

# Alibaba Group

## *Patent Portfolio Analysis*

*September 2019*

## Introduction

Alibaba Group Holding Limited is a Chinese e-commerce company specializing in e-commerce, retail and Internet services. The company provides consumer-to-consumer, business-to-consumer and business-to-business sales services via web portals, as well as electronic payment services, a shopping search engine and data-centric cloud computing services.

Established in 1999 by Jack Ma, the Alibaba Group began its operations with a website Alibaba.com that helped small Chinese exporters, manufacturers and entrepreneurs to sell internationally. Since then, the company has grown into a global leader in online and mobile commerce. Alibaba Group and its related companies operate leading wholesale and retail online marketplaces as well as businesses in cloud computing, digital media and entertainment.

Amidst market speculation on the impact of Jack Ma stepping down from his leadership role at Alibaba, we look at the patent assets of the Alibaba Group, one of the world's largest e-commerce companies. For this report, we have analyzed a total of 24556 currently active published patent applications in the Alibaba Group portfolio. Unless otherwise stated, the report displays numbers for published patent applications that are in force. The analytics are presented in the various charts and tables that follow. These include the following,

- Portfolio Summary
- Published Applications – Growth
- Key Geographies
- Top Forward Citing (FC) Assignees
- Technologies cited by the FC Assignees
- Evolution of the Top CPC Codes
- Recent Patent Filings in New Technology Areas
- Fast Growing Technology Segments
- Portfolio Age and Decay
- Competitor Comparison by Technology Categories
- Portfolio Taxonomy

## Insights

- Alibaba's year-wise published patents exhibit a sharp upward trend post 2015 and a decline post 2017.
- China, with a nearly 60% share of the published applications, is the preferred filing jurisdiction for the Alibaba Group.
- Technologies covered by CPC codes such as G06F 16/00 (Database/file structures), H04L 29/06 (Digital transmission by a protocol) and H04L 29/08 (Transmission control procedure) show the highest year-on-year growth.
- Technologies covered by CPC codes such as H04L 67/02 (Hypertext transfer protocol), G06F 16/9535 (Search customisation based on user profiles), G06F 16/951 (Web crawling), H04L 63/08 (Authentication through packet data) and H04L 67/42 (Protocols for client-server architectures) show a declining trend.
- 'Manipulating 3D models or images for computer graphics' and 'Other optical devices' are a couple of the newer technology areas where Alibaba holds published patents post-2017.
- 'Data processing for finance, insurance and tax' is the fastest growing technology segment, followed by 'Data processing for admin, management' within Alibaba's portfolio.
- The Portfolio age and decay chart displays the number of unexpired applications at the end of each year, assuming the portfolio solely comprises of patent publications held at this juncture. We see that the expiry of patents each year causes only a gradual decrease in the size of the overall portfolio till around 2030. A rapid drop-off is observed only post 2030 indicating that most of the patents have recent filing dates. This fact, coupled with patents that will be filed in the coming years, should provide Alibaba with good coverage and a healthy portfolio in the coming years.
- A category-wise competitor comparison shows that Alibaba directly competes with Alphabet in several different technology categories. Amazon and Tencent also have a strong presence in some of the technology categories covered by Alibaba's portfolio.

## Published Applications - Summary

TOTAL DOCUMENTS COUNT (APPLICATIONS)

