

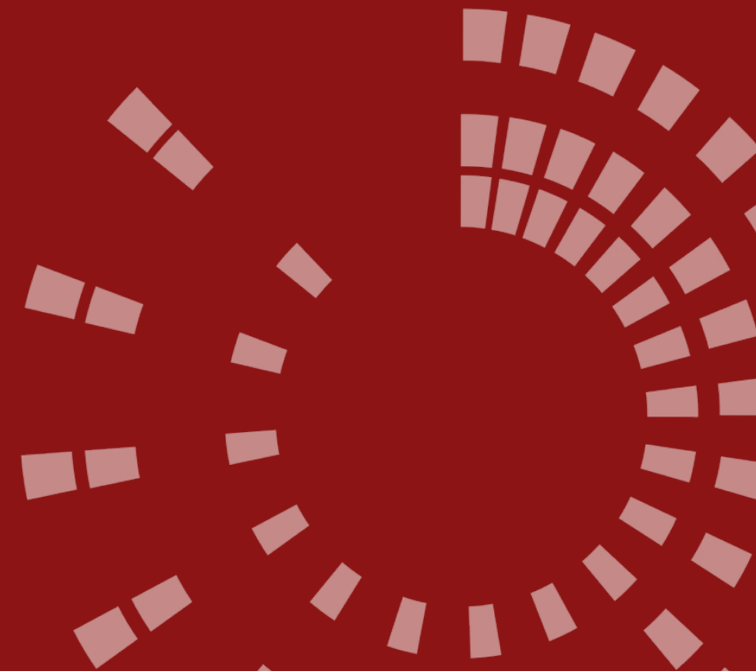


HighWire

Designing DataVis: A visual tool for engineers

Andrea Fallas, UX Architect

December 2017



The project

The process

The project

What we did

The project Client and context



1600+

Books & resources



2012

200,000

Page views per month

The project Customer base



Students



Faculty

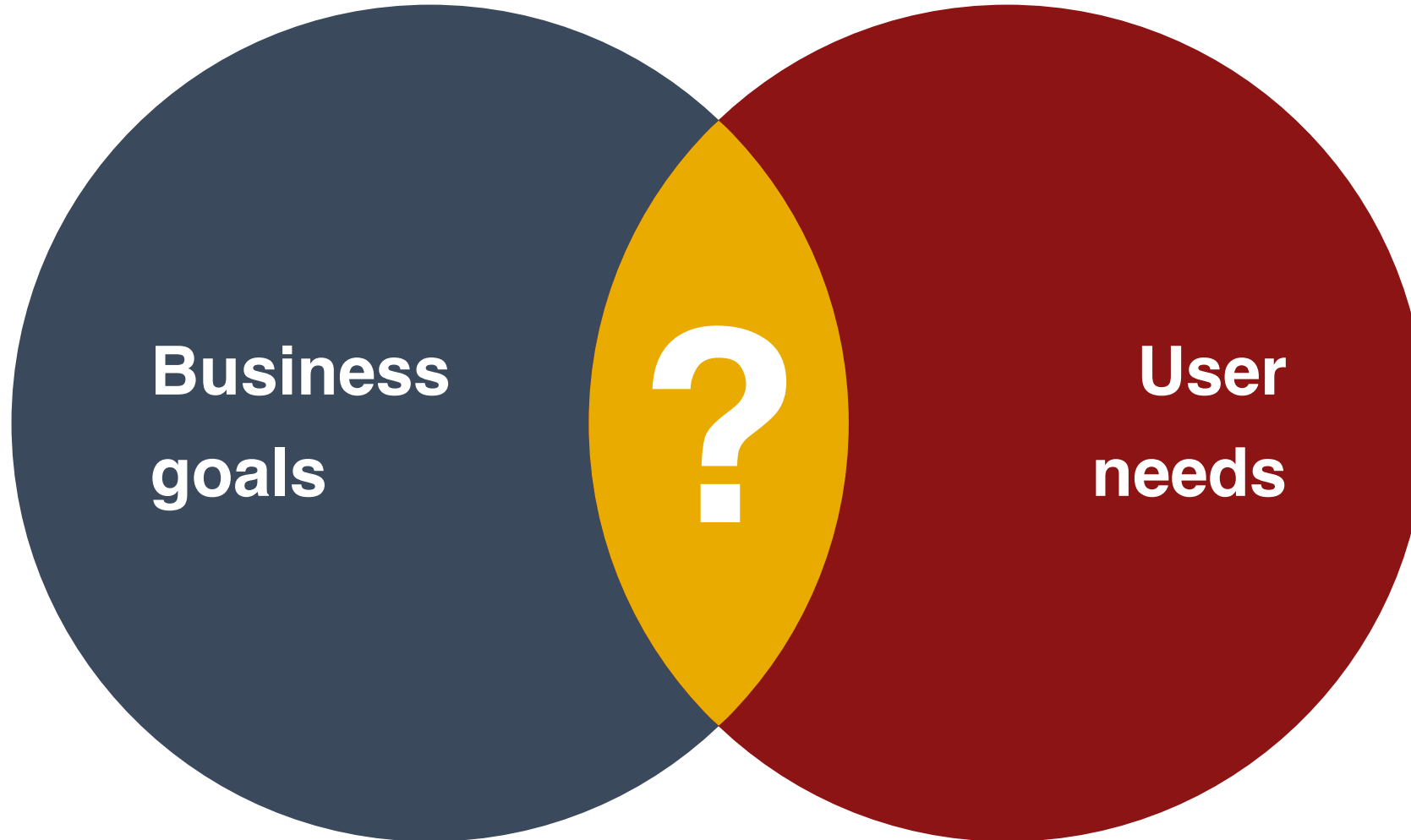


Professionals

Libraries
Academic

Libraries
Corporate

The project Goals and needs



The project Initial insight

Librarians:

We want a material properties data search.

The project Further insight

Librarians:

We want a material properties data search.

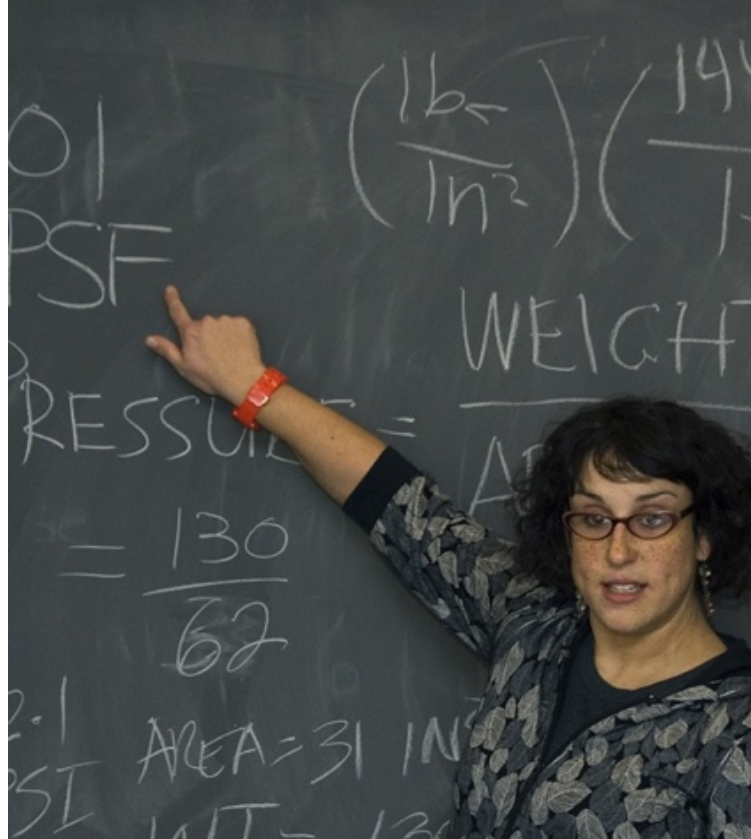
Faculty:

We don't need a data search
– most material properties data is freely available online.

