as external users.
- *Name:** Sales Revenue Report
- Start:** Dec 20, 2019 - 10:12 AM
- + Add Recurrence:**
- *Topic:** Sales Revenue Report
- Message:** Sales Revenue Report
- ☒ Include Analytic Application Link
- Customize Script Variable:** ON
- Script Variable:** Discount_Percent = **Default Value:** 10
- + Add Another Variable:**
- ▼ Distribution:** You can share additional views of the analytic application with the same or a new set of recipients.
 - View 1:**
 - SAP Analytics Cloud Recipients:** Add Users or Teams
 - Non-SAP Analytics Cloud Recipients:** Enter e-mail separated by comma
 - Application View:** testile
 - Edit Prompts:** ▼
 - File Name:** AIN369_EXE1_Solution.pdf
 - + Add another view**

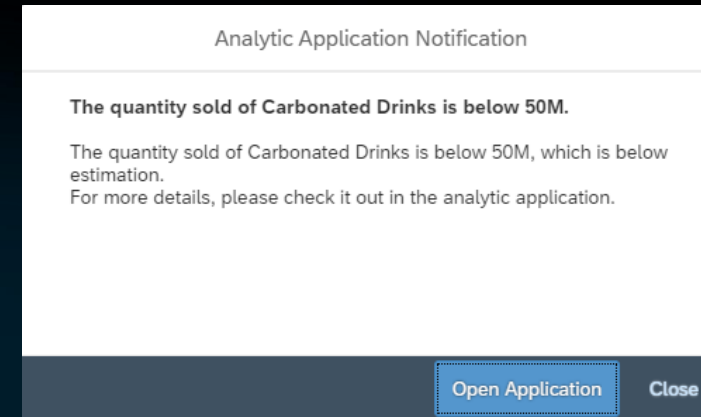
PDF Settings (Bottom Left):

- General Settings:** Paper Size: A4
- Appendix Settings:** Enable Appendix: YES
- Comments Settings:** Enable Comment: YES

PDF Settings (Bottom Right): OK Cancel

Sending notifications via scheduling

- Application developer can now use the `Application.sendNotification()` API to send a notification when an analytic application is run from the backend (that is, scheduling).
- You can use scripting capabilities to configure the notification
- Application consumer can receive the notification via email or notification panel of SAP Analytics Cloud.
- Maximum 3 notifications can be sent per scheduling job to avoid server overload.



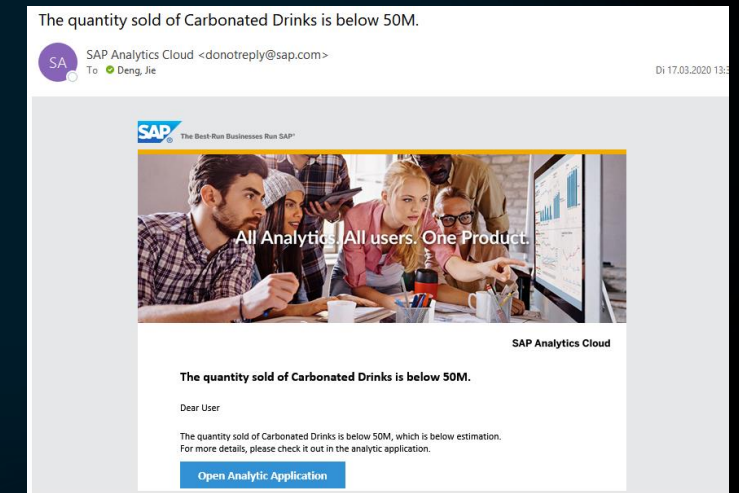
```

Canvas
Application - onInitialization
Called when the analytic application has finished loading.

function onInitialization() : void

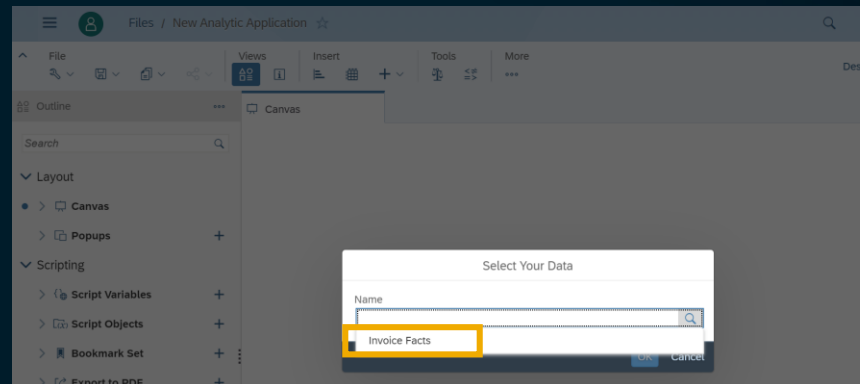
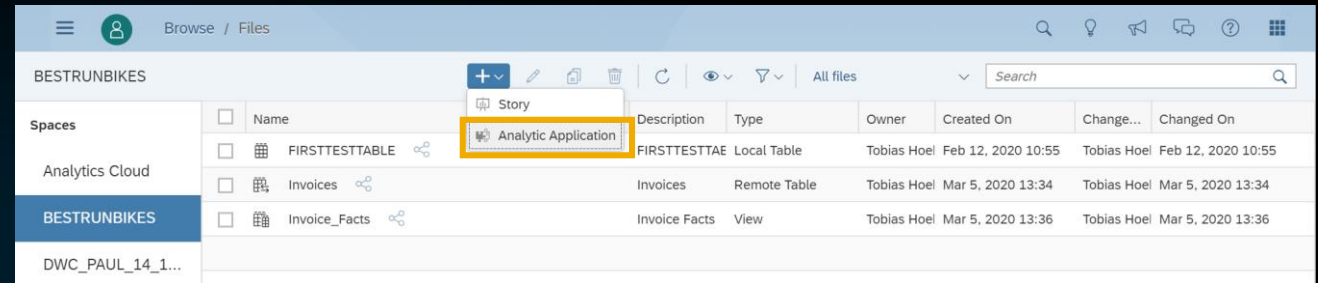
1 if (Scheduling.isRunBySchedulePublication()) {
2   var resultSets = Chart_1.getDataSource().getResultSet({
3     "@MeasureDimension": "[Account_BestRun].sold.[parentId].[Quantity_sold]",
4     "Product_3e315003an": "[Product_3e315003an].[Product_Catego_3o3x5e06y2].[PC1]"); //Carbonated Drinks
5
6   var resultValue = resultSets[0][["@MeasureDimension"]].rawValue;
7   if (ConvertUtils.stringToNumber(resultValue) < 50000000)
8   {
9     Application.sendNotification({
10      "title": "The quantity sold of Carbonated Drinks is below 50M.",
11      "content": "The quantity sold of Carbonated Drinks is below 50M, which is below estimation.<br>For more details, please check it out in the analytic application.",
12      "isSendEmail": true,
13      "receivers": ["0032884"]});
14   }
15 }
16