**24,556**

### PUBLICATION TYPES



● Applications ● Grants

**Peak Year of Activity**  
2017 (6,715)

**Top Active Jurisdiction**  
CN (14,472)

### IP TYPES



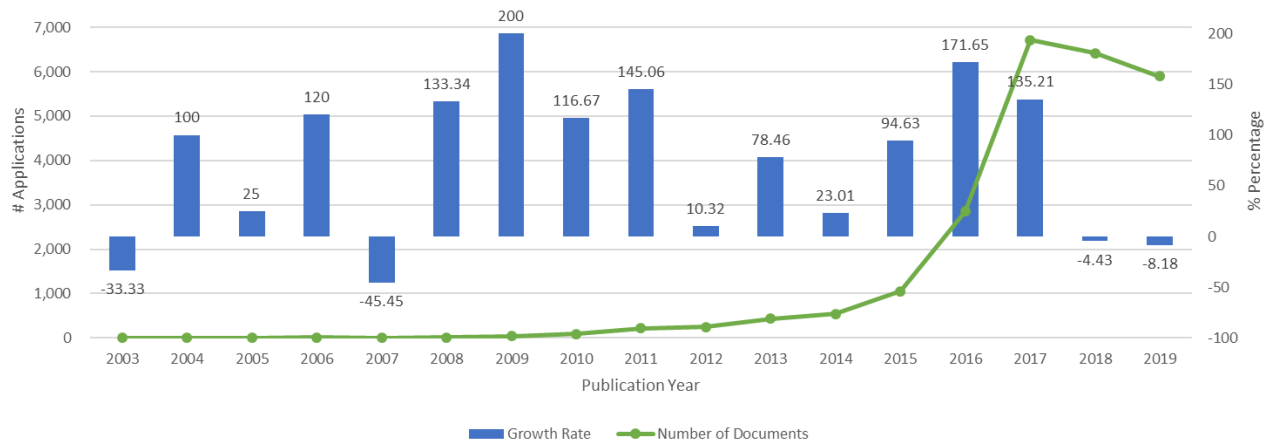
● Invention ● Model ● Design

**No of technologies** (160)

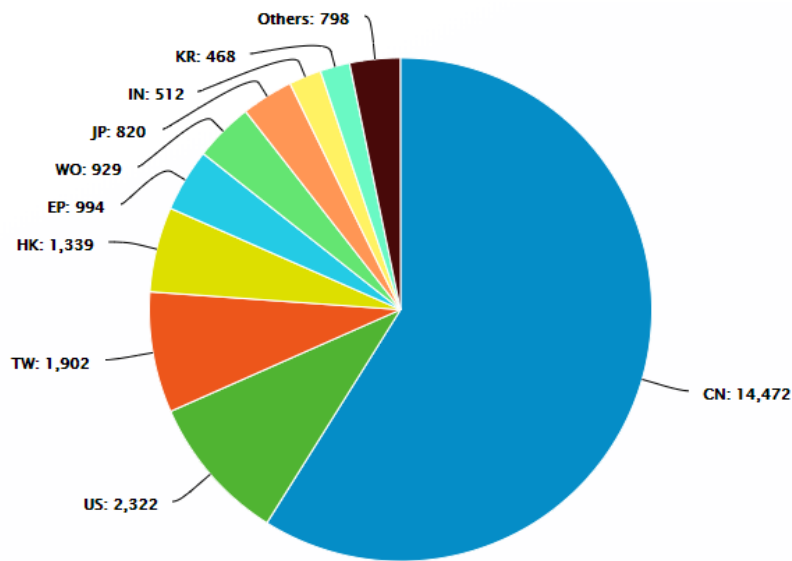
**Top Rated**  
US8892461B2 (4.5)