The project User needs



Students



Faculty



Professionals

The project User needs



Students

I need to explore materials and their properties so I can understand the meaning of material property data in context of engineering design.

The project User needs

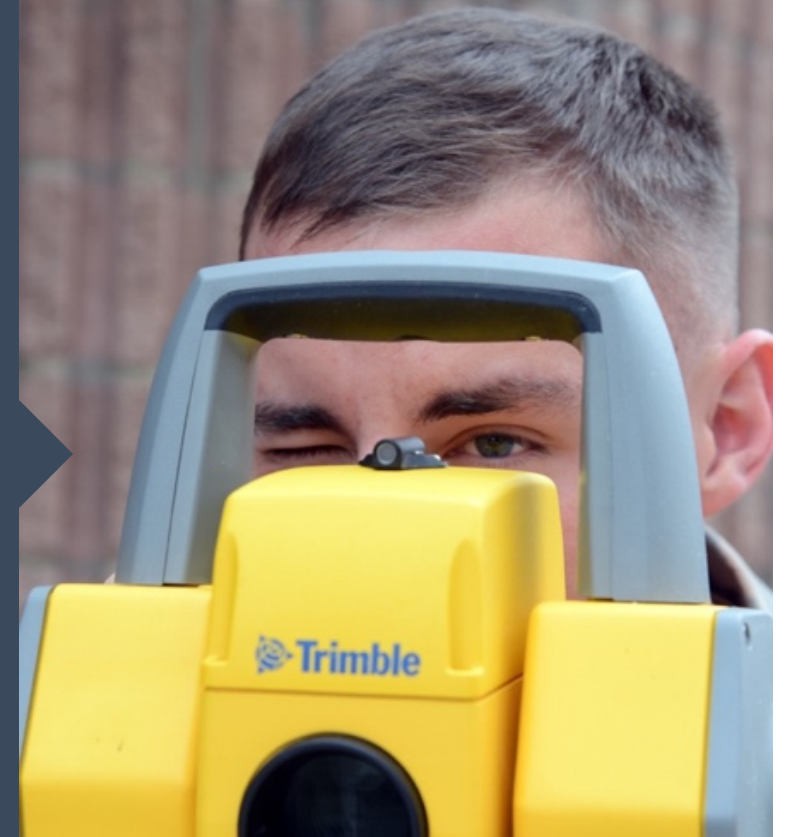
I need to help students understand concepts and relationships so they can become successful professionals.



Faculty

The project User needs

I need to find appropriate materials for my intended application.



Professionals

Designing an aeroplane

An example of using DataVis

Materials
need to be:

Lightweight

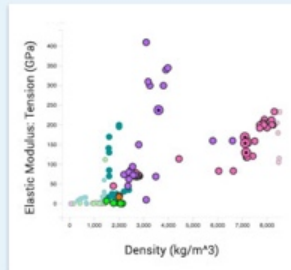
Strong



Materials
need to be:

Lightweight


Strong



Use **DataVis** to visually explore materials and their properties.

Find and compare material property data, then save your interactive visualizations and share with others.

 Compare properties across multiple materials

 Find a property value for a single material

Welcome to DataVis!

Get started with our [video tutorial](#) or use one of the DataVis projects below. These faculty-created, active learning projects can be used as-is, or copied and customized for your own course.

DataVis Project Library

Materials: More than a Name

This project investigates materials with similar names (aluminum, alumina, alumina (sapphire)), focusing on the fundamental differences between them. *Designed by Dr. Susan P. Gentry, University of California, Davis.*

[Open Project](#)

Influence of Material Properties

This project investigates the influence of material properties in basic analysis and design for a first course in Strength of Materials. *Designed by Luke Lee, University of the Pacific.*

[Open Project](#)

Properties for Aerospace Structures

This case study looks at properties for Aerospace applications. *Designed by Kathleen Kitta, Western Washington University.*

[Open Project](#)

[View all sample visualization projects](#)



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[Release Notes](#)

Built by [semantico](#)

Materials
need to be:

Lightweight

Strong

Access provided by HighWire Support Sign Out

Citation My Projects Help Home

Save Share Export Page New

DataVis
Material Properties

ACCESS Engineering

Untitled Project Add Description
Hide Page Navigation*

Untitled Page +

Untitled Page Add Description

Add Visualization

Select Materials 216 selected

Enter a material or classification

Expand All Deselect All

- ▶ Metal (122)
- ▶ Polymer (32)
- ▶ Ceramic (28)
- ▶ Composite (31)
- ▶ Advanced (3)

Display Settings

Show all included
 Show selected and in range only
 Show starred only

More Settings

Related Content Add/Edit

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Release Notes

Built by **semantico**

Choose visualization Cancel

One Property
Dot plot visualization

Two Properties
Scatter plot visualization

Tabular Data (advanced option)

Materials
need to be:

Lightweight

Strong

Access provided by HighWire Support Sign Out

Citation My Projects Help Home

Save Share Export Page New

DataVis
Material Properties

ACCESS Engineering

Untitled Project Add Description
Hide Page Navigation*

Untitled Page +

Untitled Page Add Description

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- ▶ Ceramic (28)
- ▶ Composite (31)
- ▶ Advanced (3)

Display Settings

Show all included
 Show selected and in range only
 Show starred only

More Settings

Related Content Add/Edit

Choose Property

Cancel

Enter a property

- ▶ Physical
- ▶ Mechanical
- ▶ Thermal
- ▶ Electrical
- ▶ Magnetic
- ▶ Optical
- ▶ Cost

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Release Notes

Built by **semantico**

Materials
need to be:

Lightweight

Strong

Access provided by HighWire Support Sign Out

Citation My Projects Help Home

Save Share Export Page New

DataVis
Material Properties

ACCESS Engineering

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Hide Page Navigation*

Untitled Page +

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More Settings

Related Content Add/Edit

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To request further information about AccessEngineering's DataVis, or to report an error in the data or a bug in the application, use our contact us form.

