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The background image shows a laptop screen with a code editor on the left and a mobile app preview on the right. The code editor displays XAML code for a Xamarin.Forms application, including resource dictionaries and grid definitions. The mobile app preview shows a calculator interface with a display showing '0' and various buttons like 'AC', '+/-', '%', '/', '7', '8', '9', '\*', '4', '5', '6', '-', '3', '+', and '='.

# A STUDY OF THE VARIABLE COST OF APP DEVELOPMENT

A WHITE PAPER

# Introduction

For the past year, we've been emphatically telling our customers that building an app with [Hatch Apps](#) will cost a fraction of traditional software development. "The average cost to build an app is well into the six figures," we'd say. We've been saying it over and over— and with gusto.

A couple of months ago, we decided it was about time for us to dig up some of our own data to support our claims, so we emailed a request for proposals (RFP) to 100 methodically-selected firms. A few weeks later, 49 of them responded with estimated development costs and timelines.

The RFP described a simple mobile and web application, and an accompanying dashboard and content management system. We received a variety of quotes, ranging from \$8,100 to \$546,700 for development costs in the first year, and from 6 weeks to 8 months for development timeline. Below we'll explore the full results of our study.



# Background

A fair number of surveys have been conducted to assess app development costs over the past few years. A survey of 12 “leading mobile application development companies” by Clutch asked about the number of hours required for mobile app development activities, and calculated that the “median high” cost as much as \$171,450, with a very wide range from under \$30,000 to well over \$700,000.

Online app development cost calculators from various app development agencies returned estimates ranging from \$267,000 to \$360,000, as aggregated by Adriana Neagu.

Expenses don't stop there. A study conducted by Forrester found that the initial amount spent on a mobile app is just 35% of the true two-year cost— maintenance costs can easily stretch into the tens of thousands.

These reports are not comparative— they are averages based on a typical app. For these reasons, we felt it important to conduct a study whereby multiple agencies submit quotes for the same app in contribution to the existing body of research.

*Note: The above studies assessed development costs just for mobile apps, and did not include an accompanying web application as is included in this study.*

To learn more about the contents of this study, [schedule a conversation](#) with a member of the Hatch Apps team.

# Methodology

To collect a list of firms, we went to the leading online directory of software development agencies. We went through the list of mobile app developers from the top, and selected the first 100 firms that had a service focus of at least 20% mobile app development, and 20% cumulatively of web development and/or custom software development (as this project has both mobile and web components). For the purposes of this study, we also excluded any firms that had undisclosed minimums or hourly wages. We also excluded all firms that had a minimum project size greater than \$100,000, or that were based outside of the United States. (We intended to focus on domestic firms and searched accordingly, but after-the-fact we found that many firms had a sales office in the United States but were leveraging more affordable development labor in other countries, namely India and the Ukraine.)

Then, we sent a detailed request for proposal (RFP) to those 100 firms. We indicated a two week window for questions, and another two weeks for proposal submission. Basic features requested included:

- Home page displays all categories
- When the end user clicks into a category, they will see additional category information as well as a list of all resources filed under that category
- Ability for end user to create an account or log into an existing account (name, email, and password)
- Ability to designate a certain post as “featured”— this post would then appear on the home screen of the application (in addition to the categories that normally appear there)
- Ability to designate a post as a “top search result,” so if the end user enters a search query that matches and returns multiple articles, the ones designated as “top search result” would appear first
- Ability for the end user to filter results by tags or categories (as determined in the CMS)

The RFP went into detail regarding requirements for a custom content management system (CMS), push notification management, content analytics, user analytics, search analytics, data export, user management, and administrator management. The requirements for the app and corresponding dashboard precisely aligned with the capabilities of a particular app that can be build on the Hatch Apps platform.

## Methodology (cont.)

We denied any requests for phone calls, and conducted all correspondence via email. We answered all questions from firms with one week prior to deadline. We politely refused to answer any question regarding budget or timeline.

