This project will unite the tech and startup industries as well as continue the necessary intermingling and discussion between designer and user. The project will bring equity to the city of Amsterdam as well as create a bridge to allow for access to the newly renovated Marineterrein.
**STARTUP SCENE**

**WHY STARTUPS?**
- **Amsterdam is considered the Silicon Valley of Europe.**
- **Cheaper than London and better quality of life than Berlin.**
- **Government Supported Startup Visa**
- **Demand will only increase**

**CURRENT STARTUP SPACES:**
- **Spaces Herengracht**
- **Rockstart**
- **The Startup Orgy Munt Square**
- **Hackers & Founders**
- **WeWork Metropool**
- **Spaces Vijzelstraat**
- **WeWork Weteringschans**
**Tech Scene**

**Why the Tech Scene?**
- Most of the Tech Companies are located farther South.
- Semi permanent display of new and innovative technology.
- Gain inspiration and encourage collaboration.

**Tech Companies:**
- Google
- Microsoft
- Samsung
- Apple
SITE LOCATION

MARINETERREIN
AMSTERDAM, NETHERLANDS
MARINETERREIN
- CURRENTLY OCCUPIED BY THE NAVY
- WILL BE FULLY TRANSITIONED TO PUBLIC IN 2018.
- UNDER NEW DEVELOPMENT FOR NEXT 10 YEARS
- THE MUNICIPALITY WANTS PROGRESSIVE AND INNOVATIVE FIRMS THAT WILL HELP TO GIVE BACK TO AMSTERDAM

OPEN TO THE PUBLIC
CLOSED TO THE PUBLIC
Each dot represents a place that consistently hosts exhibitions in Amsterdam.

The RAI is the main exhibition center, and is approximately 7 km from the city center.
Site Proximity to Startup Specific Spaces

Spaces Herengracht
Rockstart
The Startup Orgy Munt Square
Hackers & Founders
WeWork Metropool
Spaces Vijzelstraat
WeWork Weteringschans

Each dot represents a place that specifically houses startup companies in Amsterdam.
STARTUP SPECIFIC SPACES CONNECTIONS
URBAN CONTEXT

AMSTERDAM CENTRAAL

Pedestrian Travel
Vehicle Travel
Train Travel
**Reason for Bridge Connection**

**Modern Pont de Vecchio**
- Over the Water
- Offices
- Meeting Spaces
- Walkways

**Better Access to the New Site**
As the site becomes developed, a better bridge will be necessary.
- More fluid
- Unique
- Views
SITE BOUNDARY
HUMAN USES

STARTUP

EXHIBITION

LISTENING
MEETING
WORKING
RESEARCH
PRESENTING
EATING
SITTING
CREATING
**Program Requirements**

- **Office Spaces** (40-60 Units)
- **Semi Permanent Exhibition Hall**
- **Temporary Exhibition Hall**
- **Information Room**
- **Atrium/Lobby**
- **Meeting Rooms/Classroom Spaces** (8-10)
- **Creative/Exploration Space**
- **Lab/Workshop Spaces**
- **Cafe/Restaurant**
- **Lounge/Casual Spaces**
- **Server Room**
- **Lecture Hall**

**Program Requirements**
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<thead>
<tr>
<th>SPACES</th>
<th>SM</th>
<th>CONNECTIONS</th>
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<td>1 LECTURE HALL 1</td>
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<td>2 CREATIVE SPACE</td>
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<td>15 KITCHEN</td>
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<tr>
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<td>23 MEETING 3</td>
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<td>24 MEETING 4</td>
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</table>

Total: 5675 SM
PATHWAYS ON INTERIOR SPACES

- PUBLIC SPACES
- SEMI-PUBLIC SPACES
- PRIVATE SPACES
INTERIOR WITH PATHWAYS

PUBLIC SPACES

SEMI-PUBLIC SPACES

PRIVATE SPACES
EXPLoded AXON
PLAN STARTUP SPACES

TOILETS
WORKSHOP
EXPO/ COMMON SPACES
STARTUP SPACES
CAFE
AUDITORIUM

plan Startup Spaces plan exhibition area
**Why Carbon Fiber?**

Typically used in **High Performance industries, such as Aerospace, Automobile, Nautical and other industries where a high strength to weight ratio is critical.**

Standard, Intermediate, High and **UltraHigh Modulus** carbon fibers have a tensile modulus of **72.5 - 145.0 million psi (500 million - 1.0 billion kPa)**

In comparison, steel has a tensile modulus of about **29 million psi (200 million kPa).**

Thus, the strongest carbon fibers are ten times stronger than steel and eight times that of aluminum, not to mention much lighter than both materials, 5 and 1.5 times, respectively.

Additionally, their fatigue properties are superior to all known metallic structures, and they are one of the most corrosion-resistant materials available, when coupled with the proper resins.*

* Zoltek
CARBON FIBER IN ARCHITECTURE

APPLE CAMPUS 2 THEATRE

DESIGNED BY FOSTER + PARTNER IN THE UK.
120,000 SF (11,148 SM) THEATRE WITH A 1000 SEAT CAPACITY IS SUBTERRANEAN.

THE ROOF IS MADE OF 44 RADIAL PANELS, EACH 70 FEET LONG AND 11 FEET WIDE.

THE FULLY ASSEMBLED ROOF WEIGHS ABOUT 80 TONS. THE EQUIVALENT FOR A CONCRETE ROOF 6 INCHES THICK WOULD WEIGH APPROXIMATELY 539 TONS, WHICH IS ABOUT 7 TIMES AS MUCH.

DESIGNED TO REST ON STRUCTURAL GLASS PANELS IN ORDER TO NOT HAVE ANY COLUMNS IN THE INTERIOR.
**Carbon Fiber Precedents**

**Research Pavilion 2013-14, Institute for Computational Design, Stuttgart**
- Study of how woven carbon fiber could be used as a structural component.

**Technique:**
- The study of a beatle shell inspired the form and weaving pattern.
- Fiberglass was woven around two jigs on robots to create parts.
- Carbon fiber was used to reinforce areas with high stress loads.
- Pieces assembled to create the pavillion.

**Pros:**
- Light weight and strong.
- Components are computationally designed and robotically produced.

**Adaptations:**
- Complete robotic construction.
- Develop watertight skin that is integrated in the woven fibers.
Component Piece Axon
Wax Coating
CARBON FIBER AND RESIN APPLIED 90, 45, 90
Vacum Bag Curing
1:5 Detail Carbon Fiber to Concrete

- 3 mm Carbon Fiber Composite
- EPS Foam
- Epoxy Resin
- Embedded Stainless Steel Bracket
- Poured Concrete Footing
- EPS Foam Footing
- Curved Tempered Glass
- Silicone Joint
- Rubber Block
- Aluminum Fastener
- Stainless Steel Bolt
- Water Tight Barrier
- Flock (Flocked Cotton) Epoxy
- Carbon Fiber Tape
- Stainless Steel Connection
- EPS Foam
1:5 Detail Carbon Fiber to Glass

1CM Curved Glass
Water Tight Barrier
Aluminum Fastener
Rubber Block
Stainless Steel Bolt

EPS Foam
Epoxy Resin
3MM Carbon Fiber Composite

Carbon Fiber Tape
Flox (Flocked Cotton) Epoxy
Stainless Steel Connection
3MM Carbon Fiber Composite
Epoxy Resin
EPS Foam
THANK YOU