```



Integration with SAP Data Warehouse Cloud

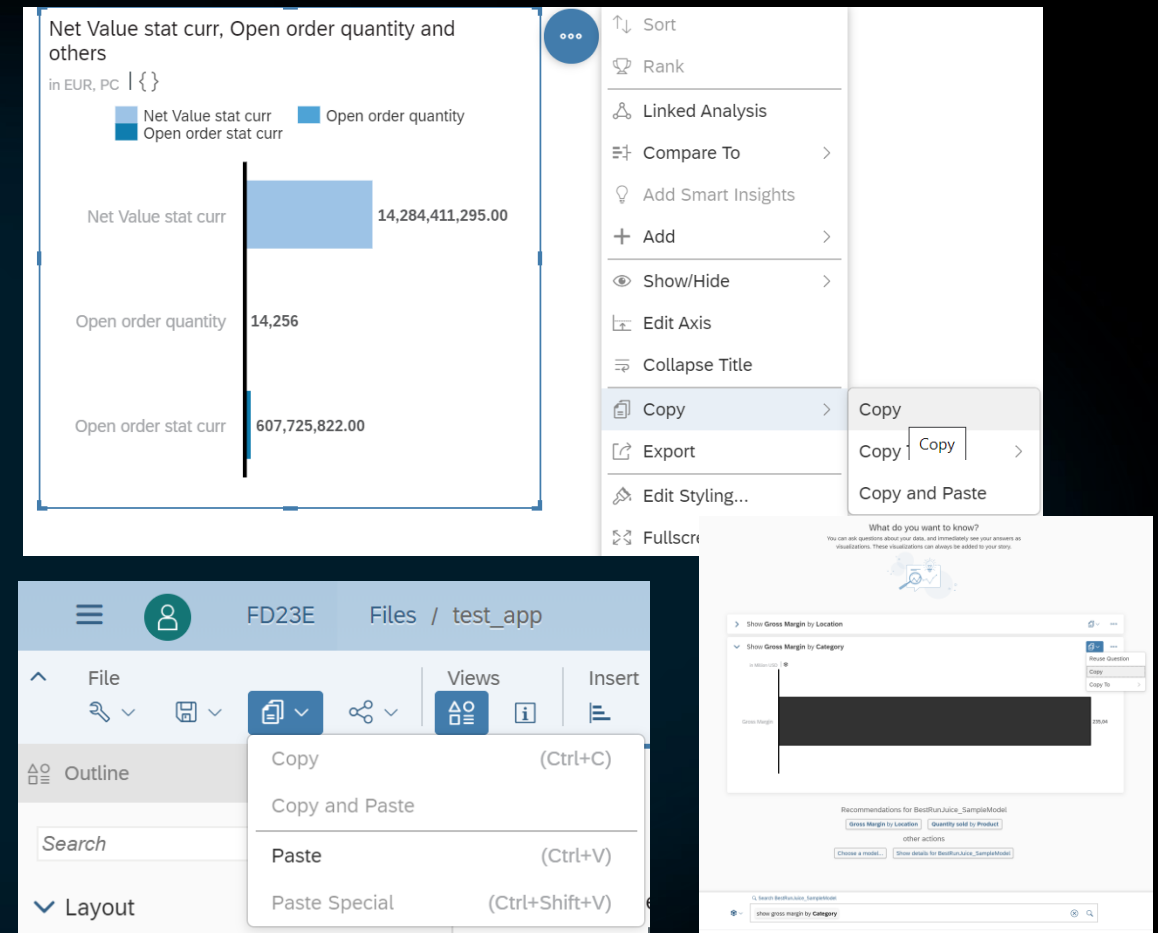
- Application Creator can now create an analytic application based on an SAP Data Warehouse Cloud space in SAP Analytics Cloud.
- Steps:
 - Browse files
 - Select a space
 - Select add analytic application