When there were three options presented for costs, we selected the one that was the best fit for the RFP when readily apparent. Otherwise, we selected the median option. When there was a range for delivery timeline, we opted for the high range because, based on experience, development typically takes longer than expected.

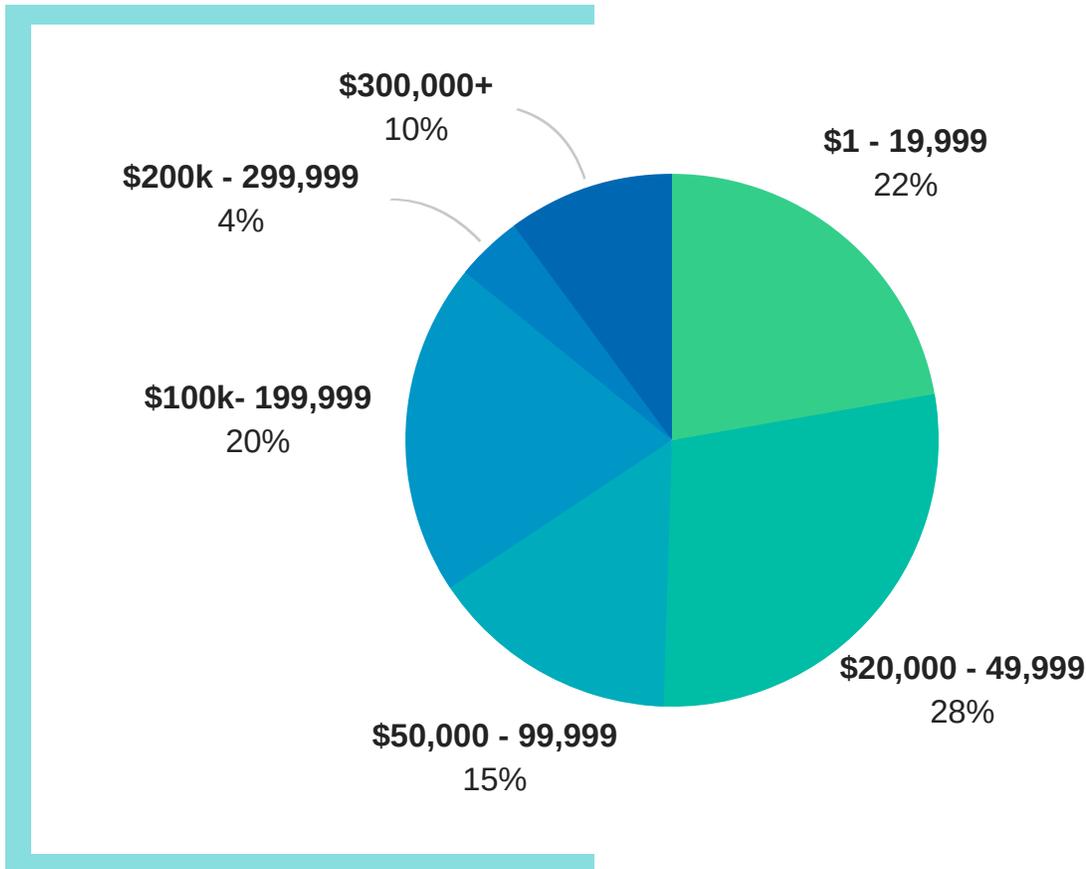
We noted firms as having an offshore arm if the offshore office was listed on their website or if we could find more than 3 employees in the same country outside of the United States via LinkedIn. If a firm has an offshore team that is not listed on LinkedIn (e.g. their offshore developers are consultants and work directly for a company with another name) we would not be able to discover them, and therefore would note indicate an offshore team. For that reason, the results may be skewed.

Since we initially picked firms via an online directory where firms often pay for advertising in order to appear at the top of the list, the firms selected may have been more likely to consider business out-of-network.

After we received all 49 proposals, we went through them and extracted key data points, and read through the content of the proposals to extract any additional conclusions before assembling this report.