Release Notes

Built by **semantico**

Choose Property Cancel

den Clear

Physical

Density

Mechanical

Hardness: Wood Indentation

Untitled Project Add Description

Save Share Export Page New

Hide Page Navigation*

Navigation bar with 'Untitled Page' tab and navigation arrows.

Untitled Page Add Description

View Tabular Data

Add Visualization

Select Materials 216 selected

Search bar and material classification list:

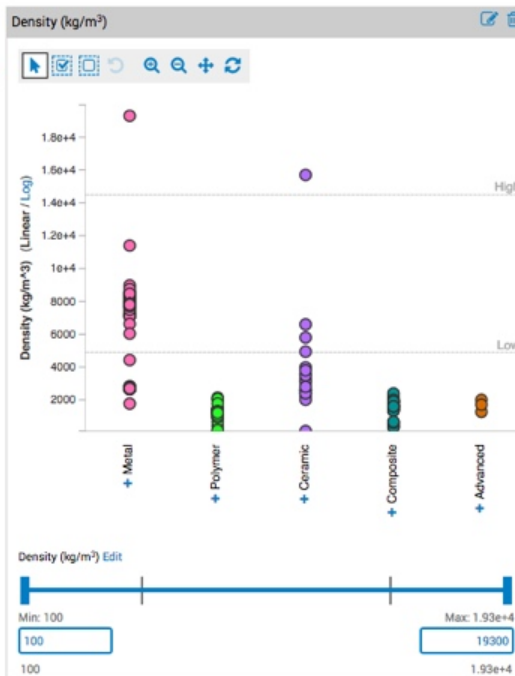
- Expand All Deselect All
- Metal (122)
- Polymer (32)
- Ceramic (28)
- Composite (31)
- Advanced (3)

Display Settings

Show all included
 Show selected and in range only
 Show starred only

More Settings

Related Content Add/Edit



Tabular Data

Reorder Columns Export CSV

Select	Range	Star	Material	Classification	Density (kg/m³)
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Acetal Copolymer	Polymer	1420
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1060
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alloy Cast Iron Overview	Metal	7190
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al2O3): 96%	Ceramic	3800
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al2O3): 98%	Ceramic	3900
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al2O3): Sapphire: MarkeTech, Single Crystal	Ceramic	3980
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina Oxide - Silicon oxide (3(Al2O3)-2(SiO2)): Mullite	Ceramic	2800

Materials need to be:

Lightweight

Strong

Untitled Project Add Description

Save Share Export Page New

Hide Page Navigation*

Navigation bar with 'Untitled Page' tab, back/forward arrows, and a plus sign for adding new pages.

Untitled Page Add Description

View Tabular Data

Add Visualization

Select Materials 216 selected

Enter a material or classification

Expand All Deselect All

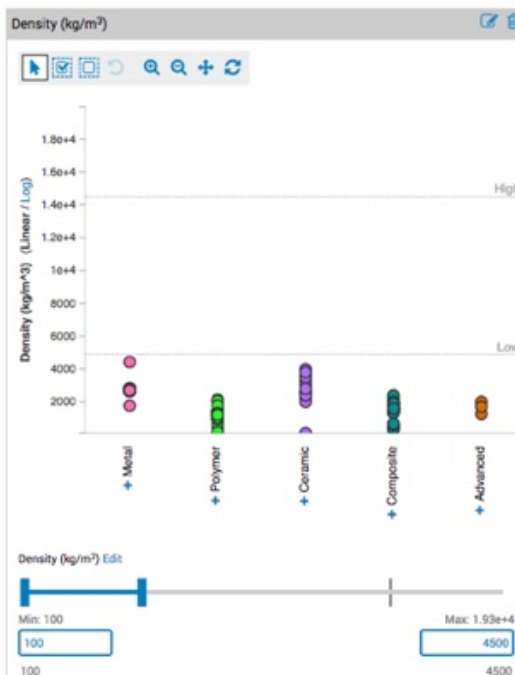
- Metal (29)
- Polymer (32)
- Ceramic (24)
- Composite (31)
- Advanced (3)

Display Settings

- Show all included
- Show selected and in range only
- Show starred only

More Settings

Related Content Add/Edit



Tabular Data

Reorder Columns Export CSV

Select	Range	Star	Material	Classification	Density (kg/m ³)
<input checked="" type="checkbox"/>		<input type="checkbox"/>	Acetal Copolymer	Polymer	1420
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1060
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al ₂ O ₃): 96%	Ceramic	3800
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al ₂ O ₃): 98%	Ceramic	3900
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina (Al ₂ O ₃): Sapphire: MarkeTech, Single Crystal	Ceramic	3980
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Alumina Oxide - Silicon oxide (3(Al ₂ O ₃)-2(SiO ₂)): Mullite	Ceramic	2800
<input checked="" type="checkbox"/>	In	<input type="checkbox"/>	Aluminum: 1100-H14	Metal	2710

Materials need to be:

Lightweight

Strong

Untitled Project Add Description

Save Share Export Page New

Hide Page Navigation*

Navigation bar with 'Untitled Page' tab and navigation arrows.

Untitled Page Add Description

View Tabular Data

Add Visualization

Select Materials 216 selected

Enter a material or classification

Expand All Deselect All

- Metal (29)
- Polymer (32)
- Ceramic (24)
- Composite (31)
- Advanced (3)

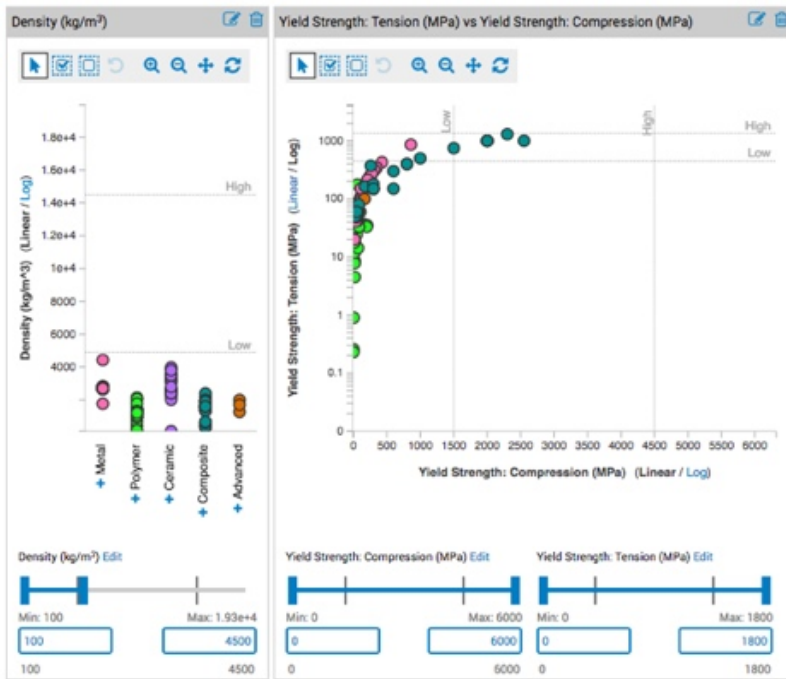
Display Settings

Show all included

Show selected and in range only

Show starred only

More Settings



Related Content Add/Edit

Tabular Data Reorder Columns Export CSV

Select	Range	Star	Material	Classification	Density (kg/m³)	Yield Strength: Compression (MPa)	Yield Strength: Tension (MPa)
<input checked="" type="checkbox"/>	In	☆	Acetal Copolymer	Polymer	1420	61	46.5
<input checked="" type="checkbox"/>	In	☆	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1060	50	43.2
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 96%	Ceramic	3800	2400	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 98%	Ceramic	3900	2500	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): Sapphire: MarkeTech, Firele Crystal	Ceramic	3980	4000	Not applicable

Materials need to be:

Lightweight

Strong

Untitled Project Add Description

Save Share Export Page New

Hide Page Navigation*

Navigation bar with 'Untitled Page' tab and navigation arrows.