Analytic data set **within this space** can be selected as data source

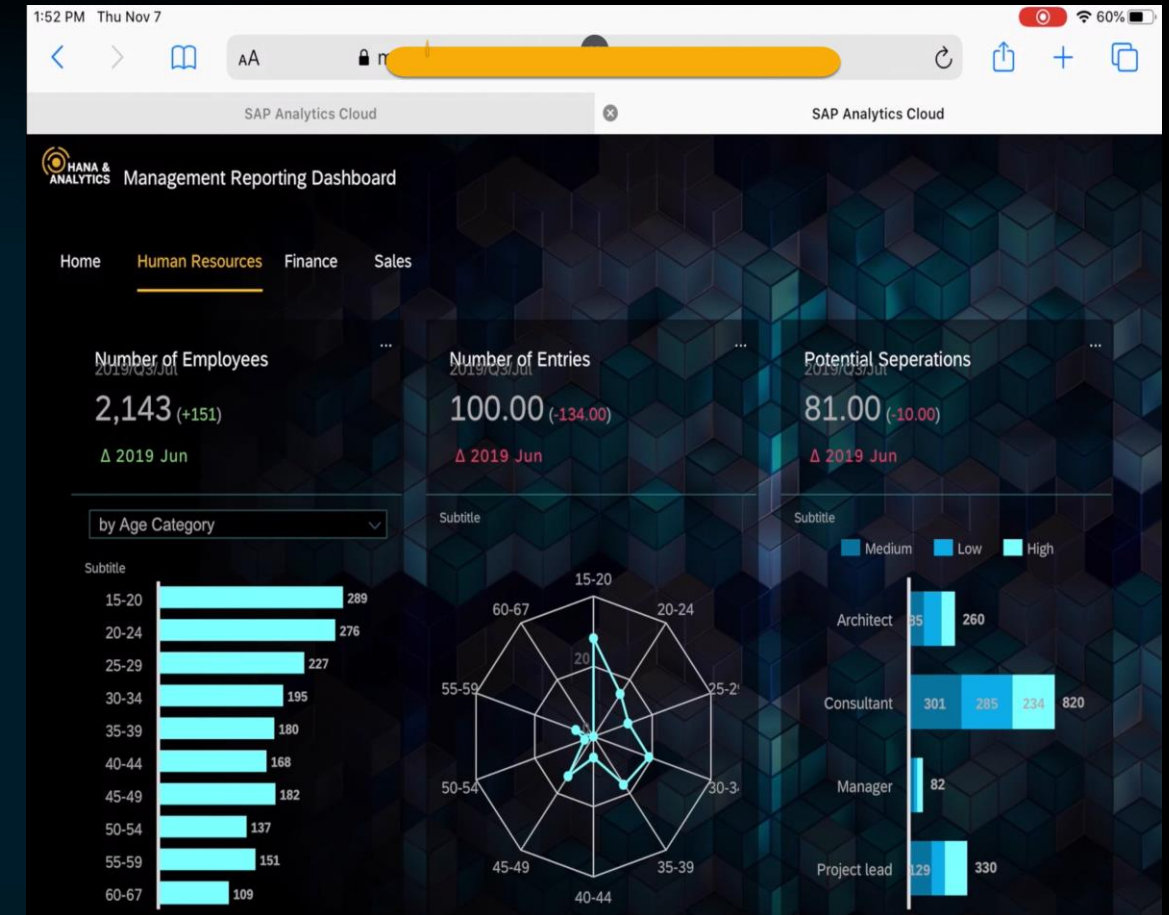
Copy widgets across browser pages

- User can copy widgets from story to analytic application, story to story and application to application at design time within the same browser page or across different browser pages
- Copy via ctrl +c and ctrl + v or via quick menu
- Supported features: State of the widgets, copying widgets to container or a popup, copying grouping widgets (the group information will get lost), chart in smart insight panel, chart in search to insight etc.
- Not supported features : VDT, Input Control, linked analysis, story/ filter, geo polygon filter, etc.