# Development Costs

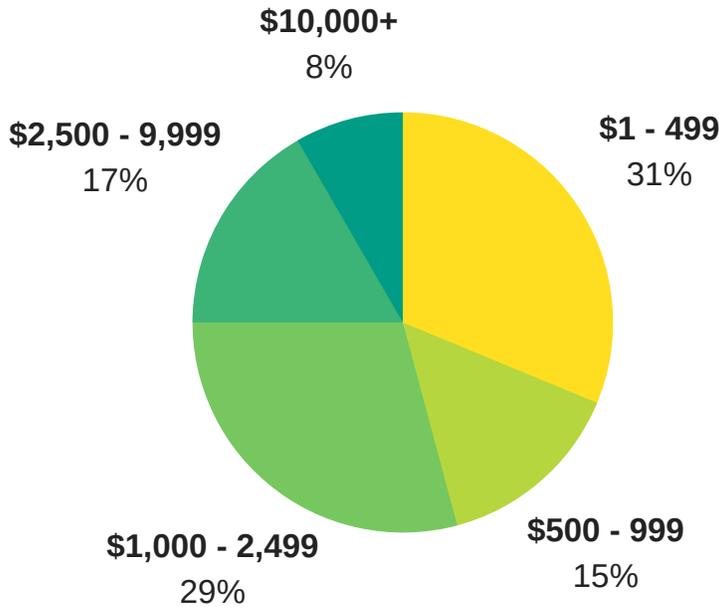
On average, the estimated development cost for this project was \$93,974. Five firms returned estimates exceeding \$300,000.



Averages	Development cost	Maintenance cost	Monthly hosting cost	Timeline (months)	Total cost in one year*	Total cost in 3 years*
Mean	\$93,974	\$2,495	\$275	3.8	\$123,918	\$183,805
Min. value	\$8,100	\$-	\$5	1.5	\$8,100	\$8,100
First quartile	\$20,768	\$407	\$86	3.0	\$25,646	\$35,402
Median	\$47,795	\$1,129	\$150	3.5	\$61,343	\$88,439
Third quartile	\$115,000	\$2,125	\$310	4.5	\$140,500	\$191,500
Max. value	\$366,750	\$15,000	\$2,050	8.0	\$546,750	\$906,750

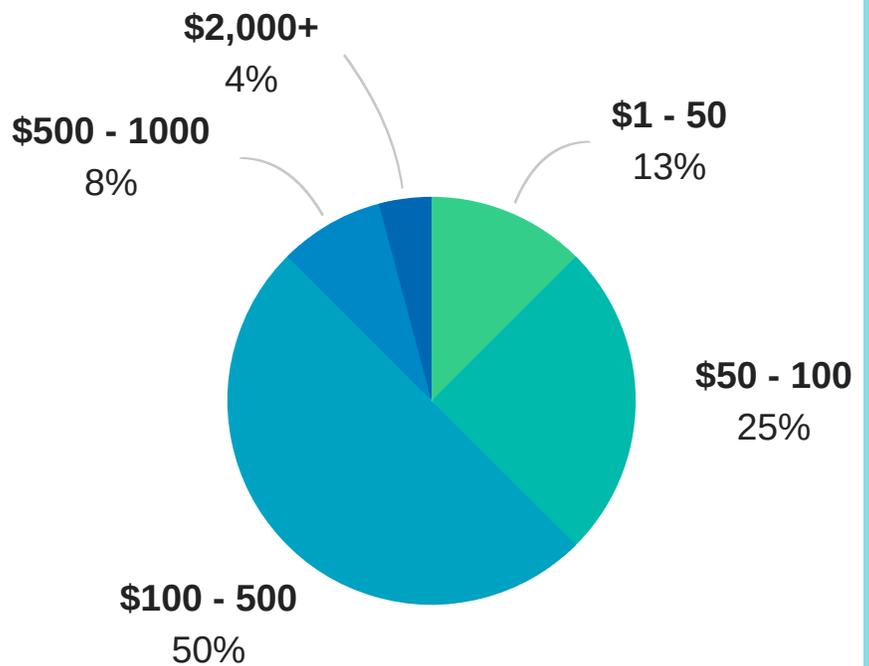
\* Total cost includes only initial development costs and software maintenance costs. It does not include hosting costs, additional feature development costs, marketing costs, or management costs.