Untitled Page Add Description

View Tabular Data

Add Visualization

Select Materials 216 selected

Enter a material or classification

Expand All Deselect All

- Metal (29)
- Polymer (32)
- Ceramic (24)
- Composite (31)
- Advanced (3)

Display Settings

Show all included

Show selected and in range only

Show starred only

More Settings



Related Content Add/Edit

Tabular Data Reorder Columns Export CSV

Select	Range	Star	Material	Classification	Density (kg/m³)	Yield Strength: Compression (MPa)	Yield Strength: Tension (MPa)
<input checked="" type="checkbox"/>	In	☆	Acetal Copolymer	Polymer	1420	61	46.5
<input checked="" type="checkbox"/>	In	☆	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1060	50	43.2
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 96%	Ceramic	3800	2400	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 98%	Ceramic	3900	2500	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): Sapphire: MarkeTech, Firele Crystal	Ceramic	3980	4000	Not applicable

Materials need to be:
Lightweight
Strong

Untitled Project Add Description

Save Share Export Page New

Hide Page Navigation*

Navigation bar with 'Untitled Page' tab and navigation arrows.

Untitled Page Add Description

View Tabular Data

Add Visualization

Select Materials 216 selected

- Enter a material or classification
- Expand All Deselect All
- Metal (29)
 - Polymer (32)
 - Ceramic (24)
 - Composite (31)
 - Advanced (3)

Display Settings

- Show all included
- Show selected and in range only
- Show starred only

More Settings



Related Content Add/Edit

Tabular Data Reorder Columns Export CSV

Select	Range	Star	Material	Classification	Density (kg/m³)	Yield Strength: Compression (MPa)	Yield Strength: Tension (MPa)
<input checked="" type="checkbox"/>	In	☆	Acetal Copolymer	Polymer	1420	61	46.5
<input checked="" type="checkbox"/>	In	☆	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1060	50	43.2
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 96%	Ceramic	3800	2400	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 98%	Ceramic	3900	2500	Not applicable
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): Sapphire: MarkeTech, Siela Crystal	Ceramic	3980	4000	Not applicable

Materials need to be:

Lightweight

Strong

Properties for Aerospace Structures [View/Edit Description](#)

[Save As](#) [Share](#) [Export Page](#) [New](#)

Hide Page Navigation*

Navigation bar with tabs: Density, Density and Specific Gravity, Density, Specific Gravity, Ela..., Density, Specific Gravity, Ela..., Tensile Strength, Flexural Str..., Costs, Absolute and Relative. Includes left and right arrows and a plus sign.

Density

[View Tabular Data](#)

The overall weight of any aerospace structure (airplanes, drones, satellites) determines how efficiently it will operate over its lifetime. The weight of its structure determines how much weight can be transported and for how long or far (distance). So thinking about weight brings us to thinking about density, although they are not the same. The weight of a part is a function of engineering design considerations and involves many more considerations than just [Show More](#)

Add Visualization

Select Materials 216 selected

Enter a material or classification

Expand All Deselect All

- Metal (29)
- Polymer (32)
- Ceramic (24)
- Composite (31)
- Advanced (3)

Display Settings

Show all included

Show selected and in range only

Show starred only

[More Settings](#)



- Related Content** [Add/Edit](#)
- [Density Table - Various Materials](#)
 - [Matweb - Steels](#)
 - [Aircraft Materials](#)
 - [Composite Materials](#)
 - [Spacecraft Structures](#)

Tabular Data [Reorder Columns](#) [Export CSV](#)

Select	Range	Star	Material	Classification	Density (kg/m³)	Yield Strength: Tension (MPa)	Yield Strength: Compression (MPa)
<input checked="" type="checkbox"/>	In	☆	Acetal Copolymer	Polymer	1420	46.5	61
<input checked="" type="checkbox"/>	In	☆	Acrylonitrile Butadiene Styrene (ABS): Molded	Polymer	1050	43.2	50
<input checked="" type="checkbox"/>	In	☆	Alumina (Al2O3): 96%	Ceramic	3800	Not applicable	2400

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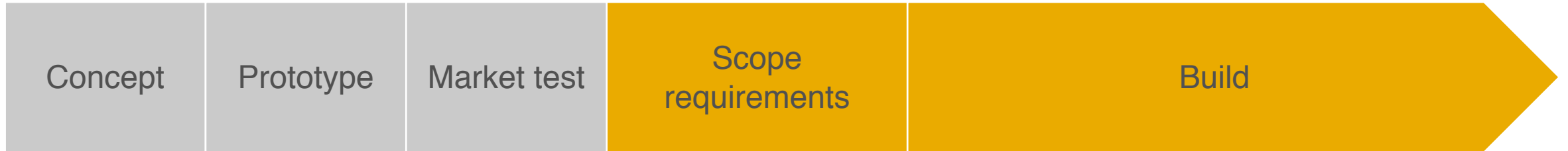
Materials need to be:
Lightweight
Strong

