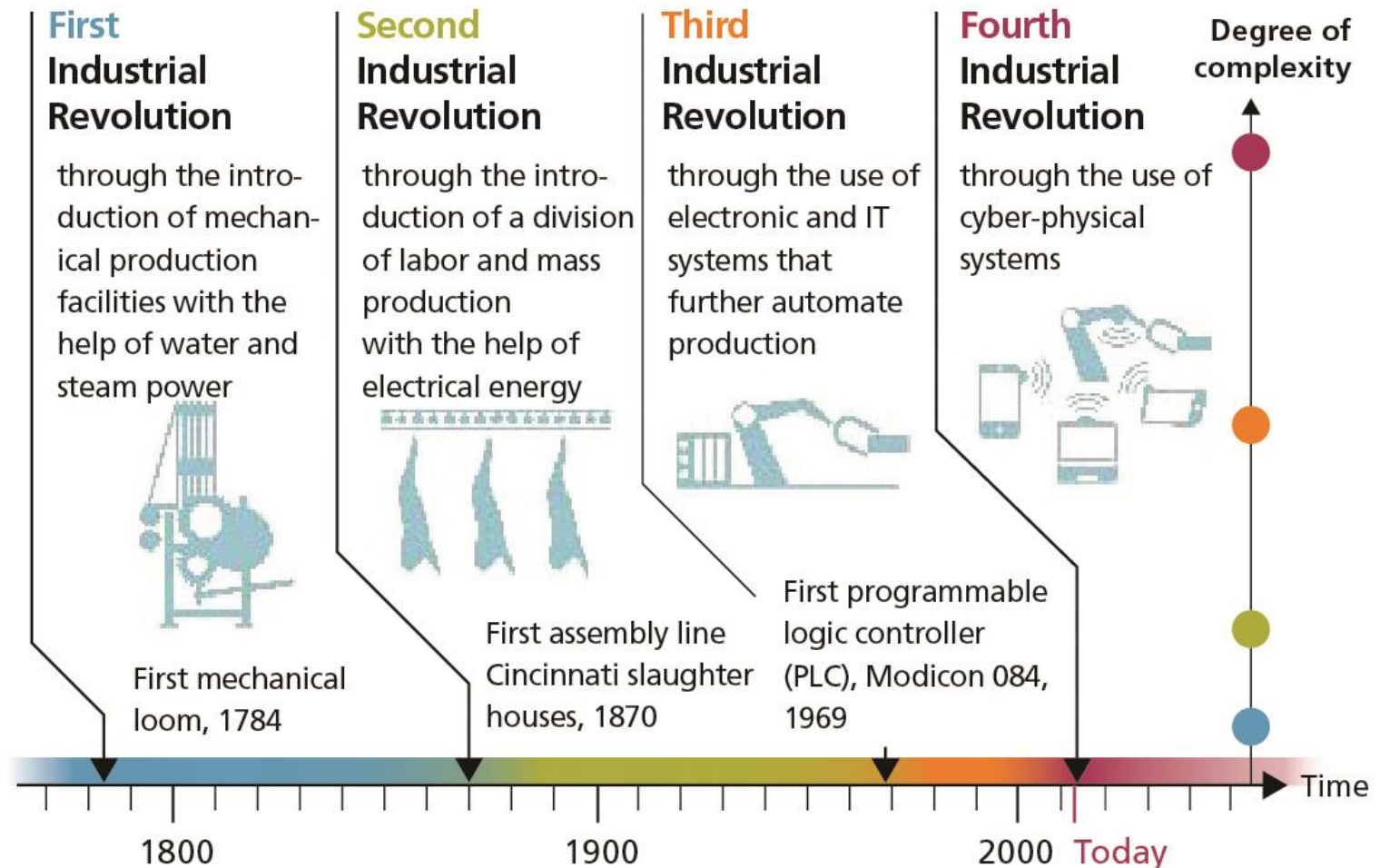




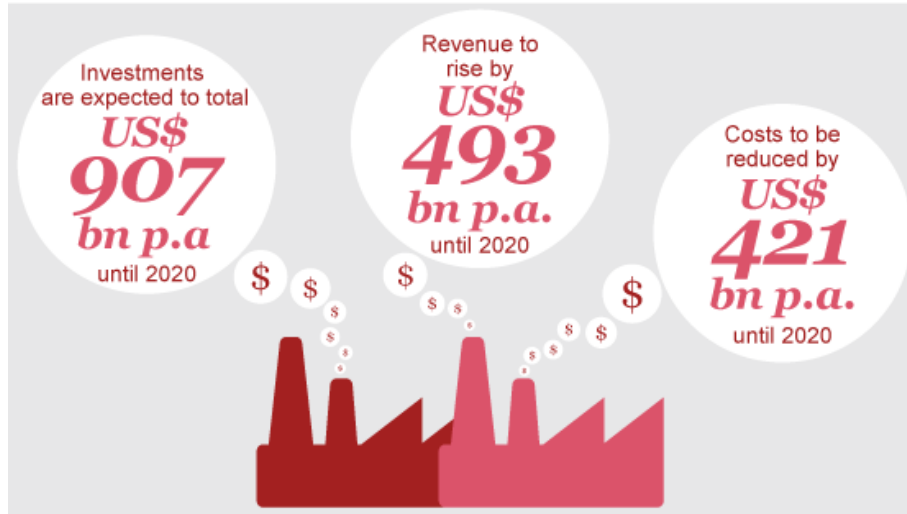
# ***IDEAbuilder***

The future of building, building the future.