# Maintenance Costs



The oft-forgotten cost of maintenance was not negligible, averaging \$2,495 per month.

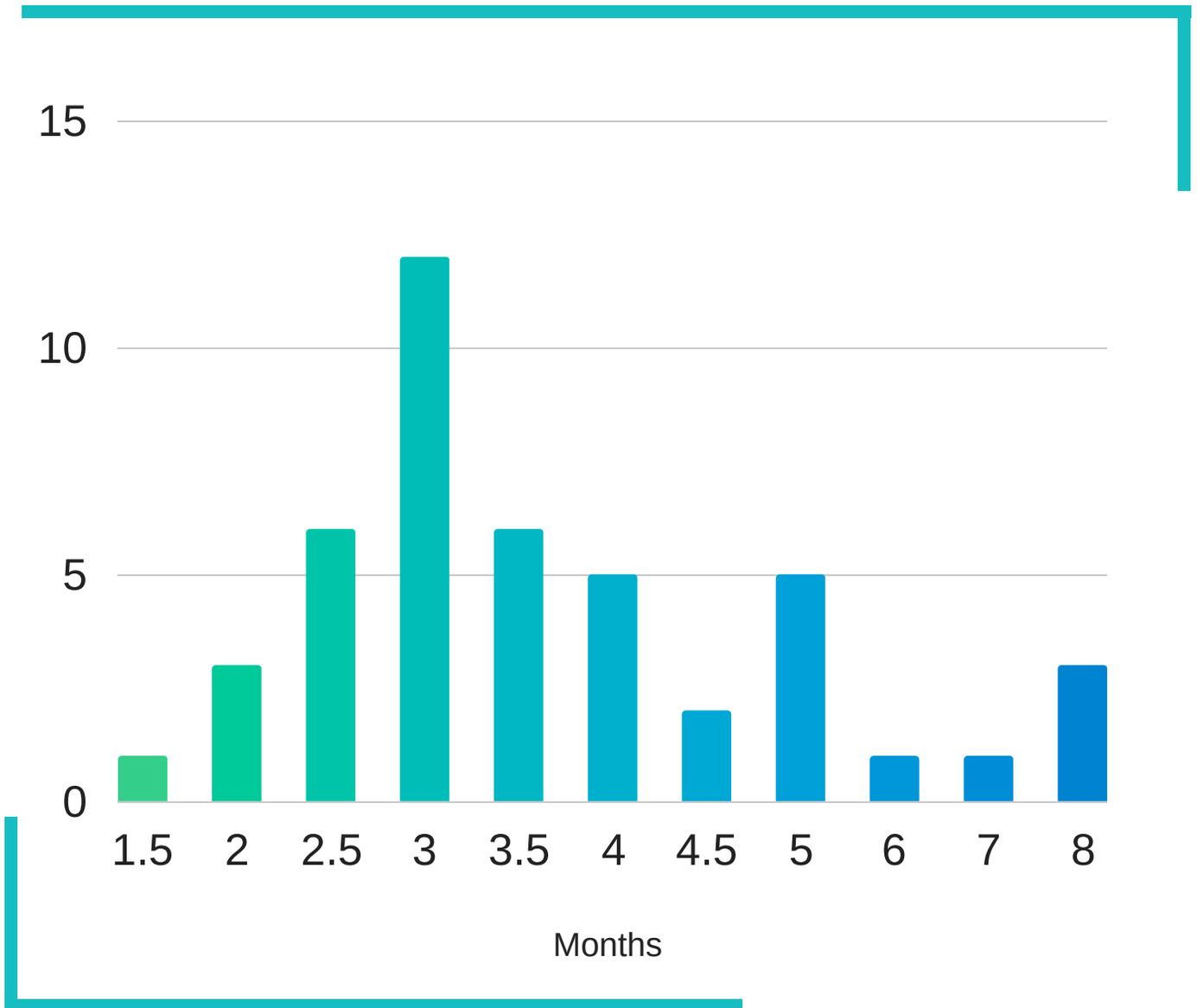
# Hosting Costs



Hosting costs for this app would be minimal, estimated at an average of \$275 per month.

