chart_tech_dim.js

0

Introduction

This document will walk you through the implementation of the `chart_tech_dim.js` file.

The `chart_tech_dim.js` file is responsible for creating and managing a radar chart that visualizes various technological dimensions. The chart includes interactive elements such as tooltips, legends, and zoom buttons.

We will cover:

1. Initialization of the chart container and elements.
2. Configuration of the radar chart and its components.
3. Implementation of interactive features such as tooltips, zoom buttons, and series visibility toggles.
4. Handling of dynamic data updates and slider interactions.

Initialization of the chart container and elements

We start by setting up the root container and initializing the chart elements.

js/script_radarboard_chart_tech_dim.js Up to date

```
1  //#region ///--------A   Start Set Root, Themes, Container, Chart, Legend
2  //#region ///--------A.2 Init Themes, Container, Chart, Legend, Title----
3
4
5  //------------------------------Container und Radar Chart---------------
6  var containerTechDim = container.children.push(am5.Container.new(root, {
7    width: myChartWidth,
8    height: myChartHeight,
9    //layout: root.verticalLayout
10 }));
```

Next, we add a menu label to the container for user interaction.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
//--------------------Menu links Hamburger rechts Hilfe Video----------
var labelMenu = containerTechDim.children.push(am5.Label.new(root, {
  paddingTop: 7,
  x: 17,
  text: "[fontWeight: 500 fontSize: 18px #000]☰[fontWeight: 500 fontSize
  fontSize: 18,
  fill: ColorBlackYAxisText,
  cursorOverStyle: "pointer",
  tooltip: am5.Tooltip.new(root, { paddingBottom: 5, paddingTop: 3, point
  tooltipX: 28,
  tooltipY: 18,
  tooltipText: "[fontWeight: 500 fontSize: 12px #fff]Menü zur Auswahl\nei
  background: am5.Rectangle.new(root, {
    fill: am5.color(0x000000),
    fillOpacity: 0
  })
}));
```

We handle the click event for the menu label to toggle the visibility of a menu.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
labelMenu.events.on("click", function (ev) {
  if (labelMenu.get("active")) { //Menu war active -> hide div
    //console.log("Menu active");
    labelMenu.set("active", false);
    document.getElementById('menu-radar').style.display = 'none';
  } else { //Menu war inactive -> div anzeigen
    //console.log("Menu inactive");
    labelMenu.set("active", true);
    document.getElementById('menu-radar').style.display = 'inline-block';
```

```
39    };
40  });
```

Configuration of the radar chart and its components

We create the radar chart and configure its properties such as radius, scale, and angles.

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```
43  var chartTechDim = containerTechDim.children.push(am5radar.RadarChart.nev
44    radius: radiusDimRadarboard, //grösse chart in container, 70% lässtplat
45    innerRadius: radiusHoleDimUebersichtSeriesTausch, //grösse loch in der
46    panX: false,
47    panY: false,
48    wheelX: "panX",
49    scale: scaleChartDim,
50    dx: 100, //chart besser in mitte zentrieren, legend dann unten zurück s
51    dy: -50, //chart in mitte war 110,
52    startAngle: -120,
53    endAngle: 240,
54  }));
```

We add a pseudo legend to allow toggling the visibility of other legends.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
57  //-------- pseudo legend um andere legend anzeigen und verbergen zu könn
58  var legendDimFilterAnzeigen = chartTechDim.children.push(am5.Legend.new(
59    nameField: "categoryX",
60    /*   y: am5.percent(39), */
61    /* y: 370, */
62    dy: 400,
63    dx: -107,
```

```
64    useDefaultMarker: true,
65    layout: root.verticalLayout
66  }));
67  legendDimFilterAnzeigen.markers.template.setup = function (marker) {
68    var check = am5.Graphics.new(root, {
69      fill: am5.Color.brighten(am5.color(0xffffff), 0),
70      fillOpacity: 0.8,
71      layer: 50,
72      svgPath: "M15.75 2.527c-.61-.468-1.46-.328-1.902.32l-6.325 9.255L4.0
73    });
74    check.states.create("disabled", {
75      fillOpacity: 0
76    });
```