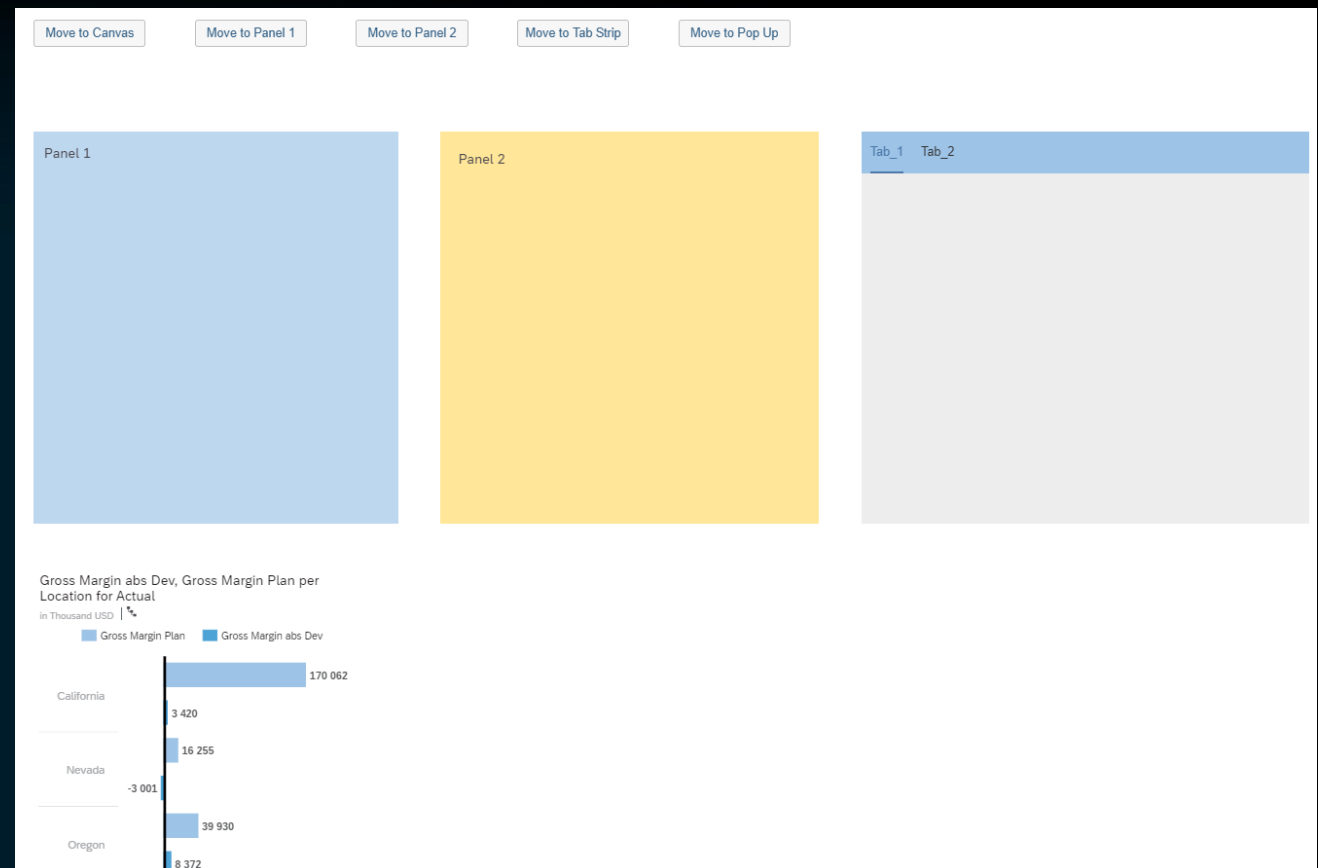
Mobile Support

- Support of running applications in safari browser on iPad within embedded use cases
- Native mobile browser support for Microsoft Edge on windows surface tablet (Controlled Release)



Moving widgets to different container widgets

- You can move widgets or containers dynamically to other containers at application runtime to cover dynamic layout responsive scenarios
- Supported container widgets are canvas, panel or tab strip
- Provided scripting APIs:
 - `Application.moveWidget();`
 - `Tabstrip.moveWidget();`
 - `Panel.moveWidget()`



