

# PayPal Holdings, Inc.

## *Patent Portfolio Analysis*

*July 2019*

## Introduction

PayPal Holdings, Inc. is a technology platform and digital payments company that enables parties to make payments through online fund transfers. The Company's payment platform includes its PayPal, PayPal Credit, Braintree, Venmo, Xoom and Paydiant products. PayPal's online payment system offers electronic alternatives to traditional payment methods such as money orders and checks.

PayPal was established in 1998 as Confinity, a company that developed security software for handheld devices. In 2000, Confinity merged with X.com, an Elon Musk company that offered internet banking services. X.com was renamed PayPal in 2001 and went public in 2002. PayPal is now one of the world's largest internet payment service providers. <sup>[1]</sup>

For this report, we have analyzed a total of 3068 currently active published patent applications in the PayPal's portfolio. Unless otherwise stated, the report displays numbers for published patent applications. The analytics are presented in the various charts and tables that follow. These include the following,

- Portfolio Summary
- Published Applications – Growth
- Key Geographies
- Top Sub-technologies
- Top Forward Citing (FC) Assignees
- Technologies cited by the FC Assignees
- Topic Map – Concepts
- Top CPC Codes
- Evolution of the Top CPC Codes
- Select Key Patents in the Portfolio
- Patent Quality by Sub-technologies
- Portfolio Taxonomy
- Competitor comparison by Technology Categories

## Insights

- The U.S. is the preferred jurisdiction for PayPal to file in, comprising more than 80% of the published applications.
- The average patent quality of the portfolio is relatively high. PayPal's portfolio has an average Relecura Star rating of 2.73 out of 5. Typically, a patent with a Relecura Star rating of 3 or more is deemed as one of high-quality.
- About 50% of PayPal's active patent portfolio covers the sub-technology area of 'Data processing in relation to payments'.
- Technologies covered by the CPC code G06Q 20/3224 (Transactions depending on the location of mobile devices) show the highest year-on-year growth post 2014.

## Sources

1. [PayPal \(Wikipedia.org\)](https://en.wikipedia.org/wiki/PayPal)

