Technology	Category	Depends On	Technology
Complex Parts	3D Printing	BIM	Complex Parts
Drones	Networks	robotics	Drone
Revit Families	BIM	BIM, Databases	Revit
Virtual Reality	Visualization	Software, BIM, Databases	Virtual Reality
Dynamo	BIM		
Robotics	Robotics	Coding	AI
Sensors	Databases	Input	
Generative Design Programs	Software	parameters	
AI	Software	Computing Power	Machine Learning, Deep Learning
Relational Databases	Databases	Storage capacity, software, computing	Cloud, data centers, software
3d Printing	3D Printing	Software, Hardware	
Automated Construction	Robotics	AI, sensors, software, databases	
Tech Adapters	Software	Software, databases, coding	

Building	Group Letter A-E
High Rise Office	E
Teaching Hospital	B
Pharmaceutical Plant	~~A~~
Emergency Command Center	C
Data Center	d

5 [1]	Programming [2]	Design	Bidding & Approval	Construction	Move-In & Commissioning	Occupancy	Renovation	Demolition
Owner (e.g.)	5	4	5	3	4	4	5	4
Renters	1	2	1	1	4	5	3	1
Users	2	1	1	3	2	5	3	1
Manager	3	1	1	2	4	1	1	1
Architect	5	5	4	2	3	1	3	2
Structural Engineer	4	5	5	3	2	2	2	1
Mechanical Engineer	5	5	4	3	2	4	3	1
Electrical Engineer	5	5	4	3	2	1	3	1
Other Engineers	5	5	2	3	2	1	3	2
Construction Manager	4	4	2	5	5	5	5	5
Fabricators	1	3	1	5	1	1	3	1
Subcontractor	2	4	5	5	5	1	3	3
Code Officials	5	4	2	4	5	5	3	4
Financial	3	1	5	5	5	5	3	3
Maintenance	3	2	1	5	4	5	3	1
Utilities	2	5	1	4	3	3	2	4

Put in the 2-3 most important Stakeholders.	High Rise Office	Teaching Hospital	Pharmaceutical Plant	Emergency Command Center	Data Center	
Group Responsible	**Group: E**	**Group: B**	**Group: A**	**Group: c**	**Group: d**	
Programming [3]	Owner/Architect	Hospital Board; community members ;	Owner/Architect/ Engineer	Electrical Engineer	Engineer/Owner	Programming [4]
Design	Architect/Engineer	Architect/Engineers;	Owner/Architect/ Engineer/CM	Architect, Engineer	Architect	Design
Bidding & Approval	Construction Manager/Contractors	Arch/MEP Engineers; Structural Eng; contractors/construction; hospital board; code officials	Code Officials/FDA/ Contractor/Owner	Engineers, Owner, City Officials	Owner/Code Officials/Contractor	Bidding & Approval
Construction	Contractors/Engineers	Contractors/construction; Arch/MEP Engineers; Hospital Board; code officials	Code Officials/FDA/ Contractor	Code Officials, Contractor	Contractor/Owner	Construction
Move-In & Commissioning	Owner	Hospital Board;Doctors/employees; patients; code officials	Owner/CM/Contractor/ Occupant	Owner	owner/inspector/contractor	Move-In & Commissioning
Occupancy	Owner/Code Officials	Hospital Board;Doctors/employees; patients;community members; educational institutions	Code Officials/FDA/Owner/ Occupant	Owner, Code Officials	renter/owner	Occupancy
Renovation	Architect	Architects;Engineers;Hospital Board; Construction/Contractors	Owner/Architect/ Engineer	Owner, Architect, Engineer	contractor/owner/inspector	Renovation
Demolition	Contractors	Construction/Contractors;Hospital Board; MEP Engineers; Structural engineers; code officials	Owner/Contractor/ Engineer/ Code Officials	Contractor, Owner	contractor/ owner/ inspector	Demolition

