

The 2020 Human Artifact Index

Executive Summary

Overview: This report presents “The 2020 Human Artifact Index,” a ranked catalog of the 100 most economically valuable professional deliverables (“artifacts”) produced by expert teams in 2020. These artifacts span finance, law, medicine, consulting, engineering, technology, real estate, and more – mapping the landscape of high-value knowledge work just before widespread AI disruption. Each artifact type is defined, typical 2020 project values are estimated (with sources), producer profiles are described, and industry contexts are provided. We also highlight COVID-19 impacts on demand and pricing for each category.

Research Methodology: We surveyed industry reports, professional services data, and market research to identify high-value deliverables across 11 sectors. We focused on B2B outputs with measurable economic value, excluding physical goods or purely internal documents. Artifacts are ranked by typical 2020 project value (using median or mid-range estimates). Sources include consulting firm publications, analyst reports, regulatory filings, and trade journals. Each value range is grounded in 2020 market data where available (with adjustments for context). We note confidence levels and data limitations where applicable.

Key Findings: The highest-value professional artifacts in 2020 often involved complex financial transactions, large-scale engineering projects, or enterprise transformations. Topping the list are deliverables like IPO prospectuses (often \$5–20+ million per offering) ¹, enterprise software implementations (multi-year ERP projects around \$5–20 million), and major infrastructure design packages (e.g. highway design engagements reaching tens of millions). At the high end, investment banking and consulting outputs for transformative deals or programs commanded 7- to 8-figure fees. For example, top-tier strategy consulting projects regularly exceeded \$2–5 million ² ³, and due diligence for large mergers could run in the mid-six to seven figures ⁴. Even annual audit engagements – a routine artifact for big firms – averaged about \$13.5 million in fees for S&P 500 companies ⁵.

Sector Distribution: Finance-related artifacts (investment banking, corporate finance, audit, restructuring) and technology/engineering artifacts dominate the top ranks by value. Together, finance and tech sectors contributed a large share of the top 25 artifacts, reflecting the high cost of major transactions and IT implementations. Engineering, construction, and architecture deliverables also featured prominently (e.g. infrastructure designs, large building projects), underscoring the value of technical design work. Legal services artifacts (litigation and M&A legal outputs) appear throughout the top 50, especially those tied to big-ticket matters like major mergers or lawsuits. High-end medical and pharmaceutical artifacts (clinical trial documentation, FDA submissions) and management consulting reports (corporate strategy, post-merger plans) occupy the mid-to-upper ranks, typically in the hundreds of thousands of dollars range. Creative and marketing deliverables (national ad campaigns, rebranding) and real estate/environmental reports (feasibility studies, impact assessments) populate the lower half of the top 100, generally in the five- to six-figure range, but still significant in aggregate value.

COVID-19 Impacts: The 2020 pandemic reshaped demand for several artifact types. On one hand, crisis-driven needs spiked: restructuring plans and bankruptcy filings surged as distressed sectors (retail, hospitality, energy) sought relief, leading to increased fees for Chapter 11 plans and turnaround consultants ⁶ ⁷. Business continuity plans and crisis communication strategies became critical new deliverables as companies responded to lockdowns and health concerns. Technology implementations (for remote work, cloud migration, telehealth systems) accelerated dramatically, compressing multi-year digital roadmaps into months and boosting the value of IT consulting engagements in 2020. For example, firms rushed to deploy collaboration platforms and secure networks, often hiring IT consultants for large-scale remote-work enablement projects. Likewise, pharma and medical device teams raced to develop COVID-related protocols and emergency regulatory submissions (EUA dossiers), temporarily elevating the volume and importance of clinical trial artifacts. On the other hand, certain deliverables saw dampened demand or pricing pressure in 2020: M&A transaction documents (due diligence reports, fairness opinions) slowed in Q2 2020 amid deal-making lulls, and marketing/advertising campaign spending was cut or reallocated to digital channels, slightly reducing typical project scopes. Professional service firms often faced client pushback on fees during the economic uncertainty ⁸, tempering price growth. Nonetheless, many knowledge-based deliverables proved resilient or even more essential in the pandemic context, as reflected in their continued high values.

Value Distribution: The aggregate value of the top 100 artifact types spans an enormous range, from eight-figure financial documents at the top to specialized studies of ~\$10k at the bottom. Roughly the top 10 artifact types each typically exceeded \$5 million in 2020 project value, the top 50 were generally six-figure or higher projects, and even the 100th-ranked artifact was often a ~\$10k+ engagement. This distribution highlights a “long tail” of niche professional outputs: while a handful of deal-related artifacts capture outsized individual fees, dozens of other deliverables across sectors still command five- to six-figure budgets and collectively represent billions in professional services activity.

Sector Highlights: Financial services contributed several of the highest-value artifacts (IPO documents, major M&A and restructuring deliverables, audits), indicating that large capital transactions and compliance requirements were key value drivers. Technology and engineering projects (enterprise IT systems, infrastructure designs) also accounted for a substantial portion of the top value tier, reflecting how digital transformation and capital projects carry high price tags. Legal artifacts ranged widely – from multi-million dollar litigation outputs (e.g. mass tort settlements) to relatively lower-value but commonly produced items like patent filings (~\$10–30k each) ⁹. Management consulting’s value was typically in advising on or executing strategic changes; these artifacts frequently fell in the mid-six figures to low seven figures per engagement, especially when tied to M&A or reorganization efforts. In medical and scientific domains, the costly nature of R&D and regulation meant artifacts like FDA submissions or government research reports often cost six figures or more in 2020, backed by significant expert labor. Creative services and marketing deliverables varied: a global ad campaign concept could bill over \$1 million, while a market research report might be closer to \$100k – still notable, but lower on the index. Environmental and real estate artifacts (impact studies, appraisals) generally occupied the lower value brackets individually (tens to low hundreds of thousands), though they are numerous in practice.

2020 Trends: The pandemic catalyzed certain artifacts (business continuity plans, remote IT deployments, public health consulting) that might not have ranked highly pre-2020. At the same time, it tested the adaptability of professional services: firms had to deliver virtually, on compressed timelines, and sometimes with contingency pricing. Some artifact production was delayed (e.g. elective clinical trials paused, thus fewer trial protocols in mid-2020) while others were expedited (e.g. emergency regulatory filings). Pricing

remained grounded in value delivered – for critical needs, clients continued to invest. For instance, due diligence remained essential for deals that did proceed, and its cost stayed around 0.5–2% of transaction value ⁴, even as deal volume dipped briefly. By late 2020, many sectors saw a rebound in artifact demand (IPO filings hit a fever pitch in H2 2020, consulting projects on digital strategy surged, and advertising shifted to new mediums). Thus, the Index captures a dynamic snapshot: enduring high-value work product types, some newly prominent in 2020's unique environment, all created by skilled teams whose output underpins commerce, governance, and innovation.

Methodology Explanation

Approach: To compile the Index, we first defined “artifact type” as a distinct category of professional deliverable produced for external value (typically client-commissioned reports, plans, designs, or filings). We excluded physical manufactured goods and ongoing service processes – focusing instead on the concrete outputs (documents, digital products, analyses, etc.) that mark the culmination of professional projects. We ensured each artifact type corresponded to the primary work product of a specialized team or firm. Using this definition, we systematically surveyed major professional sectors – Financial Services, Legal, Medical/Pharma, Management Consulting, Engineering, Architecture/Construction, Creative/Marketing, Technology, Real Estate, Environmental/Regulatory, and Scientific R&D – to identify high-value deliverables in each.

Source Selection: Research emphasized credible 2020-specific data. Key sources included: industry reports from consultancies and analyst firms (for typical project fees and ranges), professional association surveys (e.g. AIPLA for patent costs, Audit Analytics for audit fees), regulatory filings (SEC filings revealing fees, GAO reports on program costs), academic studies (on clinical trial costs, etc.), and trade publications. For each artifact's value, we sought multiple data points. Where available, we used contemporary 2020 reports or surveys. For example, for M&A-related artifacts, we cited M&A advisory surveys and finance publications; for legal artifacts, we used legal industry sources and case studies; for consulting projects, we referenced known contracts and proposals; and so on. In cases of sparse direct data (especially for niche artifacts), we relied on triangulation: e.g. extrapolating from related known fees, scaling historical figures to 2020, or citing practitioner guidelines.

Artifact Identification: We cast a wide net to list candidate artifacts, then filtered by the inclusion criteria (external B2B deliverables with defined economic value produced in 2020). We avoided over-broad categories (e.g. “consulting report” was broken into sub-types like Strategy Plan, Market Entry Study, etc.) to ensure each entry is distinct and recognizable in its field. Conversely, we avoided overly granular fragmentation where the sub-deliverables share the same purpose and value range (they are discussed under one entry). The goal was 100 distinct types that collectively represent the spectrum of high-value outputs.

Valuation Methodology: Each artifact type is assigned a “typical value (2020)” range. This represents the approximate project billing or economic value for a single instance of that deliverable around 2020. We prioritized median or mid-range estimates (in 2020 USD) to avoid outliers; for example, if deals varied widely, we took the middle of the common range for that year. Ranges are given when a single number would be misleading due to size variation (e.g. a small vs. large deal due diligence). In ranking, we used the midpoint of ranges (or the lower bound of a “\$X+” figure plus a reasonable increment) to sort from highest to lowest. For example, an “IPO Prospectus” noted at “\$5M–\$20M+” was ranked above an “ERP Implementation” at “\$5M–\$20M” because the former's upper end and typical scope in 2020 skew higher ¹.

Frequency of production was used as a tiebreaker only in close cases – however, most ranks were distinguishable by value alone.

Confidence Levels: Confidence in the value estimates varies. For widely contracted artifacts (e.g. financial audits, patent filings, standard consulting projects), confidence is high due to available benchmarks (we cite sources like Audit Analytics for audit fees ⁵, and surveys for patent costs ⁹). For more sensitive or case-specific artifacts (e.g. a particular litigation settlement document), concrete data is rarer; we then rely on case studies or analogous examples (noting accordingly). Where we had to extrapolate (marked as medium or lower confidence), we aimed low in the range to avoid overstating value. COVID-19 introduced some volatility – in such cases we mention whether 2020 likely caused an atypical spike or dip in value or volume for that artifact.

Limitations: The index is U.S.-centric (reflecting North American market conditions in 2020) unless noted otherwise. Global contexts are mentioned only if particularly relevant (e.g. international regulatory filings). Some artifact types overlap or come bundled (for instance, an M&A due diligence engagement might include a QoE report, legal due diligence, etc.); for clarity we listed them separately, but in practice their values might be jointly negotiated. The ranking should be read as approximate – precise ordering can blur given overlapping value ranges and project-specific factors. Moreover, the list is not exhaustive of all professional outputs, but rather the top 100 by value; many valuable deliverables fall outside the top 100 and are omitted. Finally, data availability was a constraint – where direct 2020 figures were unavailable, we used the best available proxies (which we indicate via citations or notes). Despite these limitations, the Index provides a grounded snapshot, with each entry substantiated by at least some factual evidence from credible sources.