# Timeline

Timeline estimates ranged from 1.5 to 8 months, with an average timeline for delivery of 3.8 months. 12 companies (26%) estimated their timeline for the project at 3 months.



# Offshore vs. Domestic

Although we specifically selected U.S.-based firms, we later discovered offshore offices for 40 of the 49 firms that submitted proposals. Perhaps unsurprisingly, firms with an offshore presence were more likely to submit a proposal: Of those firms contacted, 61% of firms with a clear offshore presence submitted proposals, compared to 27% of those firms with no apparent offshore offices. 18 of the 49 respondents had their largest offshore office in India— average all-in year-one development cost for these firms was \$47,596.

## Offshore Offices

Averages	Development cost	Maintenance cost	Timeline (months)	All-in first year*	All-in three years*
Mean	\$66,907	\$1,760	4	\$88,022	\$130,254
Min. value	\$8,100	\$130	2	\$9,660	\$12,780
First quartile	\$18,775	\$363	3	\$23,125	\$31,825
Median	\$39,538	\$800	3	\$49,138	\$68,338
Third quartile	\$71,805	\$1,925	4	\$94,898	\$141,086
Max. value	\$354,730	\$15,000	8	\$534,730	\$894,730

## No Offshore Offices

Averages	Development cost	Maintenance cost	Timeline (months)	All-in first year*	All-in three years*
Mean	\$214,274	\$5,683	4	\$282,470	\$418,862
Min. value	\$112,000	\$0	3	\$112,000	\$112,000
First quartile	\$120,000	\$2,500	4	\$150,000	\$210,000
Median	\$171,092	\$5,000	4	\$231,092	\$351,092
Third quartile	\$347,850	\$7,500	5	\$437,850	\$617,850
Max. value	\$366,750	\$13,947	7	\$534,114	\$868,842

\* Total cost includes only initial development costs and software maintenance costs. It does not include hosting costs, additional feature development costs, marketing costs, or management costs.

# Observations & Anecdotes

## **Offshore development offices are not always disclosed**

We intended to focus on domestic firms and searched the directory accordingly, but it seems that many firms had a sales office in the United States but were leveraging more affordable (and questionably lower quality) development labor in other countries. The people we were emailing with from these firms often had a limited command of English, and had trouble understanding our requests. As it became apparent that much of the proposed development would happen offshore, we further stratified the results to differentiate between domestic and offshore development.

## **Proposals didn't always meet requirements, and prices were often "subject to change"**

We were also surprised to see that several firms ignored our explicit requests or RFP requirements (e.g. for native apps, or for both mobile and web apps), resulting in lower initial quotes that could be "re-negotiated" at a later date, as most quotes were "subject to change" based on actual hours worked. Overall, it's important to note that the above costs are estimates, not actual development price tags.

## **Pricing may be negotiable**

After quotes were received and proposals were rejected, firms would reply that they could negotiate on price, indicating that pricing may be variable. One firm, for example wrote this: "If it's a cost issue - that's always something that can be discussed. We really like the project and would be willing to work with you if you wanted us to match a certain budget range."