Put the 2-3 most important techologies in each phase.	High Rise Office	Teaching Hospital	Pharmaceutical Plant	Emergency Command Center	Data Center	
Group Responsible	**Group: E**	**Group: B**	**Group: A**	**Group: c**	**Group: d**	
Programming [5]	AI, BIM	Virtual Reality; networks; BIM	BIM, Dynamo		AI	Programming [6]
Design	data storage, hvac, BIM	BIM; AI; robotics; building systems controls	Dynamo, BIM, VR/AR		BIM, 3D Drafting AI?	Design
Bidding & Approval		networks; BIM	Dynamo, BIM		BIM, Drafting Software	Bidding & Approval
Construction	BIM, server, data storage	BIM; Networks; sensors; robotics	BIM, Robotics, Databases		BIM, Scheduling Softwares, Robotics/Drones	Construction
Move-In & Commissioning	security, sensors	building systems controls; databases; sensors; networks	Sensors, Networks, BSC		Databases	Move-In & Commissioning
Occupancy	security, sensors, data storage	Robotics; AI ; 3D printing; BIM;	Databases, Sensors, Networks		AI, Sensors, Databases	Occupancy
Renovation	BIM		BIM, Databases, BSC		BIM, Sensors, Scheduling Software, Databases	Renovation
Demolition			Robotics, Databases, Building System Controls		Robotics, BIM	Demolition
	server	sensors	Robotics			
	data storage	AI	Dynamo			
	HVAC	Databases	BIM			
	Roofing	BIM	Sensors			
	Security	Robotics	VR/AR			
	AI	Building System Controls	Databases			
	Sensors	3D Printing	Networks			
	BIM	Networks	Building System Controls			
		Virtual Reality				

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Str	Group: E	Group: B	Group: A	Group: c	Group: d	
	High Rise Office	**Teaching Hospital**	**Pharmaceutical Plant**	**Emergency Command Center**	**Data Center**	Group E
Example	*Engineer - Mitchell*	*Banker - Fry*	*Code Official - Blake*	*Contractor - Palmese*	*Occupant - Bowman*	https://docs.google.com/presentation/d/1iI-4Fi2qWohIZ0cTEvGyOrU3j9jOqVbmv
Stakeholder 1 [7]	Owner - Varsha	Hospital Board - Brian	Brian -Owner/Occupant	Owner- Mika	Owner - Liam	
Stakeholder 2	Engineers - Abigail	Contractors/Construction - Steven	Andre - Engineer/Contractor	Structural Engineer - Amanda	Michael - Engineer	
Stakeholder 3	Architect - Elvira	Patients - Ina	Manon- Architect	Architect- Abdul	Architect - Anchit	
Stakeholder 4	Users - Elvira	Arch/MEP Engineers - Steve	Construction Manager - Spencer	Contractor - Reece	Contractor - Pritesh	
Stakeholder 5	Banker-Dane Bell	Doctors/Employees - Brian	Code & Regulations - Spencer	MEP Engineer - Mika	Banker - Larisa	
Stakeholder 6	Subcontractor-Dane Bell	Educational Institutions - Izzy		Construction Manager - Mika	Occupant - Liam	
Stakeholder 7	Construction Manager	Communities Members - Ina	Brian - Financier	Subcontractor - Amanda	inspector - cory	
Stakeholder 8	Contractor - Elvira	Structural Engineer - Izzy	Banker	Electrical Engineer - Abdul	CM - Madeleine	
Stakeholder 9		General Code Official - Stephen				
Building Chosen [8]	**High Rise Office**	**Teaching Hospital**	**Pharmaceutical Plant**	**Emergency Command Center**	**Data Center**	
Key Technology 1	server	sensors	Robotics	Servers	Server	
Key Technology 2	data storage	AI	Dynamo	HVAC	Data Storage	
Key Technology 3	HVAC	Databases	BIM	Sensors	HVAC	
Key Technology 4	Roofing	BIM	Sensors	Security	Roofing	
Key Technology 5	Security	Robotics	VR/AR	Data Storage	Security	
Key Technology 6	AI	Building System Controls	Databases	BIM	AI	
Key Technology 7	Sensors	3D Printing	Networks		User Interface	
Key Technology 8	BIM	Networks	Building System Controls		Robots	
Key Technology 9		Virtual Reality			Networking	
Presentation URL	Presentation URL	Presentation URL	Presentation URL	Presentation URL	Presentation URL	
	l-4Fi2qWohIZ0cTEvGyOrU3UnzS3h7Vfq5UBl7JDHXH		Issa love story	Emergency Command Cente	data center	
	l-4Fi2qWohIZ0cTEvGyOrU3					

[1] Chose a number for the importance of that stakeholder in each phase.
1= Low
5 =High

[2] The numbers in here are from J. Mitchell, but are NOT absolute. They're here to assist your thinking.

[3] Make this the last choice for a lifecycle phase.

[4] Make this the last choice for a lifecycle phase.

[5] Make this the last choice for a lifecycle phase.

[6] Make this the last choice for a lifecycle phase.

[7] The stakeholder each group member represents go in these cells. Put in the Stakeholder and the class member's name. E.g. Owner - Jim Mitchell

[8] Take from "Building Group Selection Tab"