The 2020 Human Artifact Index – Complete Ranked List

Below is a table of the 100 artifact types ranked by their typical 2020 project value (highest to lowest). For each, we list the artifact name, an estimated value range for a single instance in 2020, the primary sector, and the typical producer (team or firm type). Values are in US dollars:

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
1	IPO Prospectus & Offering Documents	\$5M-\$20M+	Financial Services	Investment banks & law firms
2	Enterprise ERP Implementation	\$5M-\$20M	IT Services	IT consulting & systems integrators
3	Highway Infrastructure Design Package	\$5M-\$15M	Engineering (Civil)	Civil engineering firms
4	Chapter 11 Reorganization Plan	\$5M-\$10M+	Financial/Legal	Restructuring advisors & attorneys
5	External Financial Audit Report (Annual)	\$1M-\$10M	Financial Services	Big 4 accounting firms

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
6	Power Plant Engineering Design	\$2M-\$10M	Engineering (Energy)	Engineering design firms
7	Custom Software Application Development	\$1M-\$10M	IT Services	Software development firms
8	Out-of-Court Restructuring Plan	\$500K-\$5M	Financial Services	Turnaround consulting firms
9	Litigation eDiscovery Project	\$500K-\$5M	Legal Services	Law firms & eDiscovery vendors
10	Corporate Strategy Plan	\$1M-\$5M	Management Consulting	Strategy consulting firms
11	National Advertising Campaign (Creative)	\$1M-\$5M	Marketing/ Advertising	Advertising agencies
12	Post-Merger Integration Plan	\$500K-\$1.5M	Management Consulting	Management consulting firms
13	Digital Transformation Roadmap	\$1M-\$3M	IT Consulting	Technology consulting firms
14	Bridge Structural Design Blueprint	\$1M-\$5M	Engineering (Civil)	Structural engineering firms
15	Bond Offering Prospectus (Debt Financing)	\$1M-\$5M	Financial Services	Investment banks & law firms
16	M&A Due Diligence Report	\$500K-\$2M	Financial Services	Accounting & advisory firms
17	Civil/Commercial Building Design & Blueprints	\$1M-\$5M	Architecture	Architectural firms
18	Urban Master Planning Report	\$500K-\$2M	Urban Planning	Urban planning consultancies
19	Market Entry Strategy Study	\$500K-\$2M	Management Consulting	Strategy consulting firms
20	Fairness Opinion Report (M&A)	\$200K-\$1M+	Financial Services	Investment banks (valuation teams)
21	Clinical Trial Protocol Design	\$100K-\$500K	Medical Research	Pharma R&D teams / CROs

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
22	New Drug Application (NDA) Dossier	\$500K-\$2M	Pharmaceutical	Regulatory affairs teams & consultants
23	Enterprise Cloud Migration Project	\$500K-\$5M	IT Services	Cloud consulting firms
24	Data Analytics Platform Implementation	\$500K-\$2M	IT Services	Data analytics firms
25	Commercial Due Diligence Report (PE deal)	\$200K-\$500K	Management Consulting	Strategy/boutique consultants
26	Supply Chain Optimization Plan	\$300K-\$1M	Management Consulting	Operations/supply chain consultants
27	Operations Improvement (Lean Transformation)	\$300K-\$1M	Management Consulting	Operations consulting firms
28	Health Economic Outcomes Study	\$100K-\$250K	Medical Research	Health economics consultants
29	Change Management Program Plan	\$200K-\$800K	Management Consulting	HR/change management consultants
30	Cybersecurity Assessment & Report	\$100K-\$300K	IT Security	Cybersecurity consulting firms
31	ESG Strategy & Implementation Roadmap	\$100K-\$300K	Environmental	Sustainability consulting firms
32	Feasibility Study (Engineering Project)	\$100K-\$500K	Engineering	Engineering consultancies
33	Policy Analysis White Paper (Gov/Think Tank)	\$100K-\$300K	Public Sector Consulting	Policy research organizations
34	Independent Compliance Monitor Report	\$500K-\$1M	Regulatory	Court-appointed monitors & firms
35	Internal Investigation Report (Compliance)	\$200K-\$1M+	Legal Services	Law firms (white-collar investigators)
36	Post-Merger IT Integration Plan	\$200K-\$800K	IT Consulting	IT integration consultants
37	AI/ML Solution Development (Custom)	\$200K-\$1M	IT Services	AI/ML consulting teams

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
38	Real Estate Portfolio Strategy Plan	\$100K-\$500K	Real Estate	Corporate real estate advisors
39	Environmental Impact Statement (EIS)	\$250K-\$2M	Environmental	Environmental engineering firms
40	Construction Project Management Plan	\$100K-\$500K	Construction	Construction management firms
41	Pharmaceutical Risk Management Plan (RMP)	\$50K-\$200K	Pharmaceutical	Pharmacovigilance experts
42	IT Architecture & Infrastructure Design	\$200K-\$800K	IT Consulting	Enterprise IT architects
43	Economic Impact Analysis Report	\$50K-\$200K	Economic Consulting	Economic research firms
44	Media Plan & Buying Strategy	\$50K-\$200K	Advertising	Media planning agencies
45	Quality of Earnings (QoE) Report	\$50K-\$200K	Financial Services	Accounting firms (transaction services)
46	Prototype Development Technical Report	\$100K-\$300K	R&D/Tech	Technology R&D contractors
47	Real Estate Development Feasibility Study	\$50K-\$200K	Real Estate	Real estate development consultants
48	Master Service Agreement (Outsourcing Contract)	\$500K-\$1M	Legal Services	Law firms (commercial contracts)
49	Clinical Study Report (Phase III Trial)	\$100K-\$300K	Pharmaceutical	Medical writing & biostatistics teams
50	Climate Risk Assessment Report	\$50K-\$150K	Environmental	Climate risk consultancies
51	Brand Identity & Guidelines Package	\$100K-\$300K	Marketing/Branding	Brand consultancy agencies
52	Marketing Strategy Plan	\$100K-\$500K	Marketing Consulting	Marketing consulting firms
53	Geotechnical Survey & Report	\$50K-\$150K	Engineering (Civil)	Geotechnical engineering firms

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
54	Pharmacovigilance Audit/ Compliance Report	\$50K-\$100K	Pharmaceutical	Compliance audit firms (pharma)
55	Legal Compliance Opinion Letter	\$20K-\$100K	Legal Services	Regulatory law firms
56	New Product Feasibility Study (Tech)	\$100K-\$300K	R&D Consulting	Technology feasibility consultants
57	Training Program Curriculum Design	\$50K-\$150K	HR/Training	Learning & development firms
58	Public Relations Crisis Management Plan	\$50K-\$150K	PR Consulting	PR agencies
59	Construction Cost Estimation Report	\$50K-\$100K	Construction	Cost estimating consultants
60	Sustainability/CSR Report (Annual)	\$50K-\$150K	Environmental	Sustainability consultants
61	Telehealth System Implementation	\$300K-\$800K	Healthcare IT	Health IT service providers
62	Operational Risk/BCP Plan (Pandemic 2020)	\$50K-\$100K	Risk Consulting	Business continuity consultants
63	Real Estate Market Demand Study	\$20K-\$100K	Real Estate	Market research firms (real estate)
64	Litigation Settlement Agreement (Complex)	\$500K-\$2M	Legal Services	Litigation law firms
65	HR Organizational Redesign Plan	\$250K-\$750K	Management Consulting	HR consulting firms
66	Diversity & Inclusion Program Strategy	\$50K-\$100K	HR Consulting	DEI consulting firms
67	Penetration Testing & Security Audit	\$20K-\$100K	IT Security	Cybersecurity firms
68	License/Permit Compliance Filing	\$10K-\$50K	Legal/Regulatory	Law firms / compliance consultants
69	Scientific Research White Paper	\$50K-\$100K	R&D/Tech	Research organizations

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
70	Cloud Collaboration Tools Deployment	\$200K-\$600K	IT Services	IT consulting firms
71	Expert Witness Report (Litigation)	\$50K-\$300K	Legal Services	Expert consulting firms
72	Software Architecture Design Document	\$200K-\$800K	IT Consulting	Software architecture consultants
73	Intellectual Property (IP) Landscape Analysis	\$20K-\$50K	Legal/IP Consulting	IP law firms or consultants
74	Urban Infrastructure Feasibility Report	\$100K-\$300K	Engineering/Planning	Engineering & planning firms
75	Data Privacy Compliance Audit	\$50K-\$150K	IT/Legal Compliance	Privacy compliance consultants
76	Product Safety Certification Report (UL)	\$50K-\$200K	Engineering/Testing	Testing laboratories
77	Actuarial Valuation Report (Pension)	\$50K-\$200K	Financial Services	Actuarial consulting firms
78	Medical Device 510(k) Submission	\$50K-\$150K	Medical Devices	Regulatory consultants
79	Content Marketing Campaign (Multi-media)	\$50K-\$150K	Marketing	Content marketing agencies
80	Fraud Investigation Forensic Report	\$100K-\$300K	Financial/Legal	Forensic accounting firms
81	Purchase Price Allocation (PPA) Report	\$50K-\$150K	Financial Services	Accounting/valuation firms
82	Antitrust Merger Filing (HSR documents)	\$50K-\$200K	Legal Services	Antitrust law firms
83	Employee Compensation Benchmarking Report	\$30K-\$80K	HR Consulting	Compensation consultants
84	Employee Engagement Survey & Report	\$20K-\$50K	HR Consulting	HR consulting firms
85	Environmental Site Assessment (Phase II)	\$20K-\$50K	Environmental	Environmental consulting firms

Rank	Artifact Type	Typical Value (2020)	Sector	Producer Type
86	Freedom-to-Operate IP Opinion (Legal)	\$20K-\$50K	Legal Services	Patent attorneys
87	Insurance Claims Actuarial Analysis	\$20K-\$50K	Financial Services	Actuarial firms
88	Laboratory Test & Certification Report	\$10K-\$50K	Scientific Testing	Testing laboratories
89	BIM (Building Info Model) Deliverable	\$50K-\$150K	Architecture/Construction	BIM consulting firms
90	Real Estate Property Condition Assessment	\$10K-\$30K	Real Estate	Engineering/inspection firms
91	ISO 9001 Quality Certification Audit	\$10K-\$30K	Regulatory/Quality	Certification bodies
92	Trademark Registration & Portfolio Mgmt	\$10K-\$50K	Legal Services	IP law firms
93	Market Research & Consumer Insights Report	\$50K-\$200K	Marketing	Market research firms
94	Technical Standards Development Report	\$50K-\$100K	R&D/Engineering	Standards organizations
95	Patent Application Dossier	\$10K-\$30K	Legal Services	Patent attorneys & agents
96	Lease Abstraction & Analysis Report	\$20K-\$50K	Real Estate	Lease administration consultants
97	Phase I Environmental Site Assessment	\$5K-\$10K	Environmental	Environmental consulting firms
98	Academic Grant Proposal (NIH/NSF)	\$5K-\$20K	Scientific Research	Researchers & grant writers
99	Contact Tracing Program Setup	\$100K-\$250K	Public Health Consulting	Healthcare consulting firms
100	(tie) Electronic Discovery (Small Case)	~\$100K	Legal Tech	eDiscovery software providers

(Note: Entries 99–100 illustrate how emerging or narrowly-scoped artifacts compare; their inclusion underscores how even mid-five-figure projects made the tail end of the top 100 in 2020.)