## Published Applications - Summary

**TOTAL DOCUMENTS COUNT (APPLICATIONS)**  
**3,068**

### PUBLICATION TYPES



● Applications ● Grants

**Peak Year of Activity**  
 2018 (483)

**Top Active Jurisdiction**  
 US (2,549)

### IP TYPES



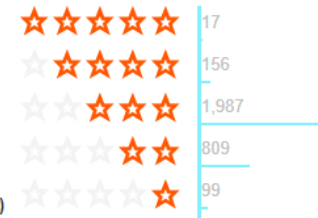
● Invention ● Design ● Model

**No of technologies (75)**

**Top Rated**  
 US8438069B2 (4.5)

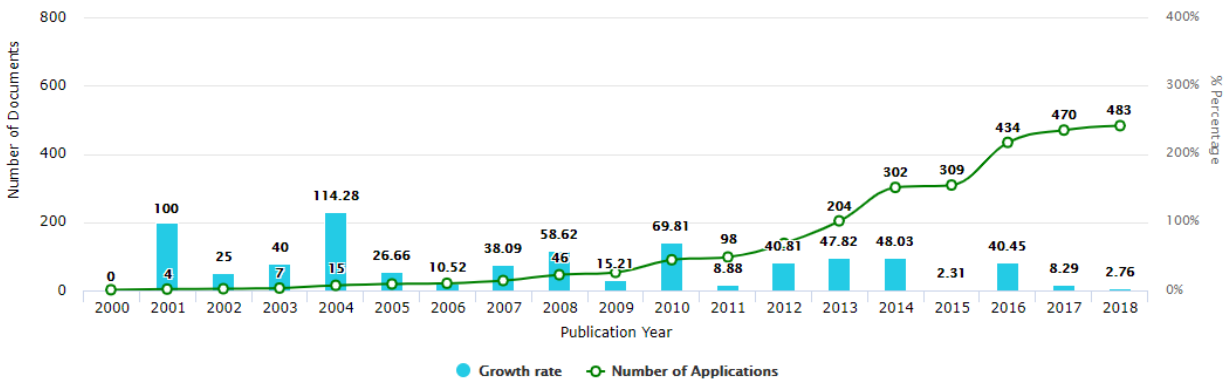
### PATENT BY STAR RATING

**2.73**

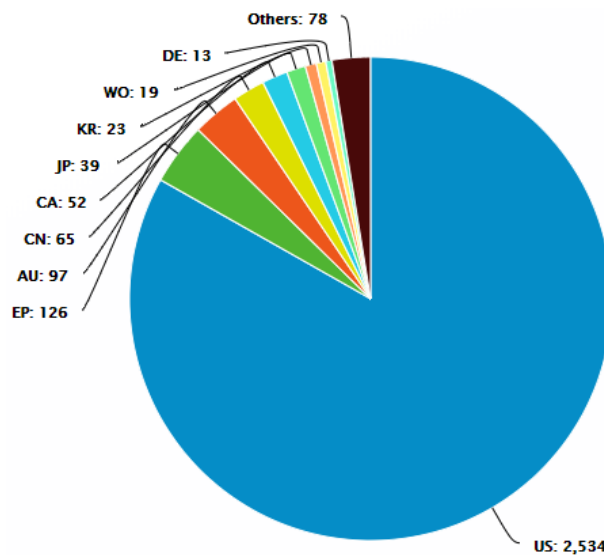


**Top Cited**  
 US7848765B2 (810)

## Published Applications – Growth



## Key Geographies



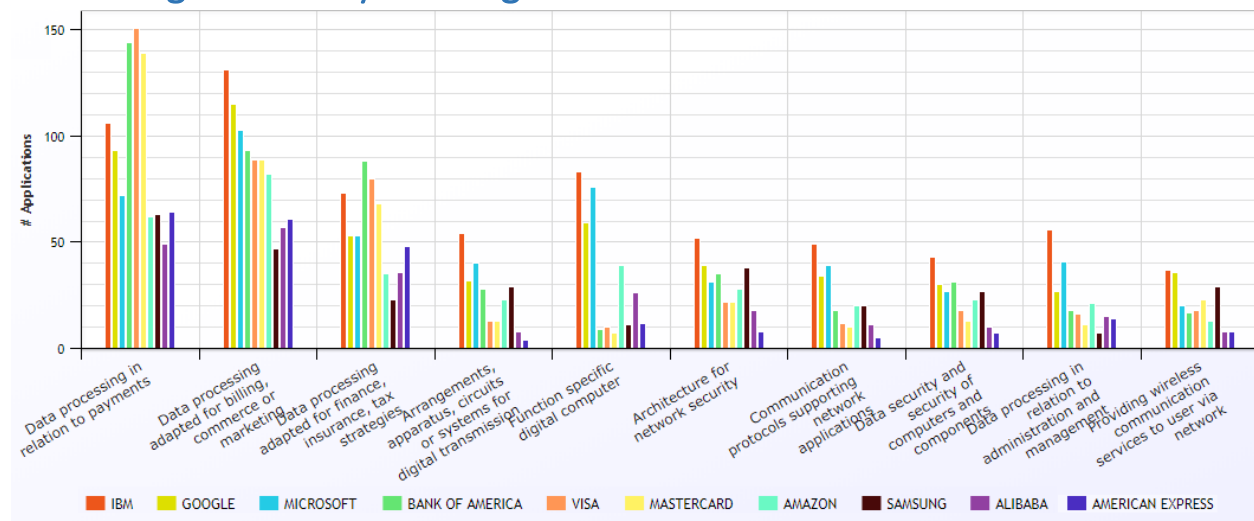
## Top Sub-technologies

Sub-Technologies	# Applications
Data processing in relation to payments	1483
Data processing adapted for billing, commerce or marketing	1285
Data processing adapted for finance, insurance, tax strategies	627
Arrangements, apparatus, circuits or systems for digital transmission	510
Function specific digital computer	460
Architecture for network security	426
Communication protocols supporting network applications	368
Data security and security of computers and components	368
Data processing in relation to administration and management	319
Providing wireless communication services to user via network	318