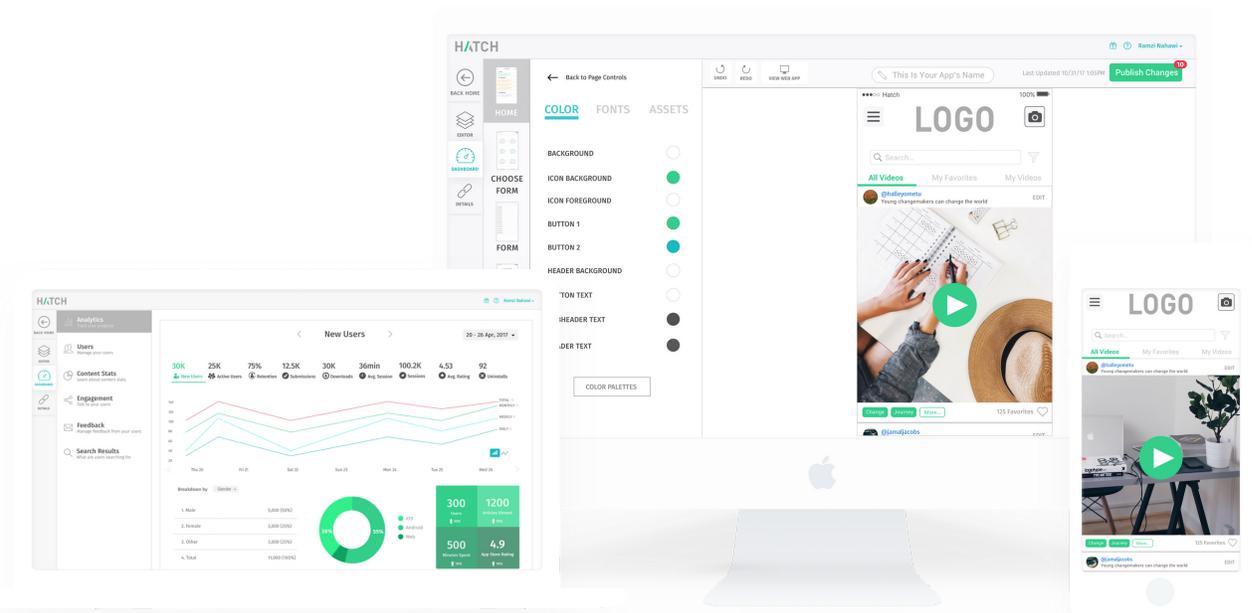
## **Many firms charge for a discovery process or the process of quoting development costs**

Some firms replied not with a proposal, but instead with a quote for some sort of discovery process. One company quoted us \$17,500 for their "rapid ideation" process, in which they wouldn't build any software at all. Another firm quoted \$70,000+ for "strategy, planning and requirements." Yet another quoted us \$68,000 for "discovery, design and technical architecture." Another proposed a \$45,000 for a two-week discovery process. By going through these processes, we could be promised an exact quote for development (as opposed to an estimate).

# Conclusion

Through this study, we found that over the first year, all-in development for the proposed app (just for software development and maintenance, not including hosting or other tools) would cost \$123,918 in the first year, and \$183,805 over three years. Those costs would soar to \$282,470 in year one and \$418,862 in three years in order to work with a domestic firm. Lastly, the average price for app maintenance was \$2,495 per month.

In our age of automation, it is inevitable that the inflated and variable pricing and timelines of the software development industry will be disrupted by tech-enabled, streamlined solutions. As you create apps for your business, and have determined what you want to want to build, [understand all of your development options](#), and maintain control of your software.



To learn more about the contents of this study, or about building an app, [book a conversation](#) with a member of the Hatch Apps team.

# Appendix

Below we've included raw data collected from the online directory (minimum project size, hourly rate, and firm size), from our own research (offshore firm), and from submitted proposals (development costs, maintenance costs, hosting costs, and timeline).