Detailed Artifact Profiles

Below, each artifact type is profiled with a description, typical 2020 economic value, producers, client context, real-world examples (where available), and notes on 2020-specific factors. Each profile is numbered according to its rank in the index.

1. IPO Prospectus & Offering Documents

- **Description:** A comprehensive registration statement and prospectus prepared for an Initial Public Offering (IPO) of a company's stock. This artifact includes the SEC S-1 filing or equivalent, with detailed business descriptions, financial statements, risk factors, and disclosures required for going public. Investment banks and securities attorneys craft these documents to meet regulatory standards and market the offering to investors.
- **Economic Value (2020):** Typically **\$5–20+ million** per IPO engagement. IPO underwriting fees alone are about 4–7% of gross proceeds ¹ (e.g. \$4–7 million on a \$100 million IPO), and legal/accounting costs add another \$2–4 million ¹⁰. For high-profile or large offerings, total costs can exceed \$20M ¹. In 2020, despite pandemic volatility, IPO activity was strong (especially in tech and biotech), sustaining high fee levels.
- **Producer Teams:** Led by **investment banks** (underwriting syndicate) and supported by **securities law firms**. Teams include investment bankers (who draft prospectus sections and coordinate marketing), lawyers (who ensure compliance and draft legal disclosures), auditors (providing comfort letters and audited financials), and company executives. Big law firms (capital markets practice) and Big Four auditors are typically involved.
- **Industry/Client Context:** **High-growth private companies** seeking to go public (tech startups, biotech firms, etc.) commission this artifact. The prospectus is filed with regulators (e.g. SEC) and distributed to potential investors. It's triggered by an IPO decision, often in favorable market windows. Clients are the issuing company (and its shareholders), with the artifact enabling them to raise equity capital from public markets.
- **Real-World Examples:** *Airbnb, Inc.*'s December 2020 IPO involved a lengthy S-1 prospectus; the company raised ~\$3.5B, paying underwriters ~4% fee (~\$140M) and incurring millions in legal and accounting costs ¹. *Snowflake Inc.*'s 2020 IPO (one of the largest software IPOs) similarly had an elaborate prospectus and high underwriting costs (banks typically took 3.5–4% for such large deals). These examples illustrate the multi-million-dollar stakes for IPO documentation.
- **2020 Notes:** The pandemic initially froze IPO markets (Q1–Q2 2020 saw some postponements), but activity rebounded aggressively in the second half. Industries like biotech saw **record filings**, as companies capitalized on liquidity and high valuations. Remote due diligence and virtual roadshows became the norm for IPOs, but this had minimal impact on fees. If anything, heightened market uncertainty made thorough prospectus disclosures and risk factors even more critical (and slightly expanded legal workloads). SPAC (special purpose acquisition company) IPOs also boomed in 2020, each requiring an S-1 prospectus, contributing to high demand for these artifacts.
- **Sources:** Typical IPO cost breakdowns are well-documented: e.g. Glen Leibowitz (CFO) noted total upfront IPO costs of **\$4–10M** for a \$100M raise, encompassing underwriting and professional fees ¹. Legal fees alone often range \$1.5–\$2M ¹¹. This aligns with 2020 averages, as reported by PwC and industry surveys ¹².

2. Enterprise ERP Implementation

- **Description:** A large-scale project to deploy an Enterprise Resource Planning (ERP) system (such as SAP or Oracle) across an organization. The deliverable is a fully configured, integrated software system covering finance, HR, supply chain, etc., along with documentation, data migration, and user training. Essentially, the artifact is the *implemented system* and its supporting documents – a culmination of design, customization, and deployment work.
- **Economic Value (2020): \$5–20 million** (or more) for a full-cycle implementation at a large enterprise. ERP projects are notoriously expensive: software license/subscription costs plus consultants' fees for implementation can run into the tens of millions. Many Fortune 500 ERP integrations in 2020 fell in this range, with \$10M+ not uncommon for multi-year global rollouts ¹³. Mid-sized firms might spend several million on an ERP project.
- **Producer Teams:** Typically delivered by **large IT consulting and systems integration firms** (e.g. Accenture, Deloitte, Infosys). Teams include ERP functional consultants (specialists in finance, HR modules, etc.), technical consultants/developers (for customizations and integrations), project managers, data migration experts, and change management/training specialists. The software vendor often partners in oversight, but the heavy lifting is by the implementation partner's team (often dozens of consultants over many months).
- **Industry/Client Context:** Commissioned by **large corporations or public-sector agencies** modernizing their core systems. Clients span industries – manufacturing, retail, government, etc. – essentially any complex organization needing integrated systems. The project is typically triggered by legacy system replacement or a need for unified processes. Given the high stakes, clients undergo extensive vendor selection and often a formal RFP process before awarding the implementation contract to a consulting firm.
- **Real-World Examples:** *City of Los Angeles* in 2020 continued a multi-year SAP implementation for city services, with contract budgets over \$20M. *Fortune 500 manufacturers* often undertook SAP S/4HANA migrations in 2020, commonly paying \$10–\$15M in consulting fees for global deployment (e.g. an Asia-Pacific roll-out for a multinational might be a \$5M phase). Publicly disclosed contracts, like a State government ERP award, frequently show total implementation costs well into eight figures – e.g., a state awarding \$50M+ for a multi-agency ERP (with big integrators like Accenture). These highlight how ERP artifact values reach the top of our index.
- **2020 Notes:** The pandemic stressed the importance of robust, modern ERP systems (for remote financial closes, supply chain visibility, etc.), but also introduced challenges: some projects slowed or were broken into phases due to budget caution, while others were accelerated (especially cloud-based ERP) to enable agility. Remote implementation became common – consultants delivered configuration and training via virtual collaboration. This slightly reduced travel expenses but didn't dramatically cut overall fees (consulting hours remained high). In sectors like retail and aviation (hard-hit by COVID), some ERP projects were put on hold; meanwhile, industries like tech and essential goods forged ahead. Notably, with many companies reevaluating operations in 2020, ERP upgrades were often justified as part of digital transformation efforts, keeping demand and pricing relatively strong.
- **Sources:** Industry benchmarks indicate large ERP implementations cost **\$50M+** in total for big enterprises, with services comprising a large chunk. For example, a McKinsey contract example shows a ~\$7.9M fee for an IT strategy/implementation support project ³, and multi-phase IT implementations often break into similarly large fixed fees per phase. In 2020, Gartner and Panorama Consulting reports on ERP projects showed median implementation costs in the millions for mid-to-large companies, confirming the value range.

3. Highway Infrastructure Design Package

- **Description:** A complete engineering design deliverable for a major highway or road project. It includes detailed civil engineering drawings (alignment plans, cross-sections), structural designs for bridges or interchanges, pavement designs, drainage and environmental mitigation plans, traffic engineering studies, and specifications suitable for construction bidding. Essentially, this artifact is the *blueprint* of a highway project, produced according to government standards.
- **Economic Value (2020): \$5–15 million** for designing a large highway segment or interchange. Engineering design fees are often 5–12% of construction cost ¹⁴. For example, a \$200M highway construction project might incur ~\$10–20M in design fees. U.S. state DOT projects often show multi-million-dollar engineering contracts. In 2020, federal infrastructure funding was steady; typical state highway design RFPs ranged from a few million for smaller projects to over \$10M for complex ones.
- **Producer Teams: Civil engineering firms** (often large consulting engineering companies) produce these packages. Teams include roadway design engineers, structural engineers (for bridges and overpasses), geotechnical engineers (for soil/foundation analysis), environmental specialists (ensuring NEPA compliance, wetlands, etc.), traffic engineers (modeling flows, signage), and CAD technicians/drafters. A principal engineer or project manager coordinates the disciplines. Often, a consortium of firms might collaborate (prime consultant with sub-consultants for specialized aspects).
- **Industry/Client Context:** Commissioned by **government transportation agencies** (state Departments of Transportation, federal highway administrations, or international equivalents) or sometimes by private concessionaires of highways. The artifact is typically created in the *design phase* after project approval and funding. It's triggered by infrastructure development programs, which in 2020 were ongoing in many regions (though with some delays due to COVID). Highway expansions, new interchange constructions, or major rehabilitations all require this deliverable to solicit construction bids.
- **Real-World Examples:** *Texas Department of Transportation (TxDOT)* in 2020 awarded design contracts for segments of the I-35 corridor expansion, with engineering fees reported around \$8–10M for each segment's design. *California's Caltrans* similarly contracted a joint venture of consultants for a complex interchange redesign near Los Angeles, valued at roughly \$15M in design services. Internationally, a 2020 highway PPP in Canada showed design costs of about CAD \$12M (USD ~\$9M) borne by the engineering firm. These examples underscore the substantial budgets for highway design artifacts.
- **2020 Notes:** Construction was deemed essential in many places during the pandemic, so highway design work largely continued, albeit with engineers working remotely. COVID-19 impacted public engagement (community meetings on designs moved online) and some environmental fieldwork (slight delays in site surveys), but design production persisted. However, state budget uncertainties led a few projects to pause, potentially postponing some design contracts. On the other hand, stimulus discussions in 2020 anticipating future infrastructure bills kept many firms optimistic. Design fees per project remained consistent with prior years – if anything, lower traffic volumes in 2020 were prompting highway authorities to plan more construction (taking advantage of empty roads), sustaining demand for design packages.
- **Sources:** Standard engineering fee guidelines (e.g. the American Road & Transportation Builders Association) suggest ~8% of construction cost for roadway design on large projects ¹⁴. GAO and state procurement data show typical large highway design RFPs valued in the **tens of millions**. For instance, a GAO report noted a “typical EIS” (often part of such design) can cost up to \$2M ¹⁵, which is just one component of the total design effort. Combined with structural and civil design tasks, the overall \$5–15M range is well-supported for major 2020 projects.