The process

How we did it

The process What we planned

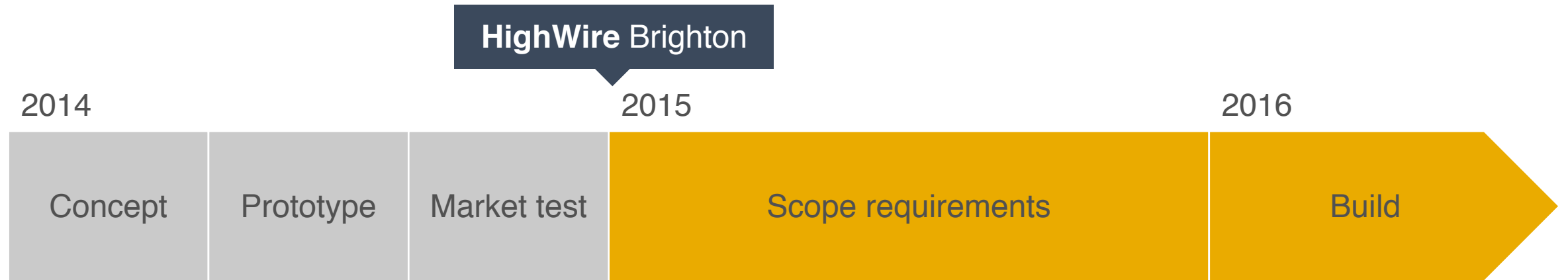
HighWire Brighton



Discovery & definition

Development & delivery

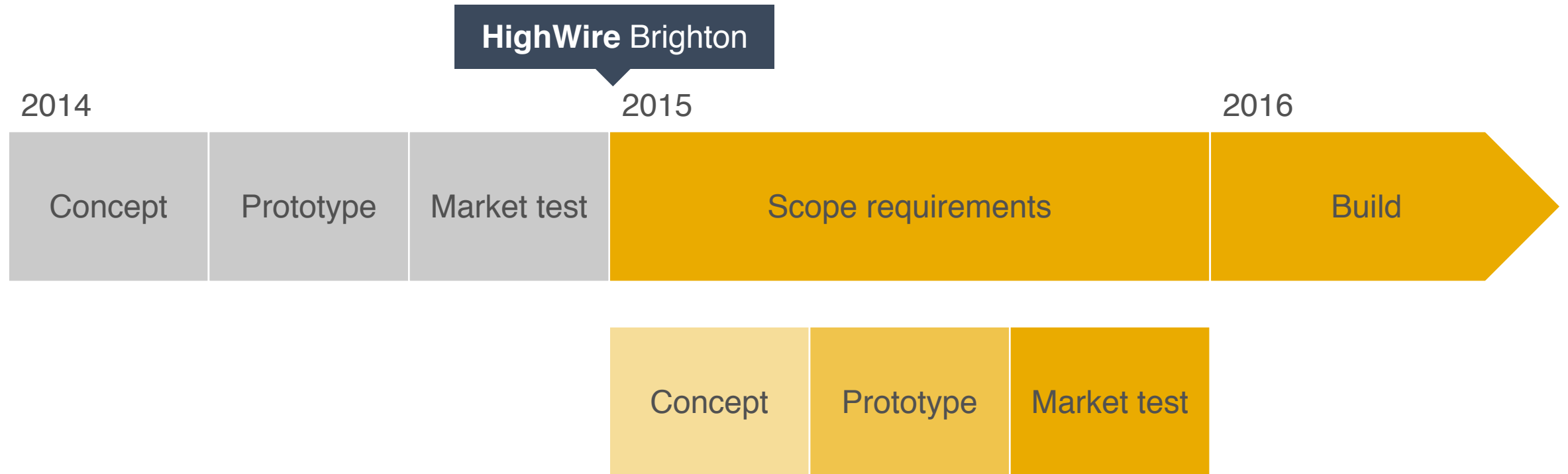
The process What we did



Discovery & definition

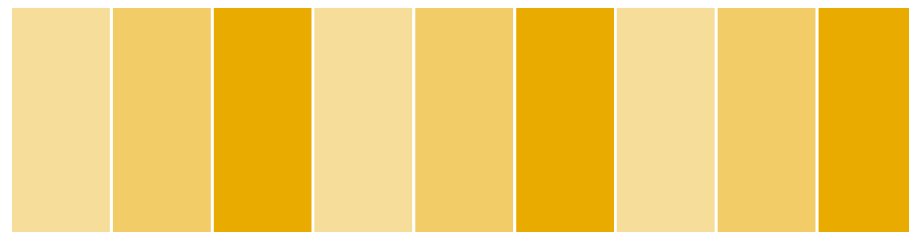
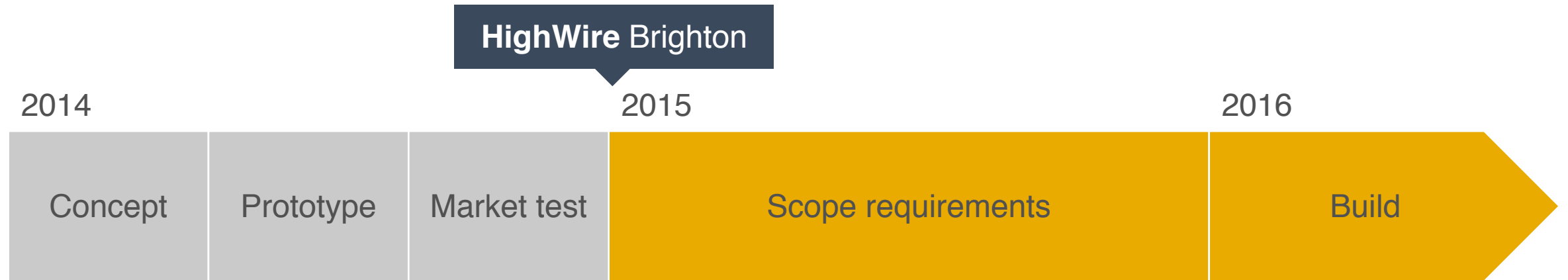
Development & delivery