Loading bookmarks at run time

- You can now use the BookmarkSet.apply() API to load/apply bookmarks at run time
- The above script API needs to be related to the bookmark technical component Bookmark Set
- The included widgets within bookmark definition will be reloaded
- The status of non-included widgets within bookmark definition will be kept.

```
function onButtonClick(buttonId: string) : void
{
    var selBMType = Popup_Bookmarks_Tabstrip.getSelectedKey();

    if (selBMType === "Tab_1"){
        var selBM_Id = Popup_Bookmarks_RB_Public.getSelectedKey();
        var selBM_Name = Popup_Bookmarks_RB_Public.getSelectedText();
        var isPublic = true;
    }
    else {
        selBM_Id = Popup_Bookmarks_RB_Private.getSelectedKey();
        selBM_Name = Popup_Bookmarks_RB_Private.getSelectedText();
        isPublic = false;
    }

    if (buttonId === "Btn_Open"){
        var BM_Id = "bookmarkId=" + selBM_Id;
        console.log(["selBM ", selBM_Id, BM_Id]);
        Popup_Bookmarks.close();
        Bookmark_Table.apply(selBM_Id);
    }
    else if (buttonId === "Btn_Change") {
        Bookmark_Table.save(selBM_Name, isPublic, true);
    }

    Popup_Bookmarks.close();
}
```

New Scripting APIs for BW and HANA live connections

- Variable scripting APIs for BW and HANA Live connections:
 - `removeVariableValue()`
 - `copyVariableValueFrom()`
- In SAC story or application the variables are merged by default. Though you can set the variable unmerged or unmerged individually on the widget.
- Script API `DataSource.setDimensionFilter()` now supports
 - Range filters
 - Excluding members with single and multiple filter values

Country DE
Remove Country DE
Copy

PM_SALES_JIE
2 sorts applied

	Measures	Net Value stat curr	Open order quantity	Open order stat curr
Country	Product Category			
FR France	Mobile Devices	EUR602,969,374.00	1,056 PC	EUR44,352,055.00
	Monitors	EUR690,286,678.00	1,056 PC	EUR45,121,292.00
	Notebooks	EUR1,166,129,304.00	1,056 PC	EUR44,632,830.00
	Totals	EUR2,459,385,356.00	3,168 PC	EUR134,106,177.00
DE Germany	Mobile Devices	EUR744,232,814.00	1,056 PC	EUR44,698,290.00
	Monitors	EUR1,063,756,676.00	1,056 PC	EUR48,198,391.00
	Notebooks	EUR1,358,964,688.00	1,056 PC	EUR42,531
	Totals	EUR3,166,954,178.00	3,168 PC	EUR135,428
GB Great Britain	Mobile Devices	EUR522,159,217.00	528 PC	EUR21,834
	Monitors	EUR804,635,794.00	528 PC	EUR23,950
	Notebooks	EUR984,007,471.00	528 PC	EUR22,958
	Totals	EUR2,310,802,482.00	1,584 PC	EUR68,744
US USA	Mobile Devices	EUR1,546,654,385.00	2,112 PC	EUR90,665
	Monitors	EUR1,945,962,792.00	2,112 PC	EUR89,383
	Notebooks	EUR2,854,652,102.00	2,112 PC	EUR89,394
	Totals	EUR6,347,269,279.00	6,336 PC	EUR269,447
Totals		EUR14,284,411,295.00	14,256 PC	EUR607,725

Net Value stat curr, Open order quantity and others per Country

in EUR, PC

Country	Net Value stat curr	Open order quantity	Open order stat curr
Germany	3,166,954,178.00	3,168	135,428,115.00
France	2,459,385,356.00	3,168	134,106,177.00
Great Britain	2,310,802,482.00	1,584	68,744,358.00
USA	6,347,269,279.00	6,336	269,447,172.00

Example: Exclude filter

```
dataSource.setDimensionFilterValue("dim1", {
  exclude: true,
  value: "member12"
});
```

Example: Exclude filter

```
dataSource.setDimensionFilterValue("dim1", {
  exclude: true,
  values: ["member12", "member13"]
});
```

Example: Range filter (greater)

```
dataSource.setDimensionFilterValue("dim2", {
  greater: "10",
});
```

Example: Range filter (between)

```
dataSource.setDimensionFilterValue("dim2", {
  from: "10",
  to: "20"
});
```