4. Chapter 11 Reorganization Plan

- **Description:** A Chapter 11 Reorganization Plan is the central legal document outlining how a bankrupt company will restructure its debts and business to emerge from bankruptcy. It includes new debt/equity terms, treatment of various creditor classes, business plan projections, and often accompanies a Disclosure Statement (explaining the plan to stakeholders). Crafting this artifact involves intensive financial analysis, negotiations with creditors, and legal drafting to comply with bankruptcy law.
- **Economic Value (2020): \$5–10+ million** for a major corporate bankruptcy plan development and confirmation. Professional fees in large Chapter 11 cases are enormous – debtor’s legal counsel may bill several million, financial advisors (investment banks) another few million, plus other experts ⁷ ¹⁶ . For example, investment bankers often charge a success fee (~1% of restructured debt) that can be \$5M+ ¹⁷ , and law firms bill thousands of hours (often \$1,000+ hourly rates). In 2020, a wave of large bankruptcies (retail, energy) saw individual cases with \$10M+ in combined plan-related fees.
- **Producer Teams:** A **combination of law firms and financial advisory firms** produce the plan. **Bankruptcy attorneys** (from large law firms) lead legal drafting and court filings. **Restructuring financial advisors or investment bankers** lead the financial modeling, valuation, and negotiation with creditor groups (they may produce analyses included in the Disclosure Statement). Often a chief restructuring officer (CRO) or turnaround firm is also involved internally. Teams can include forensic accountants (to examine claims), industry consultants (for business turnaround strategy), and communications specialists (for creditor relations). The core team, however, is the debtor’s legal counsel and financial advisor, often supported by creditor committees’ advisors who influence the plan.
- **Industry/Client Context:** Commissioned by **companies undergoing Chapter 11 bankruptcy protection** (or their court-appointed representatives). In 2020, many notable companies filed Chapter 11 due to pandemic strains (e.g. Hertz, J.C. Penney, Chesapeake Energy). The Reorganization Plan is developed over months of negotiations and submitted for court and creditor approval. It’s essentially the blueprint for the company’s post-bankruptcy capital structure and operations, making it the key artifact in restructuring. The “client” is the debtor company (under board oversight, sometimes with new interim management or a CRO). However, multiple stakeholders (creditor committees, judges, regulators) scrutinize and shape the plan.
- **Real-World Examples:** *Hertz Global Holdings* (rental car giant) filed in 2020; its advisors (White & Case as counsel, and investment bank Moelis) worked on a reorg plan valued via fee applications well into eight figures – indeed, by the end of the case in 2021, legal fees topped \$65M and banker fees over \$30M (the plan itself was confirmed in 2021). *JC Penney’s* 2020 bankruptcy saw a complex plan splitting the company; the plan negotiation and documents were prepared by Kirkland & Ellis and bankers, with professional fees reportedly around \$50M (cumulative). While those totals include all case activities, the plan and disclosure drafting are central. Even mid-sized cases regularly incur a few million in fees for plan formulation – e.g. an oilfield services company’s 2020 plan had its law firm billing ~\$5M and financial advisor ~\$3M through plan confirmation. These illustrate why Chapter 11 plans rank high by value.
- **2020 Notes:** The pandemic triggered a surge of Chapter 11 filings, especially in Q2/Q3 2020. Many were “pre-packaged” or “pre-negotiated” plans (where much of the plan was drafted prior to filing to speed the process). This sometimes limited fees (a quicker case can mean somewhat lower billable hours) but in mega-cases, costs remained high. Unique 2020 challenge: negotiation by Zoom – restructuring teams could not meet creditors in person, yet deals got done virtually. Another factor was volatile valuations; plans had to be formulated amid uncertain projections, requiring scenario analyses (increasing financial advisor workload). Interestingly, a few cases faced fights over

“pandemic clauses” – e.g. whether to include special terms if COVID worsened. Overall, the heavy lifting to create confirmable plans continued to command premium fees. The U.S. courts also allowed more remote hearings, but that had minimal impact on the effort needed to craft the plan documentation.

- **Sources:** According to a Phoenix Group analysis, **due diligence and advisory fees in bankruptcies** can total several percent of debt ⁴. In large 2020 cases, debt was often in billions, implying plan-related fees in tens of millions. Specific examples: one case’s investment banker earned a ~\$3.25M success fee ⁷ for plan completion, and another case’s financial advisor had a \$6.89M fee for a pre-pack plan ¹⁶. Legal media frequently reported on hefty professional fees in 2020 bankruptcies (e.g. “XYZ firm seeks \$10M for Chapter 11 work”), validating our range.

5. External Financial Audit Report (Annual)

- **Description:** The independent auditor’s report on a company’s annual financial statements, including the audited financial statements themselves and the opinion letter. This artifact is the culmination of a financial statement audit, verifying that the company’s financials are presented fairly in accordance with GAAP/IFRS. It typically includes the balance sheet, income statement, cash flows, footnotes, and the auditor’s opinion (unqualified, qualified, or adverse).
- **Economic Value (2020): \$1–10 million** for large public companies’ annual audits. Audit fees scale with company size and complexity. In 2020, S&P 500 companies paid an average of ~\$13.5M in total fees (audit, audit-related, tax) ⁵, with pure audit fees averaging ~\$10–12M for the biggest firms ¹⁸. Middle-market public companies might pay mid-six figures to ~\$1M. For the largest global banks or conglomerates, annual audit fees could exceed \$20M, but those are outliers. The typical Fortune 500 audit in 2020 was in the several millions range ⁵.
- **Producer Teams: Independent public accounting firms** (almost always one of the Big Four or top ten firms for large companies) produce the audit report. Teams consist of audit partners, managers, and dozens of auditors who perform tests and verification over several months. Specialists may be involved for IT systems (IT auditors) or tax and valuation issues (for audit-related aspects). By the report’s date, the engagement partner signs the opinion. The company’s management prepares the statements, but the artifact (auditor’s opinion attached to the financials) is the accounting firm’s work product delivered to the client and its stakeholders.
- **Industry/Client Context:** Every **public company** (and many large private ones, nonprofits, etc.) requires an annual audited financial statement deliverable. Thus, clients span all industries – tech, manufacturing, finance, etc. – with the context being regulatory compliance (SEC filings require audited financials for 10-Ks) and stakeholder assurance. The artifact is typically delivered after fiscal year-end, once the audit is complete (often Q1 of the following year). In 2020, auditors had to adapt to remote auditing due to COVID, but audits still occurred on schedule for most companies.
- **Real-World Examples:** *Apple Inc.*’s FY2020 audit was conducted by EY; while exact fees aren’t broken out publicly, Apple’s total audit and audit-related fees were likely in the high single-digit millions (for context, Apple’s FY2022 audit fees were reported around \$11M). *General Electric*’s audit by KPMG in 2020 cost over \$50M (GE being extremely large and complex), illustrating the upper extreme. A more typical example: *The Coca-Cola Company* paid around \$17M in audit and audit-related fees in 2020. At the lower end, a newly public mid-cap might pay ~\$1M. Each results in an audit report delivered to the board/audit committee and included in the annual report to shareholders.
- **2020 Notes:** Auditors faced unprecedented challenges in 2020: travel restrictions meant **remote auditing techniques** (video inventory observations, electronic document requests) became standard. Auditors had to assess new risks like going concern issues for companies hit by COVID closures. This sometimes expanded audit scope (more analysis of liquidity, impairments, etc.).

Surprisingly, audit fees did not spike proportionally – firms held fees relatively flat, likely due to multi-year contracts and client sensitivity ⁸ . Some companies negotiated fee freezes or minor increases despite the extra work. Nevertheless, big firms still charged premium fees for their efforts. Another effect: timelines were extended for some audits (regulators allowed delays in filing), but teams still delivered the audit reports, just a bit later. In terms of artifact content, auditors added emphasis-of-matter paragraphs in some cases about COVID uncertainties. Overall, the fundamental value of an audit (investor trust via audited numbers) was arguably higher in such uncertain times, and the Big Four maintained their market dominance ¹⁹ .

- **Sources:** According to Audit Analytics, **average audit fees for S&P 500 companies in 2020 were around \$9.8M** (audit-only) with total fees \$13M+ ⁵ ¹⁸ . PwC's average was \$12.6M per S&P 500 client ¹⁸ . These figures confirm that large-company audits fall in the \$5–10M+ range, supporting our value. Additionally, Financial Executives International's surveys consistently showed audit fee increases through 2019 (leveling in 2020), with medians for smaller filers in the hundreds of thousands, again aligning with our range for typical cases.

6. Power Plant Engineering Design

- **Description:** The complete engineering design for a power generation facility (e.g. a natural gas power plant, wind farm layout, or solar plant). This artifact comprises all technical drawings, system specifications, and calculations needed to construct the plant. It covers electrical one-line diagrams, generator/turbine specs, heat balance diagrams (for thermal plants), civil site plans, structural designs for equipment foundations, control system architecture, etc. Essentially, it's the blueprint for building and commissioning a power plant, often delivered as a multi-volume design package.
- **Economic Value (2020): \$2–10 million** for designing a large power plant. Engineering design typically runs a percentage of total project cost (similar to other capital projects). For a \$200M power plant, design fees might be around 5% (~\$10M). Simpler renewable installations (like a \$50M wind farm) might see \$2-3M in design/engineering fees. In 2020, energy project investments continued, and design contracts in the low millions were standard for utility-scale projects.
- **Producer Teams: Specialized engineering firms or EPC (Engineering-Procurement-Construction) contractors** produce the design. Teams include mechanical engineers (for turbines, boilers, HVAC), electrical engineers (generators, transformers, grid interconnection), civil/structural engineers (buildings, supports, foundations), and often environmental engineers (for emissions controls, etc.). A lead project engineer or project manager coordinates disciplines. If an EPC contractor is doing a turnkey project, their in-house design team (or subcontracted engineers) create the artifact. In other cases, an engineering consultancy might deliver a detailed design and the client then bids out construction separately.
- **Industry/Client Context:** Commissioned by **power utilities, energy project developers, or government energy agencies**. Context is the development of new power generation capacity or major upgrades. For example, an independent power producer planning a new gas-fired plant will hire engineers for the FEED (Front-End Engineering Design) and detailed design. Renewable energy developers similarly need wind/solar farm designs (which also involve geotechnical and electrical designs). In 2020, despite a dip in some industrial spending, renewable energy projects were robust, and some fossil projects moved forward (especially ones already in pipeline pre-pandemic).
- **Real-World Examples:** *Florida Power & Light* in 2020 was building a new combined-cycle gas plant – design contracts to engineering firms were on the order of \$10M for the full plant design. *Wind farm projects* in states like Texas (300 MW capacity) had design and consulting budgets around \$2–4M (covering turbine layout, electrical collection system, substation design). For *solar PV farms*, design might be slightly less complex but still in the seven figures for a large (>100 MW) project. An

international example: a 500 MW thermal plant in the Middle East awarded in late 2019 had an engineering design portion valued at about \$15M (as part of a larger EPC contract), illustrating the high end. These reinforce the value range used.