# Industry 4.0 in AEC



# \$900 Billion for Industry 4.0 versus \$128.5 billion VC investments



Source: PWC, Industry 4.0,  
Building the Digital Enterprise, 2016

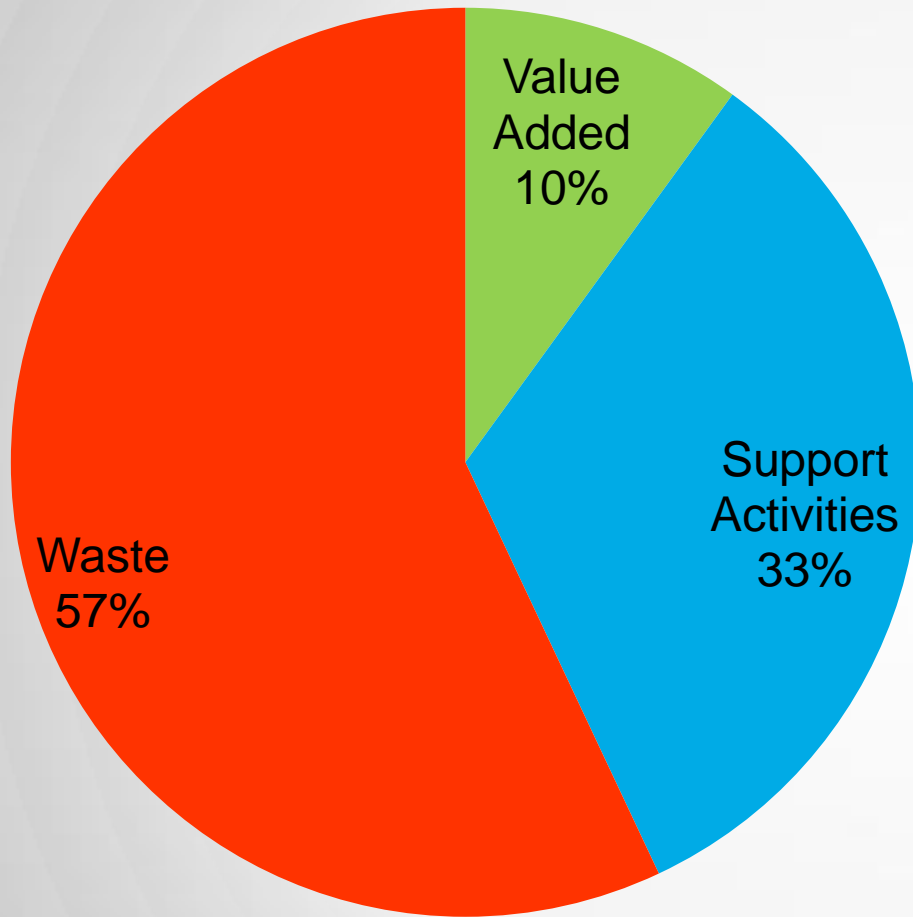


Source: VentureBeat

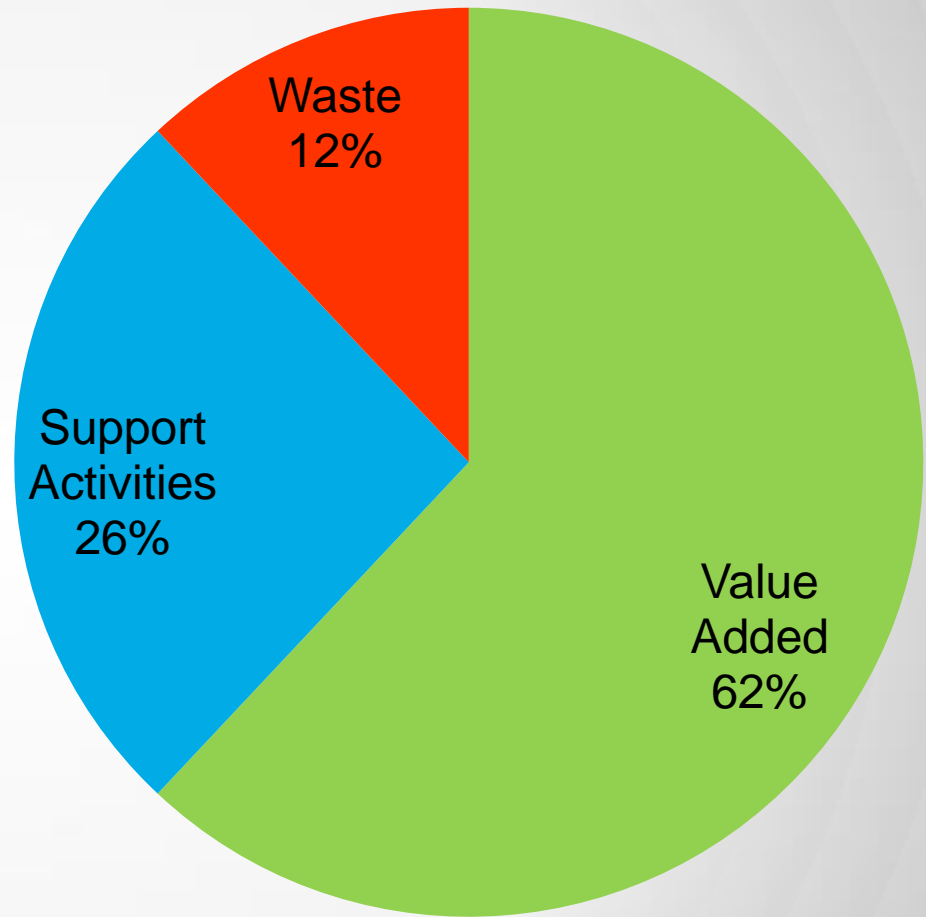
# Digitizing the \$217 Trillion Global Real Estate Industry

- Market Size and Opportunity
- State of the Industry – Inefficient and Change Resistant
- Technology and global best practices
- Washington State – Competitive and Comparative Advantages – Epicenter of Innovation?
- Who and How – Hacking together tech and AEC.

# Why Digitization?



**Construction**



**Manufacturing**

Source: US Bureau of Labor and Statistics

# Pacific Northwest Opportunity

- World's Largest Producer, Exporter, Importer and Market of Wood.
- Majority of wood used for Housing
- Washington and Oregon are the largest wood producing states – BC the biggest province.
- Vancouver, Seattle and Portland are the fastest growing and appreciating cities in North America.

# Wooden Houses

## 90% Market Share in U.S.

New housing is the biggest market for wood.

About one third is used for repairs and remodeling.

According to the Western Wood Products Association, **over 90% percent of American homes are built with wood.**

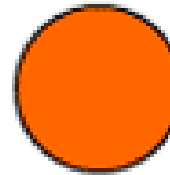
In Europe approximately 10% of homes are wood-framed, except in Scandinavia where wood is more common.