**Top Cited**  
US7124327B2 (179)

## Published Applications – Growth



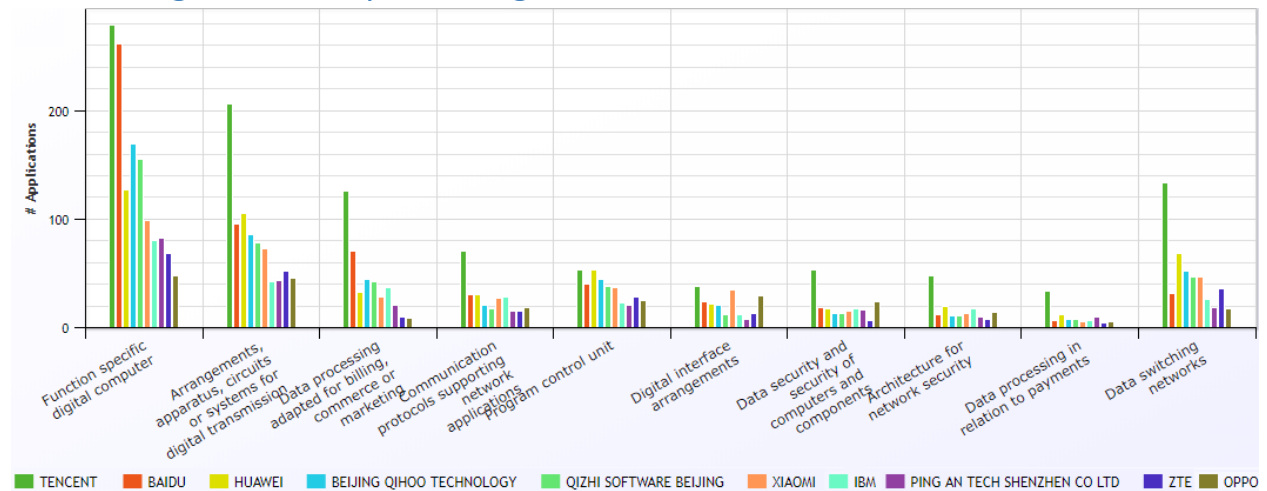
## Key Geographies



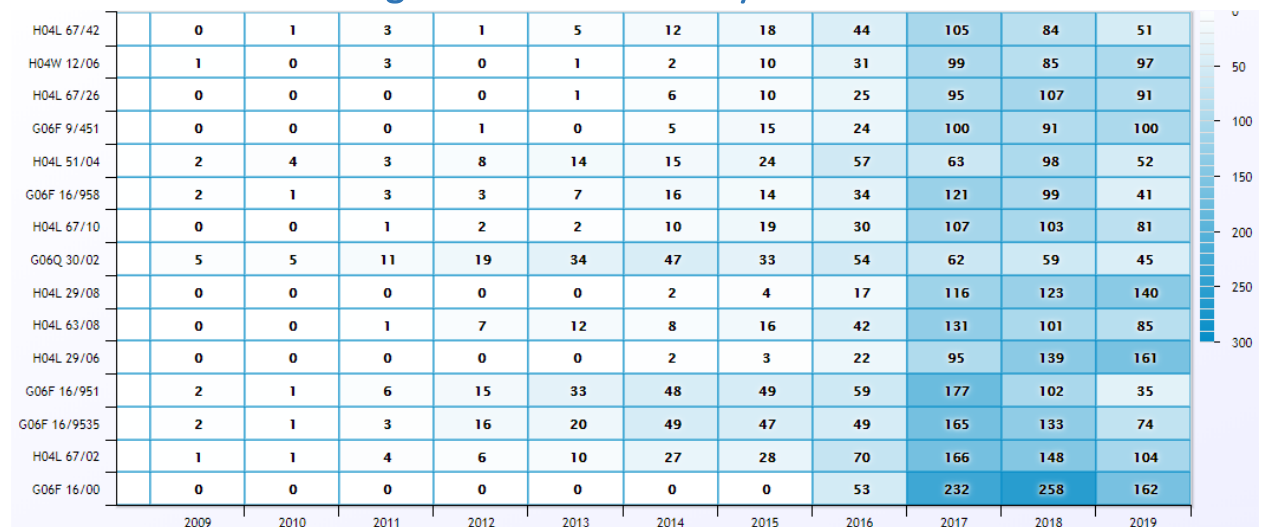
## Top Forward Citing (FC) Assignees

FC Assignees	# Applications
TENCENT	754
BAIDU	494
HUAWEI	369
BEIJING QIHOO TECHNOLOGY	362
QIZHI SOFTWARE	318
XIAOMI	268
PING AN TECH SHENZHEN	220
IBM	189
OPPO	188
ZTE	184

## Technologies cited by FC Assignees



## Evolution of Technologies - CPC Code Analysis



CPC Code	Description
G06F 16/00	Information retrieval; Database structures therefor; File system structures therefor
H04L 67/02	Communication protocols supporting network applications >> involving the use of web-based technology, e.g. hypertext transfer protocol [HTTP]
G06F 16/9535	Search customisation based on user profiles and personalisation
G06F 16/951	Indexing; Web crawling techniques
H04L 29/06	Arrangements, apparatus, circuits or systems for digital transmission >> characterised by a protocol
H04L 63/08	Architecture for network security >> for supporting authentication of entities communicating through a packet data network