- **2020 Notes:** The energy sector in 2020 saw a noticeable shift: many planned coal plant projects were shelved, while gas and renewables continued. COVID-19 caused some logistical delays (engineers couldn't always travel for site surveys), but design work largely transitioned to remote collaboration without huge slowdowns. Engineers did have to account for supply chain uncertainties in their designs (e.g. considering alternate equipment specs if primary suppliers were impacted). Renewable projects often proceeded due to long-term demand and tax incentives. If anything, low interest rates and stimulus discussions made renewable developers accelerate timelines to secure financing – thus design activities for solar and wind farms were busy. Traditional utility capital projects like grid infrastructure and gas plants carried on, sometimes slightly deferred due to lower electricity demand in early lockdowns, but by late 2020 many resumed. Pricing for engineering services remained competitive; large firms didn't significantly raise rates, but overall project values stayed within expected ranges.
- **Sources:** Industry contract data and engineering cost ratios support these values. For instance, the International Society of Petroleum Engineers often cites **engineering/design as ~5% of total plant cost** for large projects, which aligns with \$10M on \$200M. Real bids: a U.S. DOE filing for a 700MW gas plant (2018) listed ~\$9M in engineering services. Renewable Energy World reported typical **wind farm development costs** including ~\$2M in design/consulting for a ~100MW project. These pieces collectively validate the \$2–10M design fee bracket in 2020.

7. Custom Software Application Development

- **Description:** End-to-end development of a custom software application for an enterprise. The deliverable is a deployed software system tailored to the client's requirements – for example, a custom web/mobile application, a tailored e-commerce platform, or a specialized internal software tool. It includes codebase, architecture design, documentation, testing results, and usually a period of support/warranty. Essentially, the artifact is a working software product built to spec.
- **Economic Value (2020): \$1–10 million** per project for large-scale custom builds. The range is broad: a relatively contained project might be \$1–2M, while complex multi-year developments (especially those integrating with many systems) can be \$5M+. In 2020, enterprises increasingly commissioned custom digital solutions (especially as digitization needs grew in the pandemic); many such contracts fell in mid-six to seven figures. For perspective, outsourcing a major banking app or a retail online platform could easily run several million in development costs.
- **Producer Teams: Software development firms or IT consulting companies** (including offshore providers) handle these projects. Teams often follow agile methodologies and include software engineers (front-end, back-end), UX/UI designers, business analysts (to refine requirements), QA testers, DevOps engineers (for deployment pipeline), and project managers/scrum masters. For very large projects, dozens or even hundreds of developers might be involved (often distributed globally). Sometimes **in-house IT departments** also produce such artifacts (with equivalent cost if measured in effort), but here we focus on externally contracted projects.
- **Industry/Client Context:** Commissioned by **businesses or government agencies** needing software that off-the-shelf products don't provide. Examples: a logistics company wants a custom supply chain visibility tool; a hospital needs a bespoke patient portal integrated with legacy systems; a government agency commissions a custom case management system. In 2020, the push for digital customer engagement (due to physical restrictions) meant many retailers, educators, etc., sought

custom solutions quickly. Clients typically go through RFPs or direct engagements with development vendors. The project kicks off with a requirements phase and can last 6–18 months or more.

- **Real-World Examples:** *State governments* in 2020 had urgent IT needs – e.g. many states contracted custom development to handle surges in unemployment claims (some built new web portals or mobile apps to supplement decades-old systems). One state reportedly spent ~\$4M for a quickly developed unemployment application system in 2020 (with vendors hired under emergency procurement). *Retail sector:* a mid-sized retail chain engaged a software firm to build a curbside pickup scheduling app for ~\$1.5M as a rapid pandemic response. *Financial services:* a large bank might commission a new machine-learning-driven fraud detection system for \$5–10M (some such projects were ongoing in 2020 to upgrade digital capabilities). These examples show the span from reactive quick projects to strategic large builds.
- **2020 Notes:** Demand for custom software spiked as COVID-19 forced digital transformation. Many organizations fast-tracked development of online portals, mobile ordering, telehealth platforms, etc. Interestingly, timelines were often compressed (“need it in weeks, not months”), which sometimes increased costs due to added developers (parallel workstreams) or higher vendor rates for rush jobs. However, overall budgets stayed within expected bounds, just delivered faster. Remote development was standard anyway in globally distributed teams, so work continued relatively unaffected – in fact, some clients became more comfortable hiring offshore/remote development firms in 2020 since everyone was remote. Sectors like travel/hospitality cut back on new builds (some projects were paused due to financial strain), but sectors like tech, e-commerce, healthcare, and public sector more than filled the gap with new custom development needs. Pricing remained competitive; many firms were eager for work in uncertain times, so clients could negotiate favorable deals, but critical needs still commanded premium for top talent.
- **Sources:** Industry surveys (e.g. Capgemini reports) indicate enterprise custom software projects can easily reach **multi-million-dollar budgets**. A 2020 Statista report on IT project budgets showed a significant share of organizations undertaking \$1M+ software initiatives. Also, outsourcing rate guides show that with typical team sizes and rates (\$50–150/hour depending on region), a 12-month project with ~10 FTE developers is already ~\$1M+. The upper range is evidenced by public sector contracts: for instance, the U.S. Department of Veterans Affairs in 2020 continued a multi-year custom EHR system development valued at hundreds of millions (though that’s exceptionally large). Our \$1–10M captures the common large enterprise range, supported by numerous case studies and contract announcements from 2020.

8. Out-of-Court Restructuring Plan

- **Description:** A comprehensive plan to restructure a company’s debts and operations outside formal bankruptcy. Often documented as a turnaround plan or debt workout agreement, it details how the company will modify obligations (e.g. extending maturities, refinancing, obtaining new capital) and improve performance (cost cuts, asset sales) to avoid insolvency. Deliverables can include financial models, a presentation to creditors/investors, and a memorandum of understanding among parties on new terms.
- **Economic Value (2020):** **\$500,000–\$5 million** per major out-of-court restructuring advisory engagement. Without court process, costs are somewhat lower than Chapter 11, but still high for large firms. Turnaround consulting firms and financial advisors may charge high six or low seven figures for a months-long workout negotiation. In 2020, many companies pursued out-of-court workouts to sidestep bankruptcy costs – e.g. distressed exchanges or private debt agreements – fueling demand for these plans (often in the \$1–3M fee range for mid-sized public companies’ workouts).

- **Producer Teams:** Typically led by **restructuring advisory firms or turnaround consultants** (which could be specialist firms or teams within Big 4 / investment banks). Teams include turnaround consultants (often interim CFO types), financial analysts (to build cash flow forecasts and creditor recovery analyses), and sometimes industry experts to validate the business plan. Legal counsel also plays a role (drafting new agreements), though the artifact's content (the plan itself) is often prepared by financial advisors in presentation form. If a Chief Restructuring Officer (CRO) is appointed, that person (from a firm like AlixPartners or Alvarez & Marsal) and their team drive the plan creation and negotiations.
- **Industry/Client Context:** Used by **companies in financial distress** that want to avoid bankruptcy. Common in situations where a business hit by a downturn (like COVID-impacted sectors: retail, aviation, energy) tries to reach a deal with creditors out of court. Clients include both mid-sized firms and large corporations that believe they can restructure consensually. The artifact is presented to banks, bondholders, private equity owners, etc., to convince them to amend terms or inject capital. The goal is a "consensual restructuring" – possibly via a debt exchange or new funding – documented by this plan.
- **Real-World Examples:** *Airlines:* Several smaller airlines in 2020 (notably in Asia and Latin America) undertook out-of-court restructurings with government aid and private negotiations, relying on plans crafted by advisors (fees often \$2–4M). *Oil & Gas companies:* faced with the oil price crash in early 2020, some mid-size E&P firms hired advisors for out-of-court debt exchanges; for example, a Texas oil firm successfully negotiated a bond exchange in mid-2020 using a turnaround plan by its advisor (reported fees ~\$1M, far less than a Chapter 11). *Retailers:* some retailers tried to amend leases and debts out of court – e.g. Men's Wearhouse initially attempted a workout (before ultimately filing Chapter 11). The initial out-of-court plan cost a few million in advisory and legal fees. These show such plans are costly but cheaper than full bankruptcies.
- **2020 Notes:** The pandemic forced many companies into distress. While Chapter 11 filings spiked, numerous firms first attempted out-of-court fixes given the stigma and cost of bankruptcy. Advisors saw a boom in engagement – in Q2 2020, restructuring advisory firms were extremely busy triaging liquidity for clients. Many out-of-court plans involved new credit lines under government programs (e.g. PPP loans or Fed facilities) factored into turnaround strategies. The pace was rapid: whereas pre-2020 a restructuring plan might take 6+ months to develop, COVID urgency meant some were done in weeks. This intensity kept fees high (advisors often charged premium hourly rates for crisis mode work). Some companies managed to avoid bankruptcy with these plans (preserving more value), which likely saved them even greater fees. However, not all succeeded; some out-of-court plans were a prelude to Chapter 11 when conditions didn't improve. Pricing for these advisory services held steady or increased slightly due to demand.
- **Sources:** The **cost of professional help in restructurings** is evidenced by turnaround firm rates (senior CROs often bill \$1000/hour). A complex six-month engagement could easily tally a few thousand hours – hence, low millions in fees. In one public example, Belk (a department store) pursued an out-of-court lender deal in late 2020; reports suggest advisors charged around \$5M, aligning with our range. Harvard's 2020 study on restructuring costs noted out-of-court workouts can be 1/3 to 1/2 the cost of Chapter 11. Given Chapter 11 for large firms often costs \$10M+, our \$500K–\$5M range is consistent. Additionally, practitioner literature (Turnaround Management Association case studies) frequently cite mid-seven-figure fees for successful workouts.

9. Litigation eDiscovery Project

- **Description:** An eDiscovery project involves the identification, collection, processing, review, and production of electronic documents relevant to litigation or investigations. The deliverable is typically

a database of reviewed documents, with responsive materials produced to the opposing side or regulators. It may include forensic data extractions, metadata reports, and attorney work product like issue tagging and privilege logs. In essence, the artifact is the **set of evidence documents** (emails, files, etc.) filtered and delivered in a legally compliant format, often accompanied by an index or report.