We add the main legend for the radar chart.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
86  var legendTechDim = chartTechDim.children.push(am5.Legend.new(root, {
87    nameField: "categoryX",
88    /*   y: am5.percent(39), */
89    dy: 428,
90    dx: -107,
91    useDefaultMarker: true,
92    layout: root.verticalLayout
93  }));
```

We configure the appearance of the legend markers.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
95   //---------- Legend marker size und Aussehen legende rechtecke sind jet
96   legendTechDim.markers.template.setup = function (marker) {
97     var check = am5.Graphics.new(root, {
98       fill: am5.Color.brighten(am5.color(0xffffff), 0),
99       fillOpacity: 0.8,
100      layer: 50,
101      svgPath: "M15.75 2.527c-.61-.468-1.46-.328-1.902.32l-6.325 9.255L4.0
```

```
102    });
103    check.states.create("disabled", {
104      fillOpacity: 0
105    });
106    marker.children.push(check);
107  }
108  legendTechDim.markers.template.setAll({ width: 17, height: 17 });
```

We set the text size and appearance for the legend labels and add a title label to the chart.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
110  //---------- Legend Textsize and value Textsize----------
111  legendTechDim.labels.template.setAll({
112    fontSize: fontSizeLegendeDim,
113    fontWeight: "500"
114  });
115
116
117  //var textStatisch = "[fontWeight: 500 fontSize: 0.85em]Dimensionen";
118  var textStatisch = "";
119  var titleHoleTechDim = chartTechDim.children.push(am5.Label.new(root, {
120    //*text: "[fontWeight: 600 fontSize: 1.1em]INVITE[/]\n[fontWeight: 50
121    //*text: "[fontWeight: 500 fontSize: 0.9em]Technologische\nDimensione
122    text: textStatisch,
123    textAlign: "center",
124    fontWeight: 500,
125    x: am5.percent(50),
126    y: am5.percent(50),
127    //dy: -8, // etwas nach oben rücken da dynamisch drunter etwas abstan
128    centerY: am5.percent(50),
129    centerX: am5.percent(50),
```

Implementation of interactive features

We create the y-axis for the radar chart and configure its renderer.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
157 }));
158
159 //#endregion ///-----A.2 End Init Themes, Container, Chart, Legend, Titl
160 //#region ///--------A.3 Konfiguration Chart, Grid, Legend, Tooltip, Axe
161 //grid in chart auf farbe weiss setzen damit es unsichtbar wird
162 root.interfaceColors.set("grid", ColorGrid);
163
164 var yAxisTechDim = chartTechDim.yAxes.push(am5xy.ValueAxis.new(root, {
165   min: 0,
166   max: 100,
167   numberFormat: "#'%'",
168   //extraMax: 0.1, //geht wegen grid? nur in 10% schritten
169   renderer: am5radar.AxisRendererRadial.new(root, { minGridDistance: 20,
170 }));
```

We create the x-axis for the radar chart and configure its renderer.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
192 // Create axes and their renderers, xAxis zweimal für Dim und für UDim
193 var xRendererTechDim = am5radar.AxisRendererCircular.new(root, {});
194 xRendererTechDim.labels.template.setAll({
195   fontSize: 0.1,
196   textType: "circular",
197   fill: ColorWhite, //damit text nicht doppelt erscheint, range druckt d
198
199 });
```

We add zoom buttons to the container for zooming in and out of the chart.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
var xAxisTechDim = chartTechDim.xAxes.push(am5xy.CategoryAxis.new(root,
  maxDeviation: 0,
  categoryField: "dimension",
  renderer: xRendererTechDim,
}));


/// Zoom buttons
var buttonsTechDim = containerTechDim.children.push(am5.Container.new(r
  //var buttons = container.children.push(am5.Container.new(root, {
  layout: root.horizontalLayout,
  x: am5.percent(100),
  dx: -95,
  y: am5.percent(0),
  //dy: -2,
}));
var currentScaleTechDim = 1; //scale für zoom button + und - des graphe
function createButtonTechDim(text, kat, textTooltip) {
  var buttonTechDim = buttonsTechDim.children.push(am5.Button.new(root,
    paddingTop: -4, paddingRight: -4, paddingBottom: -4, paddingLeft: -
```