## Top Forward Citing (FC) Assignees

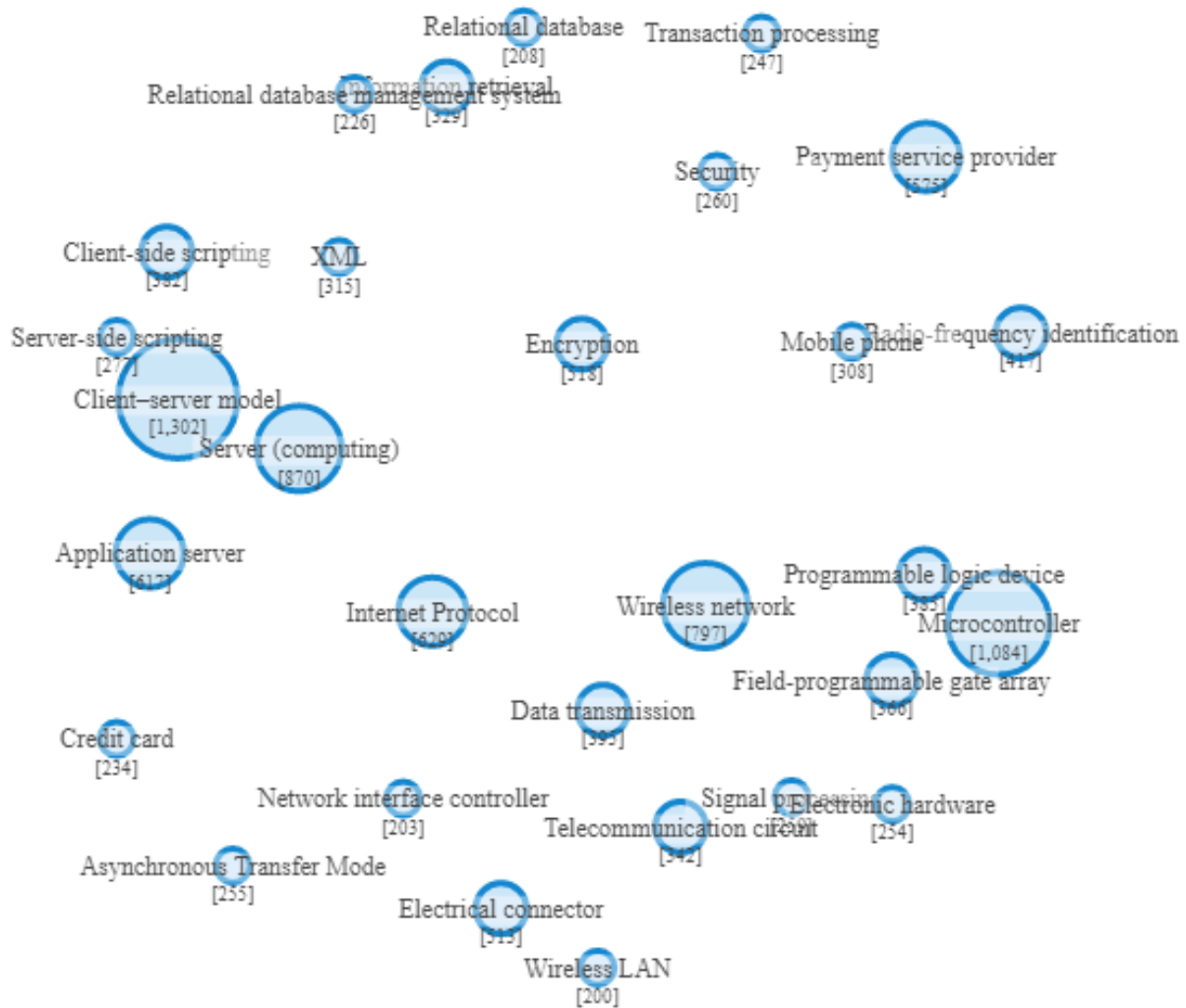
FC Assignees	# Applications
IBM	343
MICROSOFT	248
GOOGLE	241
BANK OF AMERICA	194
VISA	173
MASTERCARD	168
AMAZON	166
SAMSUNG	135
ALIBABA	111
SQUARE INC	96