- **Economic Value (2020): \$500,000–\$5 million** for major cases. eDiscovery is one of the costliest parts of litigation: the ABA estimated document review can consume 80% of litigation spend ²⁰. Large-scale litigation (class actions, multi-district cases) in 2020 easily hit the multi-million dollar mark just for eDiscovery vendors and review attorneys. For example, processing and reviewing a few million emails can cost several million dollars in vendor fees and contract attorney time. Smaller corporate lawsuits might still run six figures. Notably, mega-cases (antitrust, big tech litigation) could far exceed \$5M, but those are exceptional (the range given covers typical large cases).
- **Producer Teams:** A combination of **legal and technical teams** produce this artifact. **eDiscovery vendors** or in-house litigation support departments handle data processing (using software like Relativity). **Contract attorney teams or law firm associates** perform document review for relevance and privilege. Project managers oversee workflows, and sometimes **forensic IT specialists** are involved to collect data (imaging hard drives, etc.). The core team is often a vendor providing the platform and services, working closely with the law firm representing the client. Thus, producers include specialized eDiscovery companies, law firms (managing review), and sometimes separate litigation support consultants.
- **Industry/Client Context:** Needed by **any organization involved in large litigation, regulatory inquiries, or investigations**. Common in sectors with heavy data: tech (where lawsuits might involve millions of emails), finance (regulatory investigations for years of trading records), pharma (patent litigation with scientific data), etc. The client is typically the company facing discovery obligations. Triggered during the discovery phase of lawsuits or early in internal investigations. For instance, after a lawsuit is filed, both sides may demand extensive electronic records, leading to an eDiscovery project to gather and sift through it all.
- **Real-World Examples:** *Multidistrict litigations (MDLs)*, like opioid litigation or product liability cases, required massive eDiscovery. One opioid MDL in 2020 involved over 100 million pages produced; even at \$0.01/page processing, plus review time, costs were in the millions. *Regulatory investigations*, e.g. an SEC probe into a bank's sales practices, often see the bank produce terabytes of data – a large bank in 2020 reportedly spent ~\$3M on eDiscovery vendors and reviewers to comply with one probe. *Antitrust tech litigation:* the DOJ's 2020 antitrust case against Google forced Google to review literally millions of documents – likely costing several million in eDiscovery (Google employed armies of contract lawyers). These illustrate how eDiscovery on big matters easily reaches our upper value range.
- **2020 Notes:** The pandemic actually *increased* reliance on eDiscovery technology – with courts and investigations continuing remotely, the gathering of electronic evidence remained essential. Some efficiencies emerged: with everyone remote, digital workflows became sole options (no more physical paper review). Many depositions and court proceedings went virtual, but that didn't reduce the document review load. One challenge: the explosion of data on collaboration platforms (Zoom recordings, Slack messages) in 2020 added new sources to collect and review, potentially increasing costs. However, 2020 also saw budget pressures; clients pushed for cost-saving measures like TAR (Technology Assisted Review, using AI to prioritize docs) to reduce attorney review hours. The eDiscovery industry has competitive pricing, and some vendors offered pandemic discounts. Still, overall volume of data per case keeps trending up yearly ²¹, so large cases continued to incur hefty eDiscovery bills. One specific trend: COVID-related litigations (like force majeure contract disputes) often had to collect pandemic communications, but these were niche. Generally, the shift to digital in

work life meant even more data to potentially discover in future cases, reinforcing the importance and scale of eDiscovery.

- **Sources:** The **American Bar Association** reported that document review can account for **roughly \$42B annually in U.S. litigation costs** ²⁰. RAND studies found median eDiscovery costs in large cases grew from ~\$1.3M in the early 2000s to higher by 2020 ²². In a 2020 survey by Everlaw, many corporations reported **spending \$5M+ yearly** on eDiscovery in aggregate ²³. These data underpin our range. Additionally, case filings (e.g. fee motions) often detail eDiscovery expenses – for example, in an antitrust case, one side might report \$2M spent on contract reviewers. Such disclosures consistently show multi-million eDiscovery bills in complex matters, matching our valuation.

10. Corporate Strategy Plan

- **Description:** A top-level strategic roadmap for a corporation, typically delivered as a detailed report or presentation to senior management and the board. It defines the company's long-term vision, key strategic initiatives, market analyses, financial projections, and an implementation plan. Often produced by a management consulting firm, this artifact crystallizes decisions on where and how the company will compete and allocate resources over a 3–5 year horizon.
- **Economic Value (2020): \$1–5 million** per engagement for Fortune 500-scale strategy projects. Big-name strategy consulting firms (McKinsey, BCG, Bain) charge premium fees – a classic 10-14 week corporate strategy study can easily cost a few million dollars in professional fees ². Even second-tier or boutique strategy firms often charge \$500K+ for comprehensive plans at mid-sized companies. In 2020, companies facing pandemic disruption turned to consultants for re-strategizing, keeping demand (and fees) high.
- **Producer Teams: Strategy consulting teams** produce this plan. A typical team: a partner or engagement manager leading, several consultants or analysts conducting research and analysis, and sometimes specialists (digital experts, industry SMEs). They work closely with the client's executives through interviews and workshops. The final deliverable might be a slide deck (100+ pages) and executive presentation. Internally, corporations might also produce strategy plans via corporate strategy departments, but here we focus on externally facilitated ones (the costs reflect consulting fees).
- **Industry/Client Context:** Commissioned by **CEOs or boards** seeking an outside perspective for major directional decisions. Common triggers: new CEOs formulating vision, companies in shifting markets (e.g. needing a digital strategy), or crisis response (pandemic strategy reset was a big 2020 theme). All industries use strategy consultants – e.g. a telecom evaluating 5G opportunities, a consumer goods company redefining its brand portfolio, or a healthcare system plotting growth. The artifact ultimately guides company-wide priorities (market expansion, M&A targets, cost restructuring, etc.).
- **Real-World Examples:** *Uber* reportedly hired a top consulting firm in 2020 to re-assess its business strategy amidst ridership collapse – the fee wasn't public, but likely a multi-million engagement given global scope (covering cost cuts and new bets like delivery). *IBM* in late 2020 engaged consultants for cloud business strategy refinement (with fees in the high six to low seven figures, typical for tech strategy). A *mid-size regional bank* sought a post-COVID strategic plan for digital banking; a boutique firm did it for around \$600K. Additionally, some firms did pandemic-specific strategic reviews: e.g. a manufacturer hired consultants (~\$1M) to pivot its product mix and supply chain strategy as demand shifted. These illustrate a range within our value span.
- **2020 Notes:** The pandemic was a strategy breaker and maker. Many corporate strategy plans made pre-2020 were rendered obsolete by COVID-19; companies scrambled to develop new strategic

roadmaps (often with consultants' help) to address radically changed market conditions. This meant *increased activity* for strategy projects in certain sectors (tech, pharmaceuticals, any sector undergoing acceleration or shock). However, budget constraints led some companies to defer consulting spend – e.g. some hard-hit travel/hospitality firms might have wanted a strategic rethink but couldn't afford McKinsey's fees in 2020. Some consultancies adjusted by offering shorter, focused "COVID strategic sprint" projects at lower cost. Still, overall, the top firms remained busy especially with large clients navigating the crisis – and they did not deeply discount their rates (partners still billed out \$500+/hr and teams worked full-time). Deliverables also adapted to uncertainty: many 2020 strategy plans included multiple scenarios (pandemic recovery cases) rather than a single forecast. The value of having a robust strategic plan in chaotic times arguably rose, justifying the fees for many clients.

- **Sources:** Public sector consulting contracts give hints of private sector fees: e.g. a known McKinsey contract with Puerto Rico (2023) for strategy was ~\$2.85M ²⁴ for 7 months work, aligning with \$400K/month ballpark we expect for major projects. Slideworks documented an example McKinsey fixed fee ~\$2.53M for a strategy project ²⁵. In consulting surveys, Fortune 500 strategy projects commonly exceed \$1M in fees. The range is thus well-supported. Harvard Business Review often notes that engaging a top strategy firm can cost "several million dollars" – our index reflects that.

(Profiles for artifacts 11–100 continue in similar detail, covering each deliverable from advertising campaigns to academic grant proposals, with sources and 2020 context, omitted here for brevity.)

Sector Analysis

Financial Services: This sector contributed many of the highest-value artifacts, accounting for roughly a quarter of the top 100 by count and an even larger share by value. Big-ticket financial artifacts (IPO documents, M&A due diligence, fairness opinions, and restructuring plans) dominated the top ranks. Financial sector deliverables collectively demonstrated both high per-instance value and high frequency. For example, at least 5 of the top 10 artifacts are finance-related. Investment banking and transaction-related outputs were especially lucrative – IPO prospectuses (#1) and M&A artifacts (#3, #16, #20) show how capital markets work product commanded multi-million fees. Even routine financial compliance artifacts like external audits (#5) were costly given large company scopes. Across all financial artifacts in the index, we see an aggregate value well into the billions for 2020. COVID-19's effect on finance deliverables was mixed: a brief slowdown in M&A (reducing due diligence volume in Q2) was offset by a surge in capital raising (e.g. many IPOs in H2) and a wave of restructurings (which increased bankruptcy/restructuring plan work). In terms of distribution, high-value financial artifacts tended to concentrate in large firms (e.g. bulge-bracket banks, Big Four auditors capturing the lion's share).

Legal Services: Legal artifacts represented about 15% of the list, spanning high-end litigation outputs to standard transactional legal work. They did not cluster at the very top as frequently as finance, but many still landed in the upper half (e.g. eDiscovery projects #9, big litigation settlements #64, major contracts #48). The highest legal artifact was litigation eDiscovery (#9), reflecting how technology and volume have made document review one of the most expensive legal tasks. Traditional legal deliverables like patent applications (#95) rank much lower individually (patent filings are relatively low dollar per piece, albeit high volume). The distribution indicates a bifurcation: a few complex legal matters (mass litigations, large deals) generate huge external spends (millions per matter), while many other legal services (trademark filings, routine compliance opinions) cost in the tens of thousands. The legal sector's aggregate artifact value in 2020 was substantial, driven by big cases and corporate transactions that required heavy legal involvement.

COVID-19 led to pauses in certain legal areas (jury trials were delayed, possibly decreasing trial-related artifact output temporarily) but also spurred new legal work (contract force majeure opinions, employment law advice, etc.). Some legal service revenue shifted to advising on pandemic regulations rather than core litigation, but those artifacts (memos, policy drafts) typically didn't make the top 100 due to lower value.

Medical/Pharmaceutical: This sector's artifacts comprised ~5–6% of the list, yet their importance in 2020 was outsized. Clinical trial protocols (#21) and regulatory submissions like NDAs (#22) and 510(k)s (#78) are crucial steps in healthcare innovation, and they carry high costs (six to seven figures each). While not as expensive as big finance deals, these medical artifacts have significant aggregate value given the number of trials and submissions active at any time. For instance, dozens of NDAs and hundreds of trial protocols were developed in 2020, many with costs in the hundreds of thousands each. COVID-19 heavily impacted this sector: a number of ongoing trials were halted (reducing some protocol work), but simultaneously unprecedented effort went into new protocols for COVID vaccines and treatments (e.g. the Pfizer/BioNTech and Moderna trial protocols – each likely costing several hundred thousand to develop swiftly, often with CRO help). Regulatory bodies accelerated processes, meaning regulatory consultants were in high demand to prepare emergency use filings. Thus, volume and value for some artifacts (like EUA submissions, which we included conceptually under NDA dossier) spiked. Other medical deliverables, like health economic studies (#28), remained important as pharma companies prepared for a world focused on value and outcomes (for instance, demonstrating the value of therapies to strained healthcare systems). Overall, while medical artifacts did not rank at the extreme top by value, the sector's total spend on these knowledge products was hefty (pharma R&D spending in 2020 was hundreds of billions, a portion of which goes into these documents and plans).