CPC Code	Description
H04L 29/08	Arrangements, apparatus, circuits or systems for digital transmission >> Transmission control procedure, e.g. data link level control procedure
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
H04L 67/10	Communication protocols supporting network applications >> in which an application is distributed across nodes in the network
G06F 16/958	Organisation or management of web site content, e.g. publishing, maintaining pages or automatic linking
H04L 51/04	User-to-user messaging in packet-switching networks >> Real-time or near real-time messaging, e.g. instant messaging [IM]
G06F 9/451	Program control unit >> Execution arrangements for user interfaces
H04L 67/26	Communication protocols supporting network applications >> Push based network services
H04W 12/06	Security arrangements, Authentication, Protecting privacy for wireless communication >> Authentication
H04L 67/42	Communication protocols supporting network applications >> Protocols for client-server architectures



































## Recent Patent Filings in New Technology Areas

*(Technologies addressed by published applications only from 2017)*

Technologies	# Applications
Manipulating 3D models or images for computer graphics	93
Other optical devices	55
Vehicles control system	31
Packet switching elements	28
Stereoscopic TVs	27
Coin freed apparatus for dispensing single object	20
Data processing systems for environmental applications	20
Optical multiplexer	19
Details of loudspeakers and microphones	18
Information retrieval in data processing systems	17
Testing and repairing memories	15
Selecting arrangements for multiplex systems	14
Storing articles, individually or orderly, in warehouses or magazines	13
Visual cryptography, Ciphering techniques for securing data	13
Registration or de registration of terminals to network	12
Application of non electric variables control system	11
Data security in display device	10
Detecting the presence, distance or velocity of object using reflection or reradiation of acoustic waves	10
Sorting articles according to destination	10
Determining distance or velocity not using reflection or reradiation of EM waves	9
Digital data processing in printers	9
EPROM	9
Eye testing apparatus	9
Packet embedding and encapsulation	9
Registering and indicating the condition of working of vehicles	9
Broadcast applications and systems	7
Charging, depolarising batteries and supplying loads from batteries	6
Diagnosis, testing or measuring for TV systems	6
Measurements using optics between IR and UV	6
Mounting of power plant in aircraft	6