## Technologies cited by FC Assignees



## Topic Map – Concepts

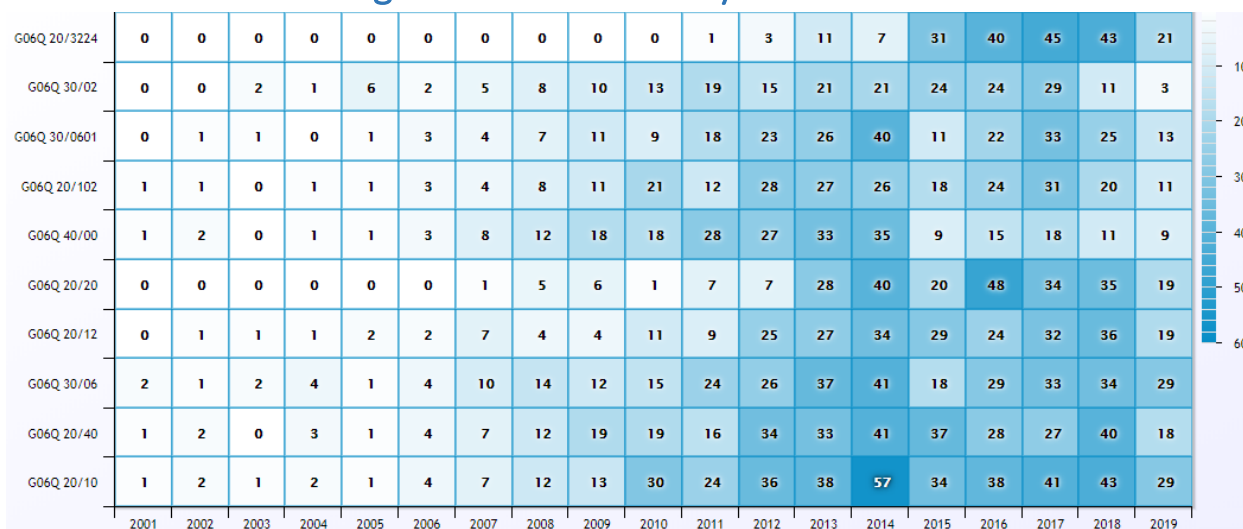
- The bubble size corresponds to the total number of patent applications for each concept.
- The bubble proximity corresponds to the “relatedness” of the individual concepts.



## Published Applications - Top CPC Codes

CPC Code	Description	# Applications
G06Q 20/10	Data processing in relation to payments >> specially adapted for electronic funds transfer [EFT] systems; specially adapted for home banking systems	414
G06Q 20/40	Data processing in relation to payments >> Authorisation, e.g. identification of payer or payee, verification of customer or shop credentials; Review and approval of payers, e.g. check credit lines or negative lists	340
G06Q 30/06	Data processing adapted for billing, commerce or marketing >> Buying, selling or leasing transactions	335
G06Q 20/12	Data processing in relation to payments >> specially adapted for electronic shopping systems	267
G06Q 20/20	Data processing in relation to payments >> Point-of-sale [POS] network systems	251
G06Q 20/102	Data processing in relation to payments >> Bill distribution or payments	248
G06Q 40/00	Data processing adapted for finance, insurance, tax strategies >> Finance; Insurance; Tax strategies; Processing of corporate or income taxes	248
G06Q 30/0601	Data processing adapted for billing, commerce or marketing >> Electronic shopping	247
G06Q 30/02	Data processing adapted for billing, commerce or marketing >> Marketing, e.g. market research and analysis, surveying, promotions, advertising, buyer profiling, customer management or rewards; Price estimation or determination	214
G06Q 20/3224	Data processing in relation to payments >> Transactions dependent on location of M-devices	201
G06Q 20/322	Data processing in relation to payments >> Aspects of commerce using mobile devices [M-devices]	198
G06Q 20/405	Data processing in relation to payments >> Establishing or using transaction specific rules	196
G06Q 40/02	Data processing adapted for finance, insurance, tax strategies >> Banking, e.g. interest calculation, credit approval, mortgages, home banking or on-line banking	196
G06Q 30/0641	Data processing adapted for billing, commerce or marketing >> Shopping interfaces	177
G06Q 20/32	Data processing in relation to payments >> using wireless devices	163
G06Q 40/025	Data processing adapted for finance, insurance, tax strategies >> Credit processing or loan processing, e.g. risk analysis for mortgages	152
G06Q 20/02	Data processing in relation to payments >> involving a neutral party, e.g. certification authority, notary or trusted third party [TTP]	146
G06Q 20/401	Data processing in relation to payments >> Transaction verification	146
G06Q 20/4014	Data processing in relation to payments >> Identity check for transaction	143
G06Q 20/382	Data processing in relation to payments >> insuring higher security of transaction	142

## Evolution of Technologies - CPC Code Analysis



Refer to the previous table for the CPC code descriptions.