New Scripting APIs for BW models in the Table Widget

- Valid for Table Widgets
- Turn On/Off Compact Display
 - Table.setCompactDisplayEnabled()
 - Table.isCompactDisplayEnabled()
- Turn On/Off Zero Supression
 - Table.setZeroSuppression()
 - Table.isZeroSuppressionEnabled() table axis.
- Get dimension propertieties
 - DataSource.getDimensionProperties()
- Set Active dimension properties
 - Table.setActiveDimensionProperties()
- Get active dimension properties
 - Table.getActiveDimensionProperties()

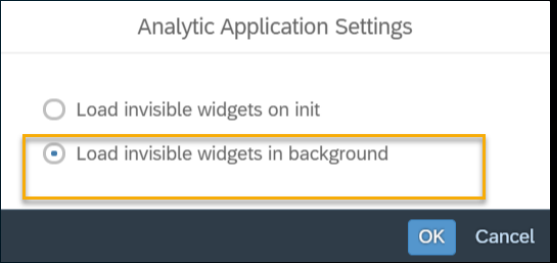
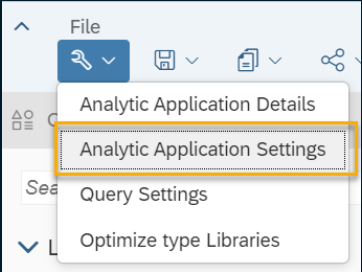
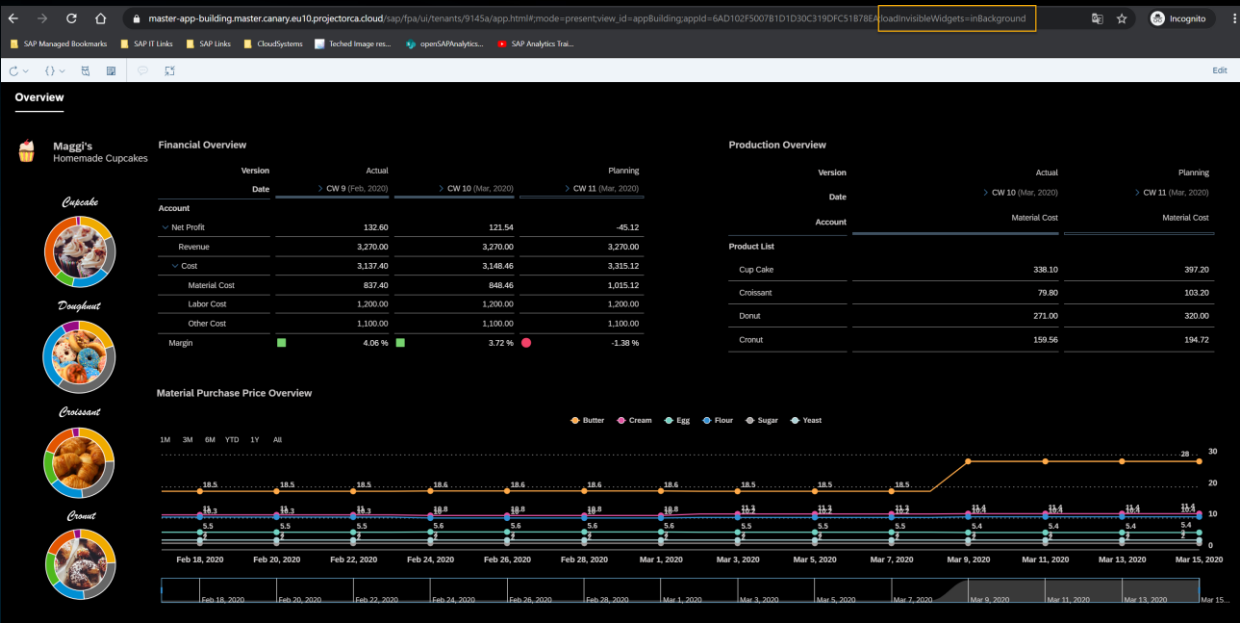
Compact Display On/Off
Zero Suppression On/Off
GetAllDimensionProper...
SetActiveDimensionPro...
ExcludeDiemnsionFilter
RangeDiemnsionFilter