The process What we did



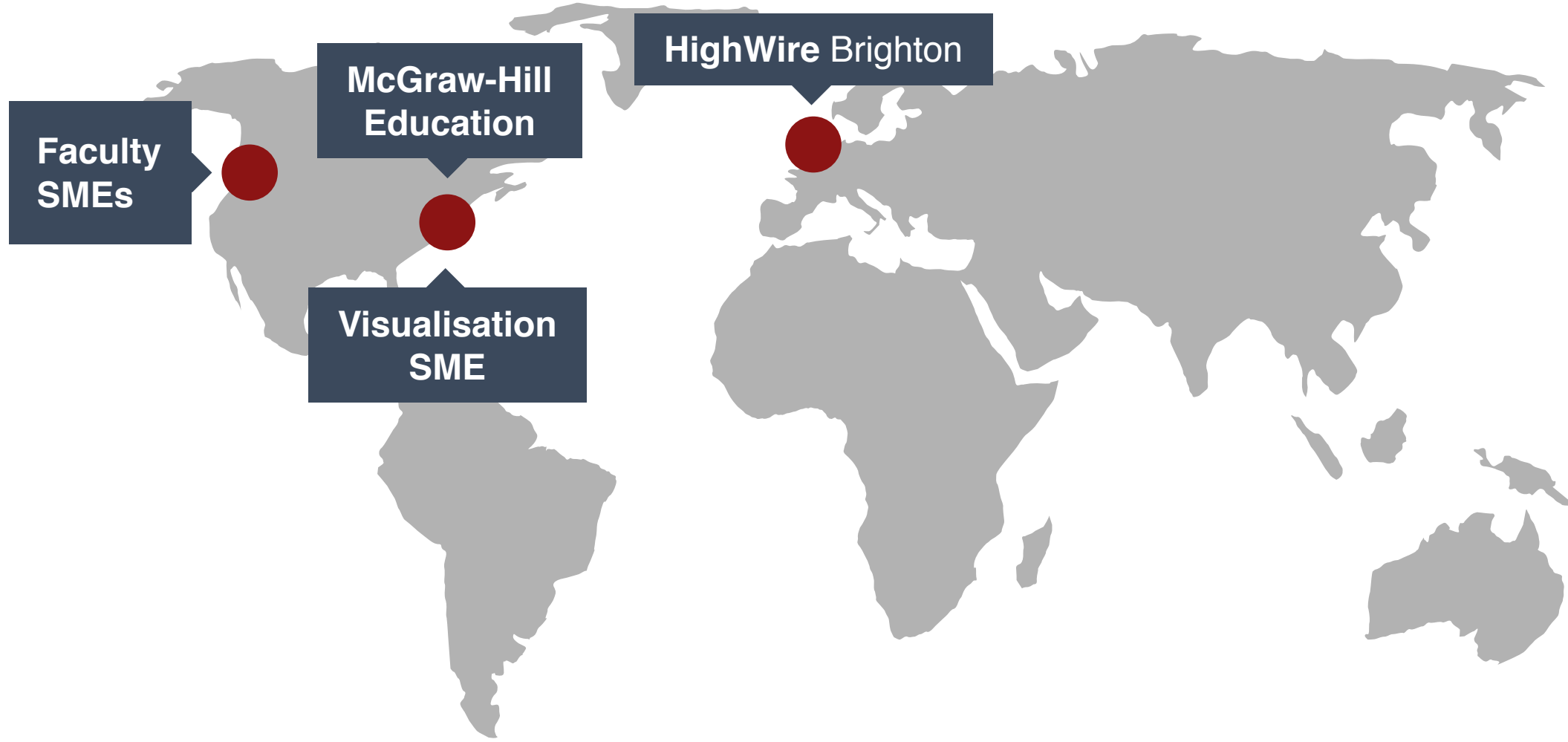
Discovery & definition

The process What we did

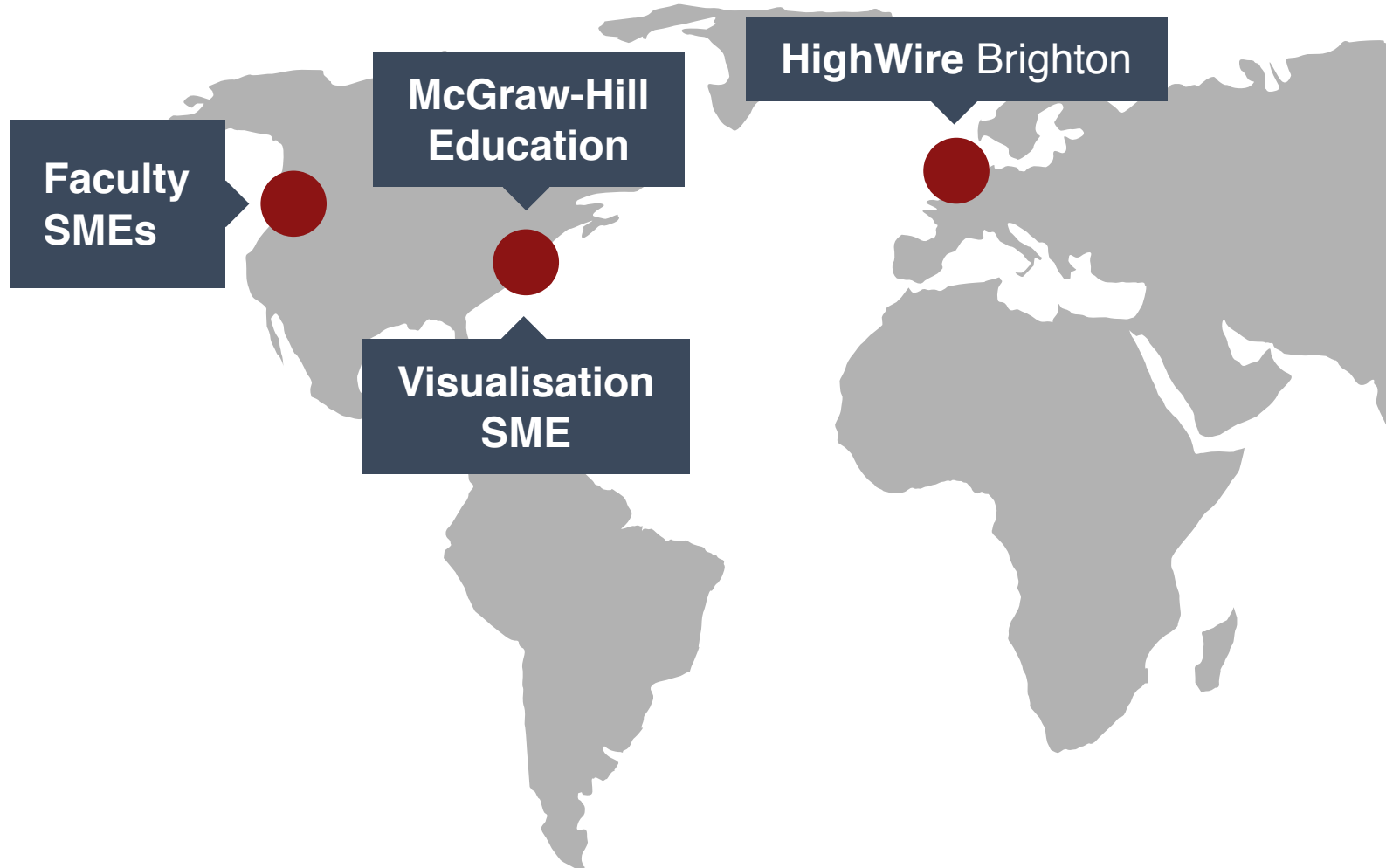


Discovery & definition

The process Who was involved



The process How we worked



Fostering collaboration across continents

- Real-time conversations
- Frequent demonstrations
- Agile methodology with quick cadence

The process Design challenges

Make complex features easy to use

- Support a range of subject matter expertise
- Support first-time, occasional and power users

Integrate DataVis into AccessEngineering

- Allow seamless access
- Maintain platform performance
- Develop distinct yet integrated brand / identity

Data-centric to user-centric

Landing page evolution

Iteration 0

**Landing page
not defined**

Iteration 1

Explore material properties

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse.

Find materials, properties or groups e.g. aluminium, density, physical

Choose

Materials

- ▶ [By classification](#)
- ▶ [By structure](#)
- ▶ [By process](#)

Properties

- ▶ [Property group](#)
- ▶ [Property group](#)
- ▶ [Property group](#)
- ▶ [Property group](#)
- ▶ [Property group](#)

Visualize these

Materials



Properties



Visualize

[Reset](#)

View showcase documents

- [Showcase document title](#)
- [Showcase document title](#)
- [Showcase document title](#)
- [Showcase document title](#)
- [Showcase document title](#)

Iteration 2

MPVT header

Context-dependent MPVT user interface elements

[Preferences](#)

Explore material properties

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Choose materials

Choose properties

Showcase documents

[Showcase document title](#)

[Showcase document title](#)

[Showcase document title](#)

[Showcase document title](#)

[Showcase document title](#)

Iteration 3

MPVT header

[My documents and settings](#)

Explore material properties

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Exploring **all materials** and **0 properties**

Choose materials

Choose properties

Showcase documents

Showcase document title

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga.