## Select Key Patents in the Portfolio

Publication Number	Title	# Forward Citations	Star Rating
US9305295B2	Payment processing methods and systems	150	4.5
US9400978B2	Methods and systems for selecting accounts and offers in payment transactions	86	4.5
US10304051B2	NFC mobile wallet processing systems and methods	50	4.5
US8326315B2	Location-based services	289	4.5
US9329951B2	System and method to uniformly manage operational life cycles and service levels	85	4.5
US8438069B2	Methods and systems to facilitate a purchase of an item on a network-based marketplace	120	4.5
US8380177B2	Mobile phone payment processing methods and systems	716	4.5
US9947011B2	Environment and methods for enabling electronic transactions	68	4.5
US7848765B2	Location-based services	810	4.5
US9442810B2	Cloud computing: unified management console for services and resources in a data center	174	4.5

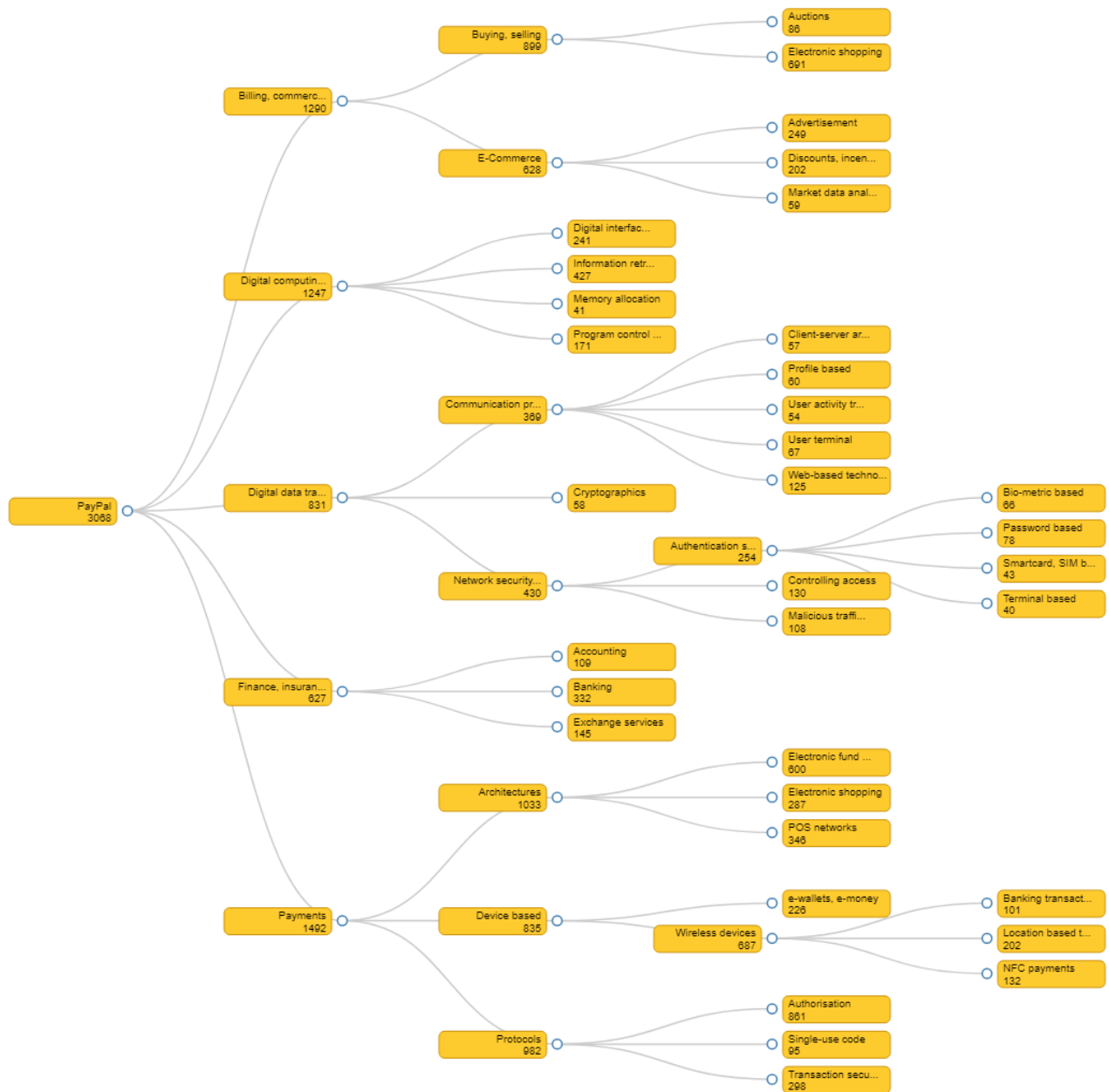
## High Quality\* Patents - Top Sub-technologies Covered