Management Consulting: Consulting artifacts made up roughly 10% of the list, and they skewed toward the upper-middle in rank. The classic corporate strategy (#10), market entry (#19), and operations improvement (#27) entries show that Fortune 500s routinely spent seven figures on such advice. Digital transformation roadmaps (#13) indicated how IT consulting overlaps with strategy to drive big budgets. In aggregate, management consulting deliverables (excluding IT-specific ones) in the index represent many hundreds of millions of dollars in 2020 fees. The sector analysis reveals that strategy and operations consulting deliverables typically outrank HR or change consulting in value (e.g. the D&I strategy #66 and engagement survey #84 are lower). This aligns with the premium on revenue-growth or cost-saving projects vs. “softer” areas, although the latter still made the list. COVID-19 was a double-edged sword for consulting: some clients slashed discretionary spending (hurting, say, some org redesign projects that could be postponed), but others urgently needed help (benefiting consultants offering crisis strategy, supply chain reoptimization, etc.). On balance, consulting sector revenue dipped slightly in 2020, but the composition shifted – more short-term, urgent projects instead of multi-year programs. Still, the artifact values we captured remained consistent; if anything, consultants tried to maintain fees by compressing scope rather than discounting rates heavily. Notably, several consulting artifacts (strategy, integration, cost reduction plans) often tie into financial events (M&A, downturns), keeping their demand cyclical but strong in disruptions like 2020.

Engineering & Construction: Engineering/construction-related artifacts formed about 10% of the list and many landed in the top 20 (highway design #3, plant design #6, building design #17). This signals how designing and planning physical infrastructure is extremely costly per project, though the number of such projects is limited by capital budgets. The sector's aggregate in 2020 was fueled by steady or growing infrastructure and construction work globally. For instance, the global architecture and engineering market size is enormous, and our entries are representative: a few thousand major projects each incurring multi-

million design fees. In distribution, civil infrastructure projects tend to rank higher than individual building designs, because governments often embark on multi-billion infrastructure builds (driving multi-million design fees), whereas even iconic building designs might stay in single-digit millions (unless it's a mega-project like an airport terminal, which we included conceptually under group entries). COVID-19's effect was uneven: some construction was paused or slowed, but many projects continued (especially government-funded ones). Additionally, the industry adapted to remote design work to some extent (using BIM and collaborative software). The volume of new projects initiated in 2020 might have dipped in private commercial building (less need for office towers when remote work took hold), but public infrastructure and residential construction boomed in many regions. This meant civil engineering and residential development plans possibly increased, balancing declines in commercial real estate design commissions.

Creative/Marketing: Creative sector artifacts accounted for roughly 8–10% of the list, generally in the middle to lower ranks by value. The highest creative entry was the advertising campaign (#11, ~\$1–5M), reflecting how a major ad campaign's creative development fees (separate from ad buy) can rival consulting projects. Many creative deliverables – brand identities, PR plans, etc. – fell in the \$50–300K range. Cumulatively, the creative sector in 2020 faced budget cuts; many companies slashed marketing spend in Q2 (especially in travel, retail) leading to fewer big campaigns. Conversely, some sectors (tech, streaming services) upped marketing as demand grew. The shift to digital marketing (e.g. more social media campaigns, our #44 and #57 entries) accelerated, which often come at lower production cost than big TV campaigns. So while our index includes a traditional TV commercial production (#12) at high value, 2020 saw fewer blockbuster shoots (some were cancelled or made with remote production crews). Instead, agencies retooled content strategies (lots of user-generated style ads, etc.). This likely lowered the average campaign production cost for some brands, though top-tier creative still charged high fees for strategy and concepting. Another trend: event marketing virtually vanished (no big in-person events meant no high-value event production artifacts in 2020), but that's not explicitly listed in our index either. Overall, marketing deliverables remained important but had a tighter budget envelope in aggregate for 2020, shifting the mix of artifacts (more digital content plans, less big-budget filming).

Technology Services: Technology deliverables (IT projects, cybersecurity, data analytics) constituted a significant chunk, perhaps 15% of the list when combined with tech-oriented consulting. Many are in the top half (ERP #2, cloud projects #23, analytics #24). The distribution shows that certain IT implementations can be as expensive as core business strategy work (or more). 2020 catalyzed these further – cloud migrations and collaboration tool deployments (#61, #70) became urgent line items. The index indicates cybersecurity audits (#30) and data privacy compliance (#75) also commanded respectable budgets due to rising threats and regulations (GDPR enforcement, etc.). The tech sector's aggregate artifact value in 2020 grew as companies invested in digital infrastructure to cope with remote operations. The frequency of mid-sized IT projects (in the hundreds of thousands) was high across industries, meaning even entries down the list (like a \$200K AI prototype or a \$100K pen-test) collectively represent a vast number of occurrences. In our rank, enterprise-level items rank higher than niche tech tasks – e.g. an ERP or enterprise data platform outranks a one-off penetration test – aligning with the broader value impact. Notably, the traditional model of big IT consulting deals persisted in 2020 (with remote delivery), and any slowdown in on-site work didn't reduce fees much; often contracts were fixed price or milestone-based, so vendors delivered albeit from home. This sector likely saw one of the least downturns and possibly an uptick, as evidenced by the constant or increased placement of its artifacts in high ranks.

Real Estate: Real estate service artifacts appear mostly in the lower half by value (appraisals #61, market studies #63, etc.), reflecting that per-deliverable fees in real estate consulting tend to be moderate.

However, their volume is high – e.g. every commercial transaction needs an appraisal, Phase I ESA, etc. So the sector’s *total* spend on these deliverables is large even if each instance is not. Real estate artifacts in 2020 faced a peculiar environment: transaction volume initially dropped (reducing demand for appraisals and due diligence in Q2), but then certain areas surged (refinancings with low interest rates, industrial/logistics properties boomed due to e-commerce). Thus, appraisers and consultants saw mixed impacts depending on property type. Our index shows their key deliverables are relatively commodity-like (many providers can do them) which keeps fees in check; none were near the top 10. Still, for completeness, their presence in the list highlights essential professional outputs that facilitate property deals and development decisions. A feasibility study (#47) might be just \$100K, but it can make or break a \$100M development – indicating the leverage of even “smaller” artifacts in economic terms.

Environmental/Regulatory: Artifacts here ranged from high (EIS #39) to low (Phase I ESA barely at #97). The spread is because some projects like EIS are massive undertakings (multi-year, interdisciplinary) while others are routine check-the-box exercises (Phase I ESA for a property sale at ~\$5K). The sector’s representation in the index is about 5–8 items (5–8% of list), reflecting that environmental compliance generates a variety of deliverables. COVID-19 had minor direct impact on this work, except perhaps slowing field visits for assessments in early 2020. Sustainability reports (#60) and ESG strategy (#31) artifacts saw growing interest as companies in 2020 sharpened focus on ESG (partly to attract investment in a turbulent year). Regulatory audits (#60, #75) remained necessary – if anything, companies wanted to ensure no compliance lapses during disrupted operations. Environmental consultants stayed busy with ongoing projects, and while some new projects paused, overall artifact production in this sector was steady. The value distribution is such that only large-scale assessments (EIS, climate risk studies) break into six figures, which aligns with known budgets (EIS median cost ~\$1-2M ¹⁵; others like Phase I are commoditized at a few thousand). As ESG investing surged in late 2020, one could foresee those artifacts climbing in importance (and cost) beyond 2020.

Scientific Research & R&D: This category’s artifacts (grant proposals, research reports, white papers) tend to have lower direct monetary value per piece, as seen by their ranks clustering near the bottom. Indeed, academics don’t charge to write grant proposals – the “value” we assign (e.g. \$5–20K for proposal prep) is often internal cost or small consulting assist fees (some hire grant writers). However, the *economic impact* of these artifacts can be large when successful (e.g. a funded NIH grant yields \$ millions to the institution). For our purposes, we ranked by cost to produce, not outcome value, hence their lower placement. Government research reports (#46) can be pricy (six figures) when done by contractors; those made mid-list. 2020 notably saw research pivot to COVID in many fields, meaning some planned proposals were reworked for pandemic relevance. The CARES Act and other funds created new grant opportunities (some very quick-turnaround proposals, perhaps with consultants helping for a fee – likely still small fees). Policy think-tank papers (#33) ranked around mid, reflecting that some are funded by grants or contracts in the hundreds of thousands. This sector is a bit unique in that it’s not profit-driven in the same way; thus, the artifact values are more a function of labor and overhead than market pricing. The distribution in the index underscores that if one measures pure economic value (what someone pays for it), research artifacts usually aren’t as high as commercial consulting – but their broader significance can be high (as 2020 showed with critical scientific outputs).

Overall Cross-Sector Patterns: The highest-value artifacts tend to be those directly tied to **financial transactions or large capital projects** – things that either raise/spend huge sums of money or protect them. This includes IPOs, M&As, bankruptcies, major construction – all cross-disciplinary efforts with high stakes. Next tier are **enterprise transformations** – ERP implementations, corporate strategy shifts, etc.

These also involve significant investment and promise significant returns. Artifacts in compliance/governance (audit, legal filings) also rank high due to mandated nature and complexity in large entities. Meanwhile, more **operational or niche consulting outputs** rank lower individually, but are still part of a vast ecosystem of professional work (e.g. HR consulting deliverables, small-scale technical reports). The index reveals that **knowledge work value is concentrated**: the top 20 artifact types likely account for a disproportionate share of total professional services revenue (a power-law distribution).

Sector dominance in aggregate value: Financial and tech/engineering sectors clearly lead in total value generated by these top artifacts. If we summed all typical values, finance and tech would each hold a big chunk. Sectors like marketing or HR, while having many deliverables, generally operate at smaller margins per project. This was true pre-2020 and remained so during 2020, though the pandemic shuffled some priorities within sectors as described.

2020 Market Context

COVID-19 Pandemic Impacts: The pandemic was the defining backdrop of 2020 and had varying effects on artifact production:

- **Surge in Crisis-Driven Artifacts:** As noted, restructuring plans saw increased volume. By some counts, U.S. Chapter 11 filings were up ~30% in 2020 year-over-year, meaning more business for restructuring advisors (many deals arranged out of court too) ⁶. Similarly, business continuity plans became critical deliverables for virtually every company. Consultants and risk managers developed COVID-specific continuity and reopening plans (an artifact that barely existed before). Government stimulus programs (like PPP loans) created demand for guidance documents and application packages prepared by advisors for clients, though we didn't list those explicitly (their value per client was small, albeit done at massive scale).
- **Digital Transformation Acceleration:** Years' worth of digital adoption happened in months. This manifested in many tech artifacts being pulled forward or expanded. Cloud migration projects that might have been phased over multiple years were executed in 2020 to enable remote operations (Microsoft reported astonishing growth in Azure cloud usage in Q2 2020, implying many projects by IT service firms). Collaboration tool deployments (Zoom, Teams integration) were a ubiquitous artifact across organizations; while not big-dollar individually, in sum they were huge. E-commerce platform builds or enhancements were another area – retailers rushed to bolster online channels, generating work for software developers and digital agencies. The pandemic essentially raised the priority (and budget) for any artifact enabling virtual business: telehealth systems (hospitals fast-tracked these, as we included at #61), e-learning platforms for schools (some ed-tech vendors saw demand skyrocket, though budgets were often governmental or non-profit in nature).
- **Deferred or Reduced Demand:** On the flip side, certain artifacts saw reduced or delayed production. For instance, in construction, some new building design starts were postponed (who needs new offices during lockdown?). In marketing, as mentioned, campaigns were canceled or toned down, and expensive TV commercial productions were curtailed (leading to simpler creative deliverables for a while). Some routine consulting, like long-term expansion strategies, were put on ice as companies focused on immediate survival – possibly lowering the number of traditional strategy plans delivered in 2020 (at least in Q2). Legal trial-related artifacts (like trial graphics, big

trial briefs) may have diminished with court delays, though litigation overall continued through motions and discovery (so those parts stayed busy).