[Hide description](#)

Showcase document title

[Show description](#)

Showcase document title

[Show description](#)

Showcase document title

[Show description](#)

Showcase document title

[Show description](#)

[View all showcase documents](#)

Iteration 4

MPVT header

[Home](#)
(Explore material properties)

[My documents and preferences](#)

Explore material properties

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Get started

Look up a value

Get started as an advanced user

Showcase

Showcase document title

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga.

Showcase document title

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Showcase document title

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[View all](#)

Iteration 5

MPVT header

[Home](#)
(Explore material properties)

[My documents and preferences](#)

Explore material properties

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Get started

Look up a property value

Showcase

Showcase document title

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Showcase document title

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Showcase document title

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[View all](#)

Iteration 6

MPVT header

[Home](#)

[My documents and preferences](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Tools and a curated database of engineering materials and their properties.
Explore, compare, visualize, select, create.

Explore material properties

Look up a property value

Showcase

Showcase document title

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga.

Showcase document title

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga.

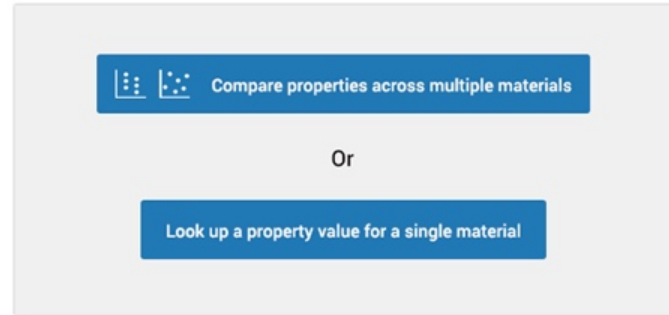
Showcase document title

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga.

[View all](#)

Iteration 7

Explore the **DataViz** database of materials and their properties.
Find and compare materials using our visualization tool, then save your work and share with others.



Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

[View Visualization](#)

[View all sample visualizations](#)



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Iteration 8

Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

 Compare properties across multiple materials

 Look up a property value for a single material

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

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Built by Semantico

Iteration 9

Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

 Compare properties across multiple materials

 Look up a property value for a single material

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

[View Visualization](#)

[View all sample visualizations](#)



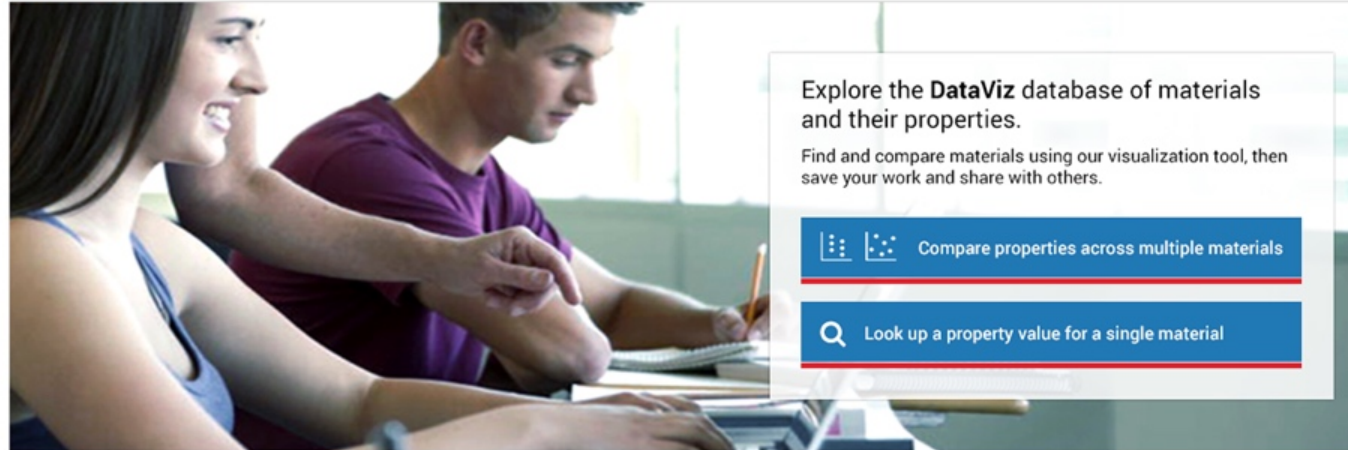
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
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Iteration 10



Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

 Compare properties across multiple materials

 Look up a property value for a single material

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

[View Visualization](#)

[View all sample visualizations](#)



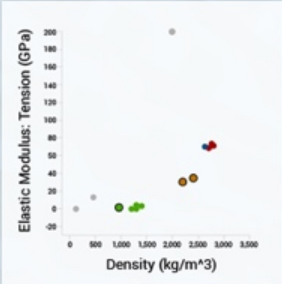
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Iteration 11



The scatter plot shows Elastic Modulus (GPa) on the y-axis (ranging from -20 to 200) and Density (kg/m³) on the x-axis (ranging from 0 to 3500). Data points are clustered at various density values, with a notable outlier at approximately (2000, 200).

Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

[Compare properties across multiple materials](#)

[Look up a property value for a single material](#)

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

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Iteration 12

Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

[Compare properties across multiple materials](#)

[Look up a property value for a single material](#)

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals Visualizations illustrating the various mechanical properties for metals View Visualization	Bicycle Case Study Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties View Visualization	Comparison of Physical Properties Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials View Visualization
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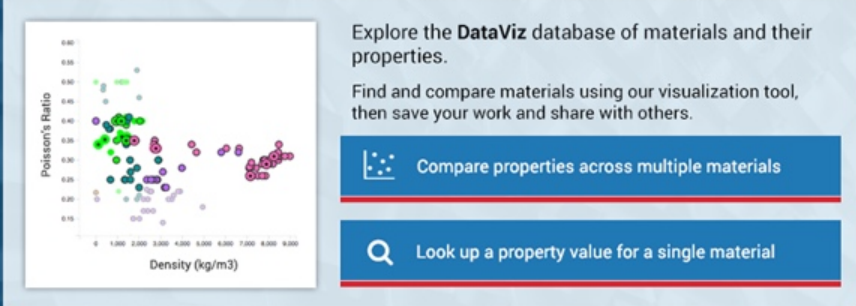
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Iteration 13



Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

- Compare properties across multiple materials
- Look up a property value for a single material

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

[View Visualization](#)

[View all sample visualizations](#)



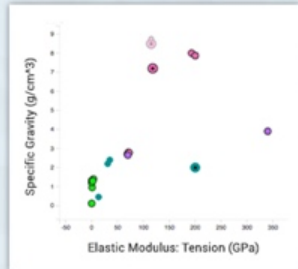
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Iteration 14



Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

 Compare properties across multiple materials

 Look up a property value for a single material

Elastic Modulus: Tension (GPa)	Specific Gravity (g/cm ³)
0	2.7
10	2.8
20	2.9
30	3.0
40	3.1
50	3.2
100	3.5
150	3.8
200	4.1
250	4.4
300	4.7

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals

Visualizations illustrating the various mechanical properties for metals

[View Visualization](#)

Bicycle Case Study

Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties

[View Visualization](#)

Comparison of Physical Properties

Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials

[View Visualization](#)

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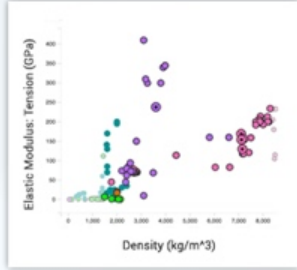
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Iteration 15



Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

[Compare properties across multiple materials](#)

[Look up a property value for a single material](#)

Density (kg/m³)	Elastic Modulus (GPa)
1.0	10
1.5	20
2.0	30
2.5	40
3.0	50
3.5	60
4.0	70
4.5	80
5.0	90
5.5	100
6.0	110
6.5	120
7.0	130
7.5	140
8.0	150

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals	Bicycle Case Study	Comparison of Physical Properties
Visualizations illustrating the various mechanical properties for metals View Visualization	Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties View Visualization	Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials View Visualization

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Iteration 16

Explore the **DataViz** database of materials and their properties.

Find and compare materials using our visualization tool, then save your work and share with others.

[Compare properties across multiple materials](#)

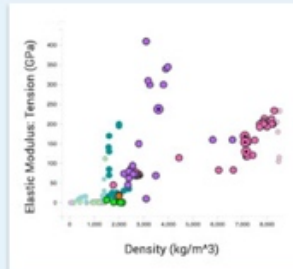
[Look up a property value for a single material](#)

Sample visualizations Get started with one of our sample visualizations or take a look at our [video tutorial](#) on tips for how to use this tool.

Mechanical Properties of Metals	Bicycle Case Study	Comparison of Physical Properties
Visualizations illustrating the various mechanical properties for metals View Visualization	Visualizations that can be used to select appropriate materials for building a bicycle based on their material properties View Visualization	Visualizations illustrating the comparison of physical properties across different categories of materials: metals, polymers, ceramics, composites and advanced materials View Visualization


[View all sample visualizations](#)


Iteration 17



Use **DataVis** to visually explore materials and their properties.

Find and compare material property data, then save your interactive visualizations and share with others.

 Compare properties across multiple materials

 Find a property value for a single material

Welcome to DataVis!

Get started with our [video tutorial](#) or use one of the DataVis projects below. These faculty-created, active learning projects can be used as-is, or copied and customized for your own course.

DataVis Project Library

Materials: More than a Name

This project investigates materials with similar names (aluminum, alumina, alumina (sapphire)), focusing on the fundamental differences between them. *Designed by Dr. Susan P. Gentry, University of California, Davis.*

[Open Project](#)

Influence of Material Properties

This project investigates the influence of material properties in basic analysis and design for a first course in Strength of Materials. *Designed by Luke Lee, University of the Pacific.*

[Open Project](#)

Properties for Aerospace Structures

This case study looks at properties for Aerospace applications. *Designed by Kathleen Kitts, Western Washington University.*

[Open Project](#)

[View all sample visualization projects](#)



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[Release Notes](#)

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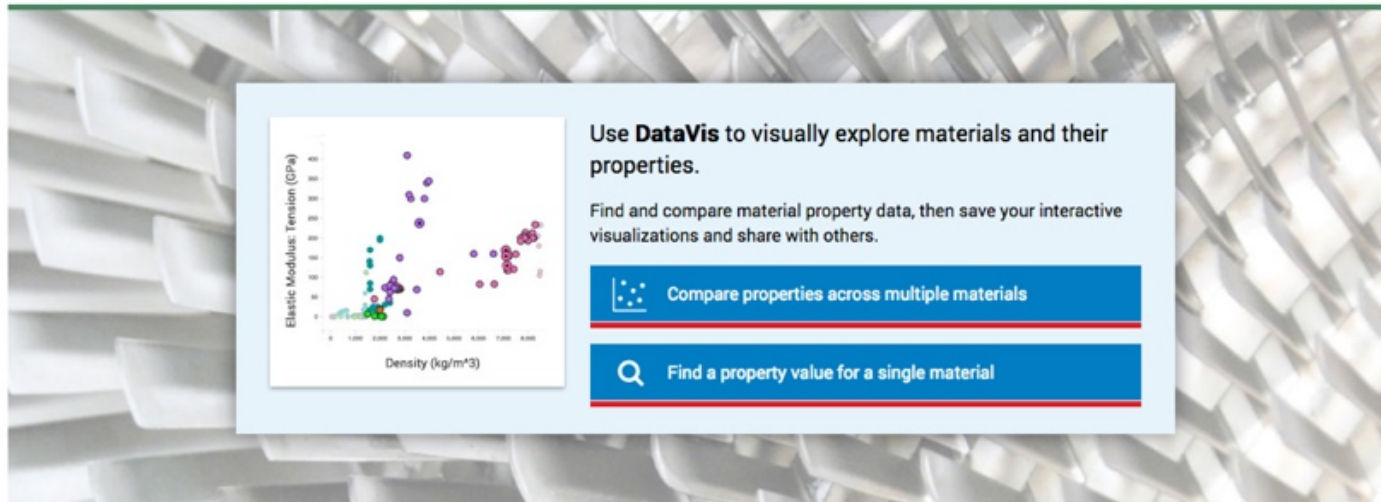
Integrated
identity

Help for
new users

Seamless
access

Key user
tasks

Example
applications



Use **DataVis** to visually explore materials and their properties.

Find and compare material property data, then save your interactive visualizations and share with others.

- Compare properties across multiple materials
- Find a property value for a single material

Welcome to DataVis!

Get started with our [video tutorial](#) or use one of the DataVis projects below. These faculty-created, active learning projects can be used as-is, or copied and customized for your own course.

DataVis Project Library

Materials: More than a Name	Influence of Material Properties	Properties for Aerospace Structures
<p>This project investigates materials with similar names (aluminum, alumina, alumina (sapphire)), focusing on the fundamental differences between them. <i>Designed by Dr. Susan P. Gentry, University of California, Davis.</i></p> <p>Open Project</p>	<p>This project investigates the influence of material properties in basic analysis and design for a first course in Strength of Materials. <i>Designed by Luke Lee, University of the Pacific.</i></p> <p>Open Project</p>	<p>This case study looks at properties for Aerospace applications. <i>Designed by Kathleen Kitts, Western Washington University.</i></p> <p>Open Project</p>

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[Release Notes](#)

Launched **on time** in July 2016

Received **positive feedback**

Won a **2017 PROSE award**



2012

AccessEngineering



2017

DataVis

“I like **how easy it is** to compare and contrast the properties”

“**[DataVis]** helped me better understand **the differences in the materials**”

bit.ly/mhedatavis

Thank you.