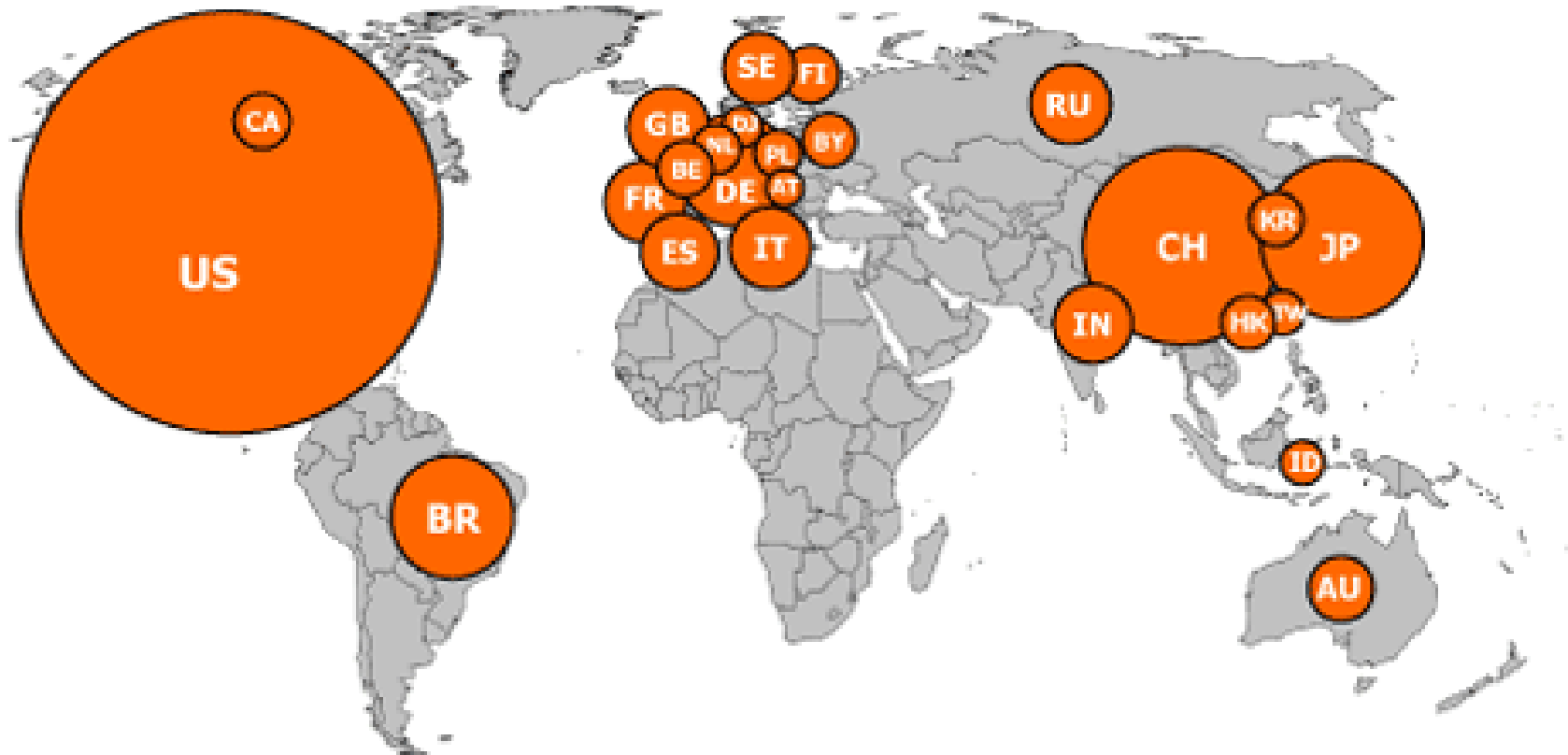
18-Story Brock Commons in Vancouver, BC  
Photo taken September 16, 2016.

# Consumption of Wood

Key:



This shape represents 100 million cubic meters. Round Wood Equivalent volume. Areas shown are directly proportional to volume. Top 25 countries shown.

