



ASSEMBLY Show

Design Firms – The Who, What, Why & How

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Overview of Presentation

- Wide variety of design firms out there in the US and internationally
- Varied in service offerings, expertise, experience, size, and capabilities
- Presentation to provide an overview of:
 - Who the various types of design firms are
 - What design firms do
 - Why companies hire design firms
 - How they offer value to customers

The Who – Wide Variety of Design Firms

Types of design firms (related to all kinds of products, equipment and services)

- Product design (physical, durable products)
- Machine design
- Automated systems design
- Electronics design
- Graphics design
- UI/UX (user interface / user experience) design
- Software development
- Web design
- App design



The Who - Product Design Firms

Broad variety of product design firms

- New product design and development
- Industrial design
- Mechanical engineering design
- Electrical hardware, firmware, and/or software
- Product innovation
- UI/UX
- Human factors and ergonomic experts
- Machine and/or equipment design
- Medical product and equipment design
- Manufacturing firms (i.e. contract manufacturers with design teams)
- Design research
- Digital product and service design

The What – What Design Firms Do

Industrial design firms

- Conceptual design
- Aesthetic design and form development
- Human factors and ergonomics
- Product line planning
- Visual brand language development
- Design research (typically qualitative)
- Surface modeling
- Early-stage prototype fabrication
- Concept sketching and rendering
- Digital 3D animations
- UX/UI design
- Broad industry and product experience
- Work on project basis or do all ID work for a client

The What – What Design Firms Do

Mechanical engineering design firms

- Mechanical engineering design
- Design for manufacturing and assembly
- Conceptual design (ideation)
- Feasibility analysis
- Proof-of-concept design and prototyping
- 3D CAD design
- Prototype development (all stages of project)
- Engineering testing
- Early-stage R&D and exploratory development work
- Value engineering
- Problem solving
- Engineering analysis

The What – What Design Firms Do

Electrical engineering design firms

- Embedded systems design (control product operations)
- Electrical system architecture design
- Hardware (HW) design (i.e. PC boards & all electrical HW in a product)
- Software (SW) and firmware (FW) development
- Integrate various components (displays, sensors, motors, etc.)
- Power management (AC/DC)
- Internet of Things
- Connectivity – WiFi / BLE / Cellular
- Electrical certifications (UL / CSA / CE / EMC / FCC)
- Communications systems
- Application development
 - Phone apps (UI/UX)
 - Windows apps (GUI/Comms)

The What – What Design Firms Do

New product design & development firms

- Multiple core competencies, typically including:
 - Industrial design
 - Mechanical engineering
 - Prototype shop
- Several have additional expertise areas, such as:
 - Electrical engineering – HW / FW / SW
 - Market research
 - UI/UX
- Can handle turnkey development of new products
 - Research, white space or concept to production
- Cross-functional teams add value

The Why – Why Companies Hire Design Firms

1. Need to add resources such as manpower quickly
2. Complete programs faster
 - Internal staff members are often juggling multiple projects
 - Key projects frequently run behind schedule
3. Required expertise is not in-house
4. Fresh eyes
 - Different perspectives
 - Creativity
 - Innovation
5. Learn how other teams get things done

The How – How Design Firms Structure Contracts

1. Fixed price
 - Typically for services with less risk to budget
 - Industrial design, for example
2. Time & materials (T&M)
 - Bill by the hour
 - Client covers out-of-pocket expenses at cost or with a markup
 - Projects or phases may start with budgetary estimates
3. Bill hourly with budgetary estimates
 - Similar to T&M with budgetary guardrails
 - Work beyond estimates approved prior to completion
 - Amendments (change orders) documented for scope and budget changes
 - Some clients allow 10% over budget without approval
4. Royalties and IP Ownership
 - Some design firms require level of IP ownership or royalties (negotiated with clients)

The How – How Design Firms are Valued by Clients

1. Speed
 - Get priority projects to market faster
 - Clients can capitalize on emerging opportunities
 - Drive profits, growth, and/or market share
2. Expertise
 - Anything and everything is out there
 - AI, connectivity, UI/UX, ergonomics, emerging technologies, analysis, etc.
3. Innovation
 - Some firms occasionally need fresh eyes and inspiration from outside sources
4. Ramp manpower up and down fast
 - Typically with rapid learning curves

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Q&A

Thanks for participating!

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