We handle the click events for the zoom buttons to adjust the chart's scale.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
  currentScaleTechDim = currentScaleTechDim - 0.05; chartTechDim.set("sc
  return buttonTechDim;
};
```

We configure the appearance and behavior of the zoom buttons.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
  buttonTechDim.get("background").setAll({
    cornerRadiusTL: 5, cornerRadiusTR: 5, cornerRadiusBR: 5, cornerRadiu
    fill: colorKategorieButtonBackground, strokeOpacity: 0.6, fillOpacit
```

```
243    });
244    buttonTechDim.setAll({
245      tooltipX: am5.percent(50),
246      tooltipY: 22
247    });
248    buttonTechDim.get("background").states.create("hover", {}).setAll({ fi
249    buttonTechDim.get("background").states.create("active", {}).setAll({ f
250    return buttonTechDim;
251  };
```

Handling of dynamic data updates and slider interactions

We create series for the radar chart to represent different data dimensions.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
261  //#region ///--------B   Start Series, Ranges, Legenden Ausblenden, Ever
262  //#region ///--------B.1 Init & Konfiguration Serie, Range ------------
263  // Create series für UDim extra series
264  /// series 3 aussen neu innen Bewertung 0-1 keine Aussagen
265  var series3TechDim = chartTechDim.series.push(am5radar.RadarColumnSeries
266    categoryXField: "dimension",
267    //fill: fillSeriesKeineAussage, ///wird in adapter gesetzt
268    fill: ColorWhite,
269    stroke: ColorWhite,
270    stacked: true,
271    name: "keine Aussage oder in Ansätzen",
272    xAxis: xAxisTechDim,
273    yAxis: yAxisTechDim,
274    valueYField: "value3",
275    valueXField: "id"
276  }));
```

We configure the appearance and behavior of the series columns.

js/script_radarboard_chart_tech_dim.js Up to date

```
series3TechDim.columns.template.setAll({ fillOpacity: fillOpacitySeriesK

series3TechDim.columns.template.adapters.add("fill", function (fill, tar
  var id = target.dataItem.get("valueX"); //array coplors fängt bei 0 ar
  //console.log("series3 id:" + id);

  // return series3TechDimColors[id - 1];
  return am5.Color.brighten(am5.color(series3TechDimColors[id - 1]), -0.
```

We add bullets to the series for displaying additional information.

js/script_radarboard_chart_tech_dim.js Up to date

```
});

var labelTechDimSeries3 = [];
var series3TechDimCounter = 0;

series3TechDim.bullets.push(function () {
  color = series3TechDimColors[series3TechDimCounter];
  color = am5.Color.brighten(color, -0.3);
  series3TechDimCounter = series3TechDimCounter + 1;
```

We create tooltips for the series bullets.

js/script_radarboard_chart_tech_dim.js Up to date

```
var tooltipCircle = am5.Tooltip.new(root, { getFillFromSprite: false });
tooltipCircle.get("background").setAll({
  fillOpacity: 1,
  fill: am5.Color.brighten(color, 0.8)
});
```

```
314  circle.setAll({
315    tooltip: tooltipCircle,
316    //tooltipText: "[fontSize: 1em #fff]Dimension [fontSize: 1em fontWeigh
317    tooltipText: "[fontSize: 0.85em]Dimension [fontSize: 0.85em fontWeight
318
319  });
```

We handle the hover state for the series bullets.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
321  circle.states.create("hover", { scale: 1.5, fillOpacity: 0.5 }); //bei m
322
323  labelTechDimSeries3[series3TechDimCounter] = container.children.push(am5
324    text: "{valueY}",
325    fontSize: fontSizeDimValue,
326    fontWeight: 400,
327    //fill: ColorWhite,
328    fill: color,
329    centerY: am5.p50,
330    centerX: am5.p50,
331    populateText: true
332  }));
```