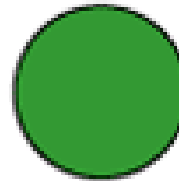


Source: "State of the World's Forests 2001" FAO; Eurostat World Trade Atlas

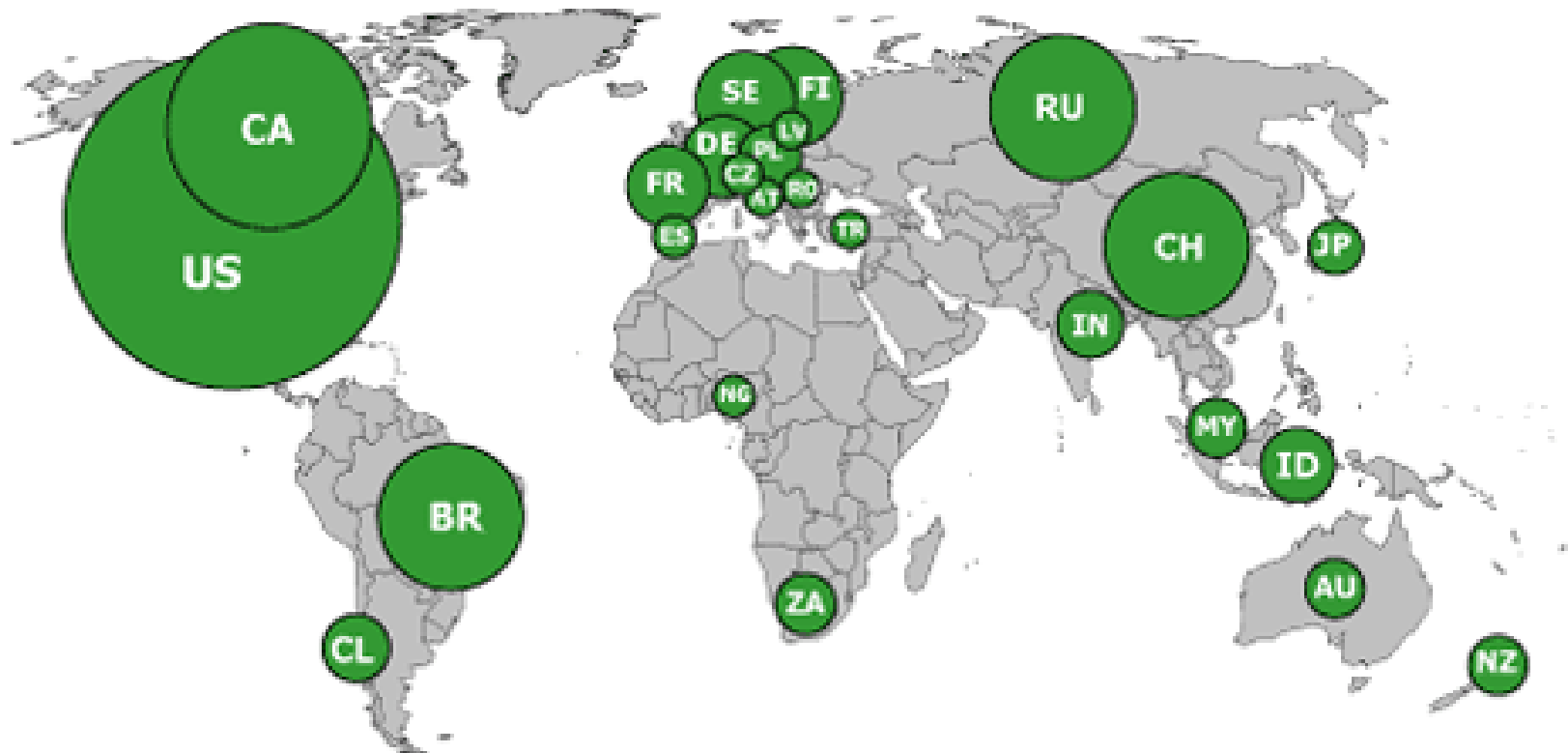


# Production of Wood

Key:



This shape represents 100 million cubic meters. Areas shown are directly proportional to volume. Top 25 countries shown.