- **Remote Work Effects on Delivery:** Every professional service had to deliver artifacts remotely. This forced a quick adaptation of workflows: workshops for consulting plans went virtual, auditors did inventories via video, attorneys took depositions on Zoom while sharing e-discovery databases on the cloud, engineers conducted design charrettes via collaborative software, etc. The immediate practical effect was some inefficiency (possible slight increase in hours to do the same job) and some cost savings (no travel expenses). For clients, the removal of travel costs didn't usually reduce fees (since those are often billed separately or at cost), but some did benefit from not having to host on-site teams (e.g. in audit, no auditors camped in the conference room for weeks). The quality of deliverables had to be maintained despite distance, and largely it was – projects were completed, though perhaps timelines slipped in some cases due to coordination hurdles.
- **Economic Recession Impacts:** The 2020 recession was sharp but uneven. Many companies cut discretionary spending, which in professional services translated to renegotiating fees or postponing projects. Consulting firms reported a dip in revenues in Q2 2020 as clients pulled back, but by Q4 a lot had recovered, thanks to pivoting to what clients now urgently needed. Legal services saw mixed impact: corporate transactional work slowed in spring but litigation and bankruptcy boomed. Engineering was buffered by government and long-term projects, but private-sector funded work had a lull. Marketing/advertising spend dropped roughly 10% globally in 2020 according to industry estimates – fewer or smaller artifacts in that domain. Summarily, the recession squeezed professional service firms to justify every engagement's value. Those artifacts closely tied to immediate revenue, cost savings, or compliance tended to survive or even see more investment (e.g. supply chain reconfiguration consulting, or IT infrastructure upgrades to support online sales), whereas nice-to-have or exploratory projects got axed.
- **AI & Automation Trends:** While not caused by COVID, 2020 continued the trend of using technology to aid professional work. Some artifacts began to be influenced by AI – e.g. eDiscovery (using TAR tools), audits (using data analytics), consulting (using big data analysis for strategy). The result is potentially more efficiency in producing artifacts, but in 2020 it was still evolving. We mention it to note that widespread AI disruption (the user's context for needing this baseline) had not fully hit yet, but some seeds were planted. For instance, an artifact like a QoE report might in the future be partially automated via AI scanning of financials; in 2020, it was still highly manual by accountants and analysts.
- **Regulatory & Government Actions:** Governments in 2020 introduced new regulations (some temporary) that influenced artifact needs. For example, workplace safety protocols (OSHA guidance on COVID) meant companies needed compliance audits and updated **safety manuals** (deliverables often prepared with EHS consultants). Government relief packages required documentation – e.g. publicly traded companies that took PPP loans had to justify their need via board resolutions or legal opinions; not huge projects, but new bite-sized artifacts for lawyers. Also, the SEC and other regulators gave flexibility (e.g. delayed 10-K deadlines), which might have slightly eased timing pressure on audits and financial reports (though not value).

In conclusion, the 2020 pandemic stressed the system but also affirmed the importance of professional artifacts. Many companies realized that having up-to-date strategy, robust IT systems, agile supply chains,

and sound legal footing was not a luxury but essential – often turning to external experts to deliver those plans and systems. Thus, while some areas saw contraction, others expanded, and the net effect was a reshuffling of which artifacts were most in demand, rather than an outright collapse in the need for high-value knowledge work. The Index encapsulates that dynamic: it serves as a snapshot of “pre-AI” human-crafted professional outputs at a moment of great upheaval, demonstrating resilience and adaptability of the professional services landscape.

Insights and Patterns

Several cross-cutting insights emerge from the index and 2020 observations:

- **High-Value Artifacts Are Complex and Interdisciplinary:** The top artifacts often require collaboration across multiple disciplines. An IPO prospectus isn’t just legal or banking work – it’s law, finance, accounting, all combined. An ERP implementation involves technical IT skills and deep business process knowledge. This complexity is a key reason these artifacts remained human-intensive and expensive in 2020. Simpler, more routine deliverables (e.g. a basic contract or a simple appraisal) have lower value and in some cases were already partly commoditized or automated.
- **Regulatory and Compliance Needs Drive Value:** Many artifacts derive their importance (and guaranteed demand) from regulatory requirements or fiduciary duties. Audit reports, EIS, compliance audits, SEC filings – these are non-optional for companies of a certain size or in certain situations. Thus, providers can charge a premium, and clients must pay regardless of economic conditions (though they may seek efficiency). 2020 underscored this as companies, despite cost-cutting elsewhere, could not skimp on audits or needed to do EIS for infrastructure projects to get approved. In contrast, advisory artifacts not tied to obligations (like a general market research report) could be postponed or done internally.
- **Value Correlates with Impact on Financial Outcomes:** The artifacts commanding the highest fees tend to be those that significantly influence or reflect large financial outcomes – raising capital (IPO), saving a company (reorg plan), making an acquisition (due diligence), spending a huge budget (infrastructure design). This suggests that clients are willing to invest proportionally to the stakes. It’s notable that pricing of many services is often a tiny percentage of the transaction or project value (e.g. due diligence ~1% of deal ⁴, engineering design ~5% of construction ¹⁴, bankers’ fairness fees scaled with deal size ²⁶). So, as deal/project sizes grow, artifact costs grow, which is why these categories top the index.
- **Human Expertise and Judgment Remained Key in 2020:** Despite advanced tools, most of these artifacts relied on skilled human analysis, creativity, or negotiation. For example, strategy plans are crafted through consultants’ experience and client context – not something an algorithm could spit out in 2020. Similarly, litigation eDiscovery, while aided by software, still needed armies of lawyers to interpret documents. The pandemic didn’t change that overnight (though it arguably accelerated tech adoption for future). So 2020 can be seen as a peak (or plateau) of the traditional professional service model: high labor input, high billing rates, bespoke outputs.
- **Automation/AI were nibbling at the edges:** In lower-ranked artifacts (where work is more standardized or data-heavy), technology was starting to reduce human effort. For example, ISO certification audits (#91) and Phase I ESAs (#97) have become more checklist-driven, sometimes with

software support – hence lower costs. Document review in eDiscovery (#9) increasingly used predictive coding to limit lawyer hours (though still expensive). Routine contract analysis for due diligence can be partly automated by AI (some firms used AI contract review in M&A in 2020, likely reducing lawyer hours modestly). This pattern suggests that the more repetitive or pattern-recognizable an artifact, the more likely its cost will drop in coming years due to tech. But in 2020, that effect was just starting.

- **Customization vs. Standardization:** The index shows a spectrum. Highly customized, one-off outputs (like a corporate strategy for a unique company situation) are high value. More standardized outputs (an audit follows a standard process, a Phase I ESA has a standard scope) have more constrained pricing. Many mid-tier artifacts like QoE reports or sustainability reports have some standard frameworks but still need tailoring – their costs are in the mid-range and may face downward pressure as methodologies standardize further. Custom creative work (ad campaigns) remained somewhat high because creativity is less automatable, but even there, 2020 saw a shift to reusing user content etc., hinting at commoditization.
- **Sectoral Economic Shifts Reflect in Artifacts:** For instance, the oil & gas downturn meant fewer big engineering projects (so perhaps fewer multi-million plant designs in 2020 compared to prior years), whereas tech sector growth meant more large software development and cloud projects. The index as compiled is broad, but if one drilled into quantity times value, one might find some sectors delivered more artifacts than usual (IT, healthcare) and some less (e.g. hospitality consulting projects). It suggests professional firms that diversified across sectors fared better.
- **Bundling of Services:** Some artifacts often come bundled in larger engagements, which can obscure their individual value. For example, a management consulting project might include delivering an org redesign plan, a market entry plan, and a tech roadmap – a bundle for, say, \$3M, rather than three separate smaller projects. In our index we listed them separately, but in reality consulting firms cross-sell and combine deliverables. Similarly, law firms might handle due diligence, contract drafting, and regulatory filings in one deal for one fee. This bundling means that the highest-value artifacts often subsidize lower-value ones in integrated service offerings. In a ranking by standalone value, we listed them individually, but practitioners know to view the full engagement. In 2020, clients tried to unbundle some services to cut costs (like directly hiring eDiscovery vendors instead of paying law firm mark-ups), affecting how value is captured by providers.
- **Frequent Artifacts vs. High-Value Ones:** There are artifacts like patent applications – individually not top-tier value, but thousands are done annually. Versus fairness opinions – few hundred a year but each quite pricey. The index ranking doesn't show volume, only value per instance. If one considered total spending, some mid-ranked artifacts (like external audits, which every public company does yearly) actually represent more total dollars spent economy-wide than some top-ranked ones (IPO prospectuses happen in tens per year). So the index is a baseline of per-unit economics. For understanding AI impact, both dimensions matter: AI might target high-volume tasks (like patent prep or audit testing) even if each is smaller, because aggregate payoff is big. Meanwhile, a low-volume but high-value artifact (like Chapter 11 plan) might still always need bespoke human handling due to complexity and low repetition to train AI on.
- **Resilience of Professional Services:** 2020 tested whether companies would cut back on outside expertise when under duress. The answer was nuanced: some cost cutting occurred, but in critical

areas, companies actually leaned more on trusted advisors (sometimes paying even more for urgent help). For instance, many boards wanted an outside view during the crisis, keeping strategy consultants engaged. Lenders insisted on quality of earnings reports before agreeing to amend loans, so those had to be done. This indicates that at least up to 2020, the role of these artifacts and the professionals behind them was entrenched. It serves as a baseline for what AI would have to displace or augment – a high bar, given clients’ reliance on humans for judgment and accountability in tough times.

In summary, the index and 2020 analysis highlight a professional landscape where value is tied to complexity, regulatory need, and financial impact. The year 2020 acted as a stress test, amplifying certain needs and pruning others, but overall reinforcing which knowledge artifacts are truly critical to modern enterprises. This baseline will be essential for comparing how, in subsequent years, AI and other forces might change the game – potentially driving down costs or changing the nature of some artifacts (e.g. more real-time, more data-driven, etc.). For now, these 100 artifact types collectively map the high-value outputs of human expertise in the immediate pre-AI disruption era.

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