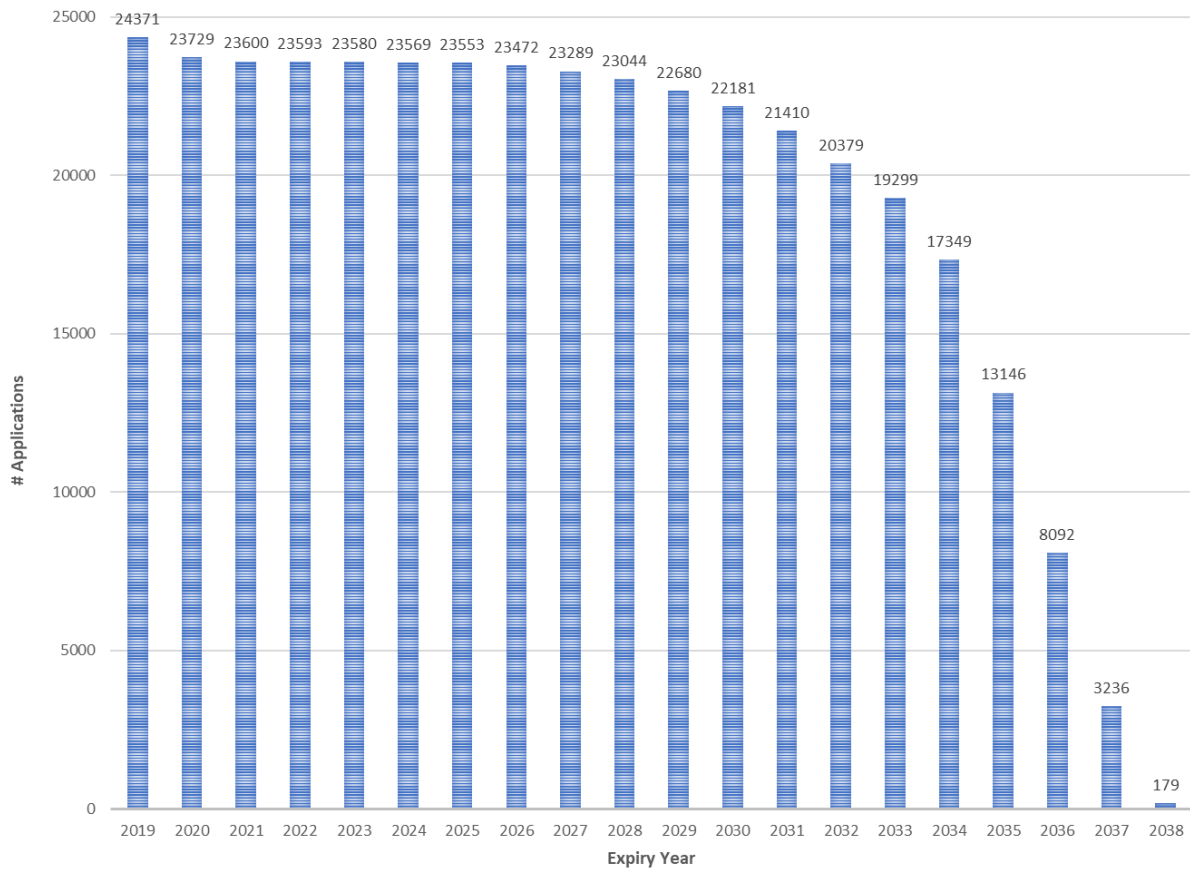
## Fast Growing Technology Segments

(Numbers shown are for Patent Equivalents)

Sub-technologies	Specific Segment	2013	2014	2015	2016	2017	2018	Trend
Data processing for finance, insurance & tax	Exchange (stocks, commodities)	2	3	1	1	29	85	
	Taxes	11	10	9	13	138	218	
	Banking	5	7	5	10	38	60	
Data processing for admin, management	Risk analysis	1	1	1	1	31	73	
	Resources, workflows, human or project management	2	2	4	18	77	150	
	Admin, Management	12	17	19	70	238	325	
	Inventory, stock management	1	2	2	6	44	40	
Reading/recognising printed or written characters	Obtaining sets of training patterns	1	1	1	1	31	67	
	Classification techniques	4	3	2	8	41	70	
	Recognition by electronic means	5	9	10	23	120	181	
	Methods for reading/recognising	9	16	24	48	216	301	
	Matching, Proximity measures	2	2	5	10	29	44	
Data processing for billing, commerce & marketing	Discounts or incentives	1	1	3	8	39	81	
	Shopping interfaces	1	4	3	11	49	67	
	Purchase orders	1	3	5	8	45	56	
	Item recommendations	7	11	16	22	34	68	
Program control unit	Hypervisor-specific management	1	2	2	6	27	53	
	Hypervisors, Virtual machine monitors	1	2	2	7	34	58	
	Emulation, Interpretation, Software	1	2	4	13	50	72	
	Program based	1	1	4	7	69	56	
	Machine based resources	5	3	5	9	53	61	
Data processing for payments	Proximity payments of M-devices	1	1	5	11	56	89	
	Insuring higher security of transaction	2	2	4	12	66	95	
	By wireless devices	5	4	9	29	89	136	
	Fraud or risk level assessment	1	2	2	11	40	52	
	Transaction verification	3	5	5	29	131	149	
	Payment protocols	9	12	15	55	214	267	
	Payment architectures	16	20	23	82	327	404	
	Authorisation	7	8	9	41	168	197	
Cryptographics	For secure communication	2	2	8	35	165	177	
	Authentication	2	2	7	21	123	128	
	Password, passphrase or PIN	1	1	3	8	39	40	
Digital interface arrangements	Digital input to record carriers	1	2	4	12	51	56	
	Control of specific functions or	2	6	9	38	150	144	
Function specific digital computer	Recognition	3	6	5	6	49	63	
	Automatic analysis	7	8	13	19	102	106	



## Portfolio Age and Decay