We create a pseudo series for displaying percentage values.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
514  /// pseudo series für Anzeige der Prozentwerte also insgesamt 15 zahlen
515  seriesProzentValuesDim = chartTechDim.series.push(am5radar.RadarLineSeri
516    name: "Anzahl Vorhaben in %",
517    xAxis: xAxisTechDim,
518    yAxis: yAxisTechDim,
519    fill: ColorGrauValue1,
520    valueYField: undefined,
521    categoryXField: "dimension",
```

```
522 }));
```

We handle the visibility of the percentage values series.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
524 function showHideProzentValuesDim(zeigeBeschriftung) {
525   var counterDimDatensatz = 0; am5.array.each(series1TechDim.dataItems,
526   var counterDimDatensatz = 0; am5.array.each(series2TechDim.dataItems,
527   var counterDimDatensatz = 0; am5.array.each(series3TechDim.dataItems,
528 };
529
530 seriesProzentValuesDim.on("visible", function (visible, target) { //Dim
531   if (visible) { showHideProzentValuesDim(true) } // true bedeutet Besch
532   else { showHideProzentValuesDim(false) } // false bedeutet Beschriftur
533 });
```

We create a pseudo series for toggling the visibility of all dimensions.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
535 /// pseudo series für alle Dimensionen ausblenden ----------------------
536 seriesDimAusblenden = chartTechDim.series.push(am5radar.RadarLineSeries
537   name: "alle Dimensionen anzeigen",
538   xAxis: xAxisTechDim,
539   yAxis: yAxisTechDim,
540   fill: ColorGrauValue1,
541   valueYField: undefined,
542   categoryXField: "dimension",
543 }));
```

We handle the visibility of the dimensions series.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
545 seriesDimAusblenden.on("visible", function (visible, target) { //Dim au
546   var keineAussageDimEingeblendet = seriesDimKeineAussageAusblenden.get
547   var wirdAdressiertDimEingeblendet = seriesDimWirdAdressiertAusblenden
548
549   for (var index = 0; index < dataDimensionen.length - 1; index++) {
550     if (!visible) {
551       series1TechDim.dataItems[index].hide();
552       series2TechDim.dataItems[index].hide();
553       series3TechDim.dataItems[index].hide();
554       seriesProzentValuesDim.hide();
555       showHideProzentValuesDim(false);
556     }
557     else {
558       series1TechDim.dataItems[index].show();
559       //* später series2 / 3 show nur wenn entsprechnende legend box au
560       series2TechDim.dataItems[index].show();
561       series3TechDim.dataItems[index].show();
562       seriesProzentValuesDim.show();
563       showHideProzentValuesDim(true);
564     }
```

We create a pseudo series for filtering the displayed dimensions.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
595 /// pseudo series für Filter anzeigenn
596 seriesDimFilterAnzeigen = chartTechDim.series.push(am5radar.RadarLineSer
597   name: "Filter anzeigen",
598   xAxis: xAxisTechDim,
599   yAxis: yAxisTechDim,
600   /* fill: ColorGrauValue1, */
601   fill: ColorBlack,
602   valueYField: undefined,
603   categoryXField: "dimension",
604 }));
```

We handle the visibility of the filter series.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
606 seriesDimFilterAnzeigen.on("visible", function (visible, target) {
607   if (visible) {
608     legendTechDim.show();
609   }
610   else {
611     legendTechDim.hide();
612     //wenn filter durch user ausgeblendet wird, dann alle einstellungen
613     series3TechDim.hide(); //dim keine relevanz ausblenden
614     for (var index = 0; index < dataDimensionen.length - 1; index++) {
615       series1TechDim.dataItems[index].show();
616       series2TechDim.dataItems[index].show();
617       seriesProzentValuesDim.show();
618       showHideProzentValuesDim(true);
619     }
620   }
621 });
```

We initialize the slider for dynamic data updates.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
701 var playButtonTechDim = containerSliderTechDim.children.push(am5.Button
702   themeTags: ["play"],
703   centerY: am5.p50,
704   marginRight: 15,
705   icon: am5.Graphics.new(root, { themeTags: ["icon"] })
706 }));
707
708 playButtonTechDim.get("background").setAll({ fill: ColorGrauValue1 });
709 playButtonTechDim.events.on("click", function () {
710   if (playButtonTechDim.get("active")) {
711     sliderTechDim.set("start", sliderTechDim.get("start") + 0.0001);
712   }
```