Company	Min. Project	Hourly Rate	Firm Size	Offshore	Proposal	Development Costs	Maintenance Costs	Hosting Costs	Timeline
1	\$50,000	\$150-190/hr	250-999						
2	\$50,000	\$150-190/hr	50-249						
3	\$25,000	\$50-99/hr	250-999	Y	Y	\$354,730	\$2,000	\$96	4
4	\$25,000	\$50-99/hr	250-999						
5	\$10,000	\$25-49/hr	50-249	Y	Y	\$21,000	\$333	\$150	4
6	\$10,000	\$25-49/hr	10-49	Y	Y	\$106,500	\$3,000		3
7	\$25,000	\$25-49/hr	250-999	Y	Y	\$38,220	\$2,000	\$175	2.5
8	\$5,000	<\$25/hr	50-249	Y	Y	\$26,000	\$433		5
9	\$25,000	\$100-149/hr	10-49						
10	\$100,000	\$100-149/hr	10-49						
11	\$25,000	\$50-99/hr	250-999	Y					
12	\$10,000	\$50-99/hr	10-49						
13	10,000	\$50-99/hr	10-49						
14	\$1,000	<\$25/hr	50-249	Y	Y	\$42,000	\$375	\$175	5
15	\$10,000	\$25-49/hr	50-249	Y	Y	\$47,795	\$800		3
16	\$10,000	\$25-49/hr	50-249	Y					
17	\$50,000	\$150-199/hr	50-249						
18	\$10,000	\$25-49/hr	50-249	Y	Y	\$144,752	\$7,500		3
19	\$10,000	\$50-99/hr	10-49	Y	Y	\$91,750	\$1,500		3
20	\$5,000	\$25-49/hr	1000-9999	Y	Y	\$35,156	\$330		2
21	\$10,000	\$100-149/hr	50-249	Y					
22	\$10,000	undisclosed	10-49	Y	Y	\$29,520	\$308		3
23	\$10,000	\$100-149/hr	10-49	Y	Y	\$79,300			
24	\$5,000	\$25-49/hr	50-249	Y	Y	\$42,420	\$1,200	\$33	2
25	\$50,000	\$100-149/hr	50-249	Y	Y	\$113,800	\$1,849		4
26	\$50,000	\$150-199/hr	10-49		Y	\$120,000	\$1,200		3.5
27	\$50,000	\$150-199/hr	50-249	Y					
28	\$50,000	\$100-149/hr	50-249	Y					
29	\$75,000	\$150-199/hr	10-49						
30	\$50,000	\$150-199/hr	50-249						
31	\$10,000	\$25-49/hr	50-249	Y					
32	\$10,000	\$25-49/hr	50-249	Y	Y	\$68,950	\$816	\$75	5
33	\$25,000	\$150-199/hr	10-49		Y	\$350,000	\$2,500		4
34	\$25,000	\$150-199/hr	10-49						
35	\$10,000	\$50-99/hr	10-49	Y	Y	\$50,000	\$417	\$500	3.5
36	\$25,000	\$100-149/hr	10-49						
37	\$50,000	\$150-199/hr	10-49						
38	\$50,000	\$150-199/hr	10-49		Y	\$145,000	\$5,000		3
39	\$10,000	\$25-49/hr	10-49	Y	Y	\$45,600	\$1,000	\$20	8
40	\$25,000	\$150-199/hr	10-49		Y	\$115,000	\$13,947	\$2,050	
41	\$100,000	\$50-99/hr	250-999	Y					
42	\$25,000	\$150-199/hr	10-49						
43	\$5,000	\$25-49/hr	50-249	Y	Y	\$15,000	\$250		
44	\$10,000	<\$25/hr	250-999	Y	Y	\$20,000	\$1,750		1.5
45	\$25,000	\$100-149/hr	10-49	Y					
46	\$25,000	\$100-149/hr	10-49						
47	\$10,000	\$50-99/hr	10-49	Y	Y	\$68,000	\$800	\$150	2
48	\$10,000	\$25-49/hr	250-999	Y	Y	\$18,400	\$450	\$80	3.5
49	\$25,000	\$25-49/hr	50-249	Y	Y	\$14,520	\$300	\$5	
50	\$10,000	<\$25/hr	50-249	Y	Y	\$20,768	\$640	\$110	2.5