B4H_PM_SALES
Product Category

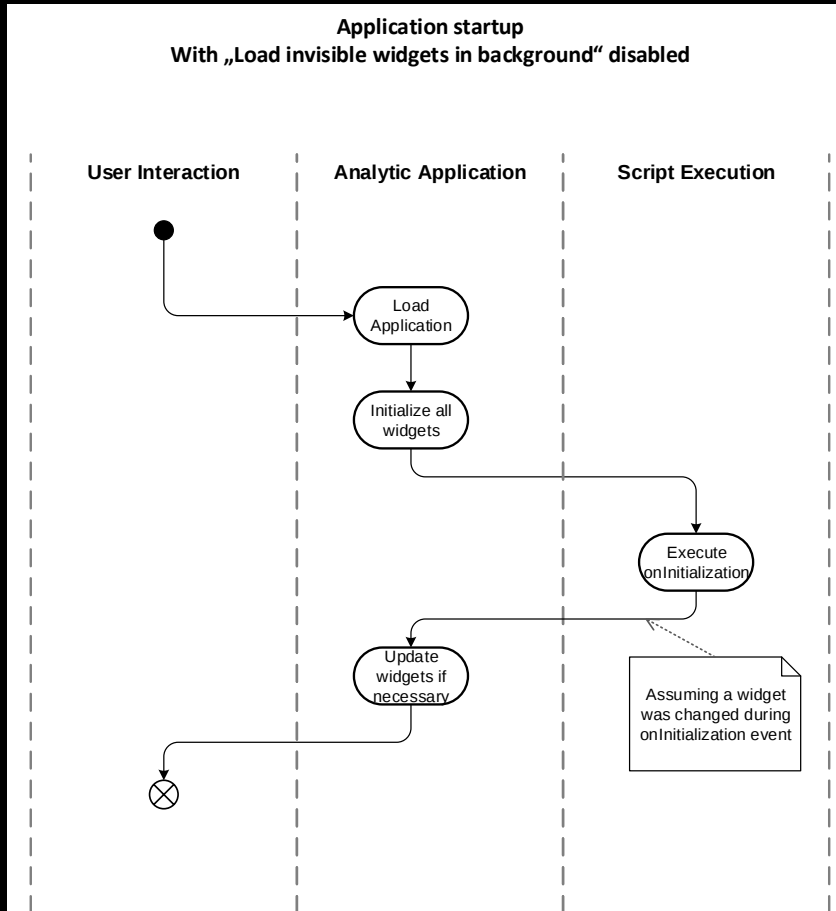
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Loading invisible widgets in background

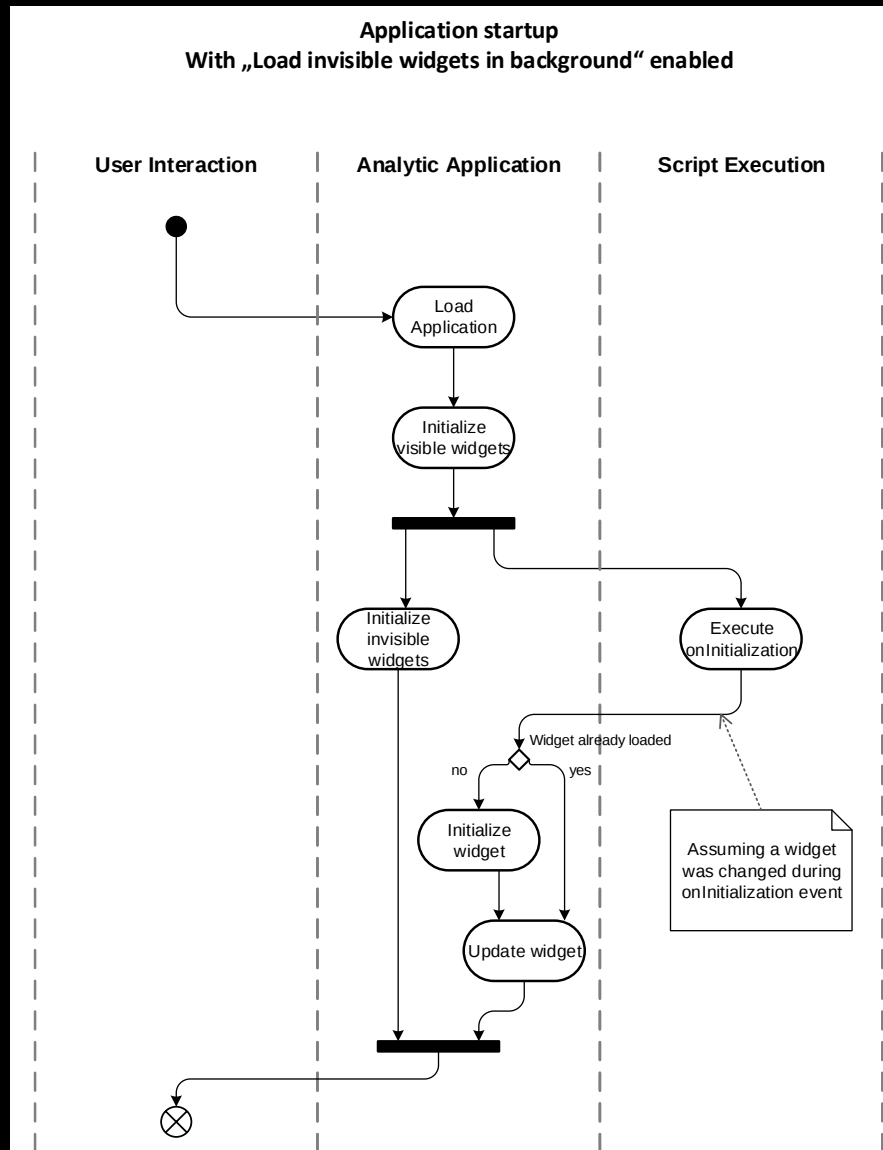
- Analytics Designer provides additional option that invisible widgets can be automatically loaded in background
- Loading invisible widgets in background can accelerate application start up time , especially
 - Application are divided into different pages/tab strips .
 - The first page or tab strip of the application does not contain a lot of widgets
- All the meta data, result set etc. of the widgets are loaded in the background if the option is set to Loading in background
- Following components are automatically loaded in background if the option is set to the application:
 - Scripts that are related to initial invisible widgets
 - Widgets or containers that defined within the invisible containers
 - Invisible tab strips
- You can set application to be loaded in background via
 - Analytic application setting dialog
 - Application URL parameter: **loadInvisibleWidgets=inBackground**