```
713   else {
714     sliderTechDim.animate({
715       key: "start",
716       to: 1,
717       duration: 10000 * (1 - sliderTechDim.get("start"))
718     });
719   }
```

We handle the slider events to update the chart data.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
732 sliderTechDim.on("start", function (start) {
733   if (start === 1) {
734     playButtonTechDim.set("active", false);
735   }
736 });
737
738 sliderTechDim.events.on("rangechanged", function () {
739   updateSliderDatensatzTechDim(Math.round(sliderTechDim.get("start", 0)
740   sliderTechDimStand = sliderTechDim.get("start");
741 });
```

We update the chart data based on the slider value.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
783 })); */
784
785
786 function updateValuesDatensatzTechDim(datensatz) { ///update der value1.
787   dataDimensionen = datensatz;
788   var keineAussageDimEingeblendet = seriesDimKeineAussageAusblenden.get(
789   var wirdAdressiertDimEingeblendet = seriesDimWirdAdressiertAusblenden.
```

We fill the series with the initial data array.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
844  };
845  //#endregion ///----------------------------End Slider-----------------
846
847  //#region ///--------B.2 Series füllen mit Data Array-----------------
848  // Series füllen mit data Array
849  series1TechDim.data.setAll(dataDimensionen);
850  series2TechDim.data.setAll(dataDimensionen);
851  series3TechDim.data.setAll(dataDimensionen);
852  //#endregion ///-----B.2  END Series füllen----------------------------
853  //#region ///--------B.3 Legend: series2+3 & range ausblenden bei klick
854  series1TechDim.dataItems[0].on("visible", function (visible, target) {
855    if (visible) {
856      series2TechDim.dataItems[0].show();
857      series3TechDim.dataItems[0].show();
858    }
859    else {
860      series2TechDim.dataItems[0].hide();
861      series3TechDim.dataItems[0].hide();
862    }
863  });
```

We handle the visibility of series and ranges based on legend interactions.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
865  //für restliche Dimensionen Series2+3 & Range ausblenden bei startup
866  series1TechDim.dataItems[1].on("visible", function (visible, target) {
867    if (visible) {
868      series2TechDim.dataItems[1].show();
869      series3TechDim.dataItems[1].show();
870    }
871    else {
872      series2TechDim.dataItems[1].hide();
873      series3TechDim.dataItems[1].hide();
```

```
874    }
875  });
```

We initialize the data structures for the series, legend, and chart on the first load.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
927  //#endregion ///--------Legend: series2+3 & range ausblenden  ----------
928  //#endregion ///-----B   End Start Series, Ranges, Legenden Ausblenden,
929
930  //#region ///--------C   Init Datenstrukturen für serie, legende, chart
931
932  // Dim 6 (Sonstige) bei start verbergen
933  series1TechDim.dataItems[5].hide();
934  series2TechDim.dataItems[5].hide();
935  series3TechDim.dataItems[5].hide();
```

We hide all series at startup and make the chart appear with animations.

js/script_radarboard_chart_tech_dim.js ✓✓ Up to date

```
957  //#endregion ///-----C END Init Datenstrukturen für serie, legende, char
958
959  //#region ///--------D   Series & Chart Hide und appear----------------
960
961  // hide all series at startup in chart
962  var startDim = 6; /// kein hide bei startup
963  /* for (var i = startDim; i < series1TechDim.dataItems.length; i++) { //
964    series1TechDim.dataItems[i].hide();
965    series2TechDim.dataItems[i].hide();
966    series3TechDim.dataItems[i].hide();
967  }; */
968  seriesDimKeineAussageAusblenden.hide();
```

Conclusion

This document has walked you through the main design decisions and implementation details of the `chart_tech_dim.js` file. The radar chart is initialized with various interactive elements and handles dynamic data updates through a slider. The configuration ensures that the chart is both informative and user-friendly.