# Appendix

Company	Min. Project	Hourly Rate	Firm Size	Offshore	Proposal	Development Costs	Maintenance Costs	Hosting Costs	Timeline
51	\$25,000	\$25-49/hr	250-999	Y	Y	\$50,450	\$1,200		3
52	\$10,000	\$150-199/hr	10-49						
53	\$50,000	\$50-99/hr	50-249	Y					
54	\$10,000	\$25-49/hr	10-49	Y	Y	\$18,900	\$500	\$88	3
55	\$5,000	<\$25/hr	50-249	Y					
56	\$10,000	\$100-149/hr	50-249	Y					
57	\$10,000	\$25-49/hr	50-249	Y	Y	\$18,000	\$350	\$55	4
58	\$10,000	\$100-149/hr	10-49	Y					
59	\$10,000	\$100-149/hr	50-249	Y					
60	\$5,000	<\$25/hr	50-249	Y	Y	\$11,320	\$189		2.5
61	\$25,000	\$100-149/hr	10-49	Y					
62	\$50,000	\$150-199/hr	50-249	Y	Y	\$280,000	\$15,000		4.5
63	\$5,000	\$50-99/hr	50-249		Y	\$112,000	\$0	\$125	3.5
64	\$25,000	\$100-149/hr	10-49	Y					
65	\$5,000	\$50-99/hr	250-999	Y					
66	\$25,000	\$25-49/hr	50-249	Y					
67	\$10,000	\$100-149/hr	10-49		Y	\$366,750	\$3,000	\$300	6
68	\$10,000	\$100-149/hr	10-49						
69	\$75,000	\$100-149/hr	50-249	Y	Y	\$320,000	\$3,000		5
70	\$75,000	\$150-199/hr	10-49						
71	\$10,000	\$25-49/hr	50-249	Y	Y	\$35,000	\$600		3
72	\$5,000	\$25-49/hr	10-49	Y	Y	\$39,980	\$1,058	\$350	5
73	\$10,000	\$150-199/hr	1000-9999	Y					
74	\$25,000	\$50-99/hr	10-49	Y	Y	\$130,000	\$2,000	\$470	8
75	\$1,000	\$100-149/hr	10-49	Y					
76	\$5,000	<\$25/hr	50-249	Y	Y	\$10,410	\$130	\$200	3
77	\$10,000	\$25-49/hr	50-249	Y					
78	\$25,000	\$100-149/hr	10-49						
79	\$75,000	\$100-149/hr	50-249		Y	\$171,092	\$6,000		3.5
80	\$10,000	\$150-199/hr	50-249						
81	\$25,000	\$25-49/hr	250-999	Y					
82	\$10,000	\$150-199/hr	10-49						
83	\$10,000	\$25-49/hr	250-999	Y	Y	\$16,600	\$2,000	\$660	2.5
84	\$25,000	\$100-149/hr	50-249		Y	\$347,850	\$7,500		4.5
85	\$25,000	\$100-149/hr	50-249						
86	\$25,000	\$100-149/hr	10-49	Y					
87	\$10,000	\$100-149/hr	50-249		Y	\$200,778	\$12,000	\$340	7
88	\$5,000	<\$25/hr	50-249	Y	Y	\$8,100	\$300		2.5
89	\$25,000	\$50-99/hr	50-249	Y					
90	\$5,000	\$100-149/hr	10-49						
91	\$25,000	\$25-49/hr	50-249	Y	Y	\$39,096	\$1,250		2.5
92	\$25,000	\$100-149/hr	1000-9999	Y					
93	\$10,000	< \$25 / hr	250 - 999	Y	Y	\$9,888	\$200		3
94	\$10,000	\$25-49/hr	10-49	Y	Y	\$69,306	\$2,000		3
95	\$5,000	< \$25 / hr	10-49	Y					
96	\$10,000	\$25-49/hr	10-49	Y	Y	\$110,499	\$10,000	\$294	8
97	\$10,000	< \$25 / hr	250-999	Y	Y	\$14,544	\$800	\$90	3.5
98	\$10,000	\$100-149/hr	250-999	Y					
99	\$10,000	\$150-199/hr	10-49						
100	\$25,000	\$100-149/hr	10-49						