# Krusi 5 Axis Wood CNC



# TED Pop-Up Theater

Architect: Rockwell Group



# AEC Hackathons

## Architecture, Engineering and Construction

### Past AEC Hackathons

Silicon Valley (3)  
Seattle (3)  
New York City (2)  
Chicago (2)  
Dallas  
Southern California (2)  
London (2)  
Helsinki (3)  
Philadelphia  
Singapore (2)  
Austin  
Stamford, Connecticut  
Paris

### Future AEC Hackathons

Singapore  
Shanghai  
Silicon Valley  
Denmark-Sweden  
Helsinki  
Seattle  
London  
New York City  
Southern California  
Munich  
Egypt  
Austin  
Singapore  
Ireland  
Washington DC



# Digital Fabrication Network

dFab Net is an international network comprised of digital fabricators; hardware and software suppliers; and professional designers, academics, and researchers, all working together to improve processes and accelerate digital fabrication.



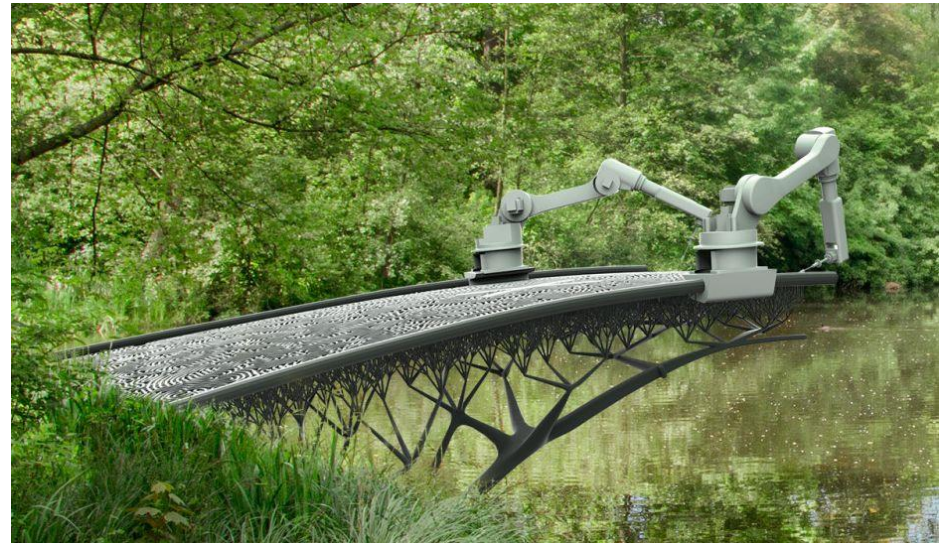
**McNEEL & Associates**  
North America



# Digital Fabrication – Material Agnostic



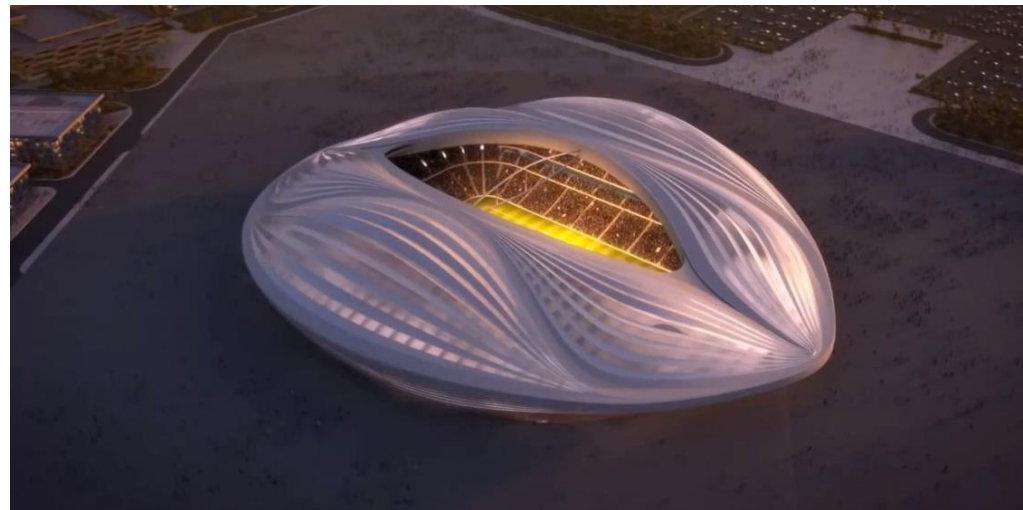
SFMOMA - Composites



Robotically Printed Metal Bridge, Holland



Wooden Museum, France



Metal Stadium, Dubai