Loading widgets



Default mode



Loading invisible widgets in background

SAP LAB PREVIEW

In order to achieve the best performance by leveraging loading invisible widgets in background

- keep the scripts for onInitialization Event as less as possible
- Don't access and prepare invisible widgets for onInitialization event if is possible. Try to prepare the invisible widgets only if the widgets turn into visible.
- Don't nest the invisible widgets too deep into container structure if you can't avoid accessing invisible widgets during application onInitialization event. It will wait until the container of the invisible widget is rendered completely.

Reference Customer



Randstadt -> Generic Applications like Bex Web Template

[illegible]

Roadmap



Analytics Designer

Q2/2020

Dashboarding Capabilities:

- Mobile Support:
 - Support of running applications in safari browser on iPad within embedded use cases
 - Native mobile browser support for Microsoft Edge on windows surface tablet (Controlled Release)
- Tab strip enhancements: rename, re-order and synchronize with outline
- Dynamic layout enhancement by changing parent widget at runtime

Extension Capabilities:

- Custom widgets further enhancement: dependency etc.

Enterprise Capabilities:

- Scheduling and publication : Auto/manual generating PDF, Distributing PDFs with different bookmarks and script variables, BW Prompt support, Sending notification or email via scripting API

Integration with SAP Data Warehouse Cloud: Creating applications within DWC space

OData Enhancements:

- Support for more connections: BW/HANA/BPC
- Enable filtering, counting, selecting etc. for OData read access

Scripting API Enhancements: Remove/Copy Variable, Remove and Range support for Filter API, Notification Scripting API and Scripting API for instantly loading bookmark

Table property APIs: show and hide attributes, zero suppression and compact display

Developer productivity features:

- Copy widgets from story to app and across browser tabs
- Restoring deleted widgets at design time

Q3/2020

Dashboarding Capabilities:

- Integration with SAC Mobile Solution: enable analytic application within SAC Mobile iOS app (Controlled Release)
- New widgets: Page Book, List box
- Data change insights (Beta Program)
- Enable Navigation Panel for table based on SAC model

Data Analyzer:

- Further enhancements

Enterprise Capabilities:

- Calendar task integrations with scripting access
- Performance features: Loading invisible widgets in background to accelerate the start up performance

Integration with SAP Data Warehouse Cloud:

- Creating applications by using DWC as remote live connection

Scripting API Enhancements:

- Create member-on-the-fly / getMemberProperties for Planning Model
- Set Variable value for hierarchy node variable, getVariableValue , get Filter Value, Hierarchy scripting API, Drill API,
- Application message API, getApplicationInfo API,
- Extending getResultSet API to access dimension attributes
- Change widget property and style API
- Export to PDF API for setting Include and exclude parts
- Support of setting Null Numbers via scripting API

Developer productivity features:

- Simple widget property binding,
- Grouping widgets at design time

Future Direction

Dashboarding Capabilities:

- Mobile App support for Android devices
- Responsive layout and container
- Blending support as in story, SAP Digital Boardroom Integration

Data Analyzer:

- Completely customizable Data Analyzer in Analytics Designer

Extension Capabilities:

- Custom widgets further enhancements(Data Access, Mobile support, bookmarking etc.)

Enterprise Capabilities:

- Composites, Templates
- Advanced Printing capabilities
- Export to SAP Analytics Cloud, add-in for Microsoft Office
- Creating applications within S/4

Smart Predict Integration

Scripting API Enhancements:

- Geo Map script API
- DataSource related APIs, events etc.

Developer productivity features:

- Data source and widget binding
- Undo/Redo
- Pause/Refresh at design time

This is the current state of planning and may be changed by SAP at any time.

Thank you.

Contact information:

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