(\*High Quality ~ Relecura Star Rating 3 or more on a scale of 5)

Sub-technologies	Relecura Star Rating			
	3	3.5	4	4.5
Data processing in relation to payments	162	53	35	12
Data processing adapted for billing, commerce or marketing	169	44	37	8
Data processing adapted for finance, insurance, tax strategies	91	36	26	5
Arrangements, apparatus, circuits or systems for digital transmission	65	12	8	1
Function specific digital computer	70	19	8	0
Architecture for network security	56	15	13	3
Data security and security of computers and components	50	11	8	3
Communication protocols supporting network applications	52	9	4	4
Data processing in relation to administration and management	39	11	3	0
Providing wireless communication services to user via network	38	13	16	3
Digital interface arrangements	35	4	0	2
Data processing adapted for business sector	12	2	6	1
Security arrangements, Authentication, Protecting privacy for wireless communication	31	7	11	2
Program control unit	34	10	3	2
Cryptographics for secret digital communication	26	11	9	0
Actuating the dispensing action by cards and object, other than coins	13	10	3	0
Data switching networks	17	2	1	2
Digital computers and data processing devices	33	6	3	0
Arithmetic operations, Asynchronous digital pipeline	32	8	6	0
Reading or recognising printed or written characters	4	2	1	0



## Portfolio Taxonomy



## Competitor Comparison – Break-up by Technology Categories

(# Applications given for color-coded categories)

Technology Categories				PayPal	Visa	Mastercard	Alphabet	Intuit	Square	
Billing, commerce, marketing	Buying, selling	Auctions		86	25	29	184	4	1	
		Electronic shopping		691	298	457	677	47	59	
	E-Commerce	Advertisement		249	257	233	3049	43	24	
		Discounts, incentives		202	492	431	399	29	27	
		Market data analysis		59	41	146	256	18	6	
Digital computing systems	Digital interface arrangements		241	103	91	8840	150	56		
	Information retrieval		427	182	403	11781	276	22		
	Memory allocation		41	28	15	1395	31	1		
	Program control unit		171	82	71	3775	265	28		
Digital data transmission	Communication protocols	Client-server architectures		57	13	10	595	12	0	
		Profile based		60	60	62	682	18	1	
		User activity tracking		54	19	31	643	4	9	
		User terminal		67	28	40	544	8	3	
		Web-based technology		125	53	59	1151	57	0	
	Cryptographics		58	373	176	406	30	17		
	Network security architecture	Authentication support	Bio-metric based		66	88	120	150	1	1
			Password based		78	147	144	299	10	17
			Smartcard, SIM based		43	122	88	198	4	10
			Terminal based		40	44	69	158	6	0
Controlling access			130	225	134	989	92	2		
Malicious traffic		108	61	66	267	84	9			
Finance, insurance, tax strategies	Accounting		109	231	161	43	407	15		
	Banking		332	469	435	58	225	86		
	Exchange		145	18	50	106	26	1		
Payments	Architectures	Electronic fund transfer		600	825	1059	206	122	119	
		Electronic shopping		287	454	430	187	28	24	
		POS networks		346	778	873	207	98	322	
	Device based	e-wallets, e-money		226	597	909	303	13	35	
		Wireless devices	Banking		101	155	260	24	10	61
			Location based		202	221	277	105	17	93
			NFC payments		132	321	396	215	13	80
	Protocols	Authorisation		861	1904	2544	405	104	274	
		Single-use code		95	534	400	28	15	10	
Transaction			298	833	839	138	14	61		

## Contact Us

Do get in touch with us with your specific needs related to intelligence and decision support on all matters related to technology and its business impact. We will figure the best way to address your needs with an appropriate combination of our technology and reports. We offer a range of tailored solutions and flexible engagement models.



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**Relecura** offers IP analytics tools and a custom enterprise platform to corporations, law firms, IP services firms, R&D organizations and academic institutions. The enterprise platform integrates the discovery and analysis of public documents with internal company documents. Relecura also has an API to help create custom tools for IP and business intelligence. For more details visit [www.relecura.com](http://www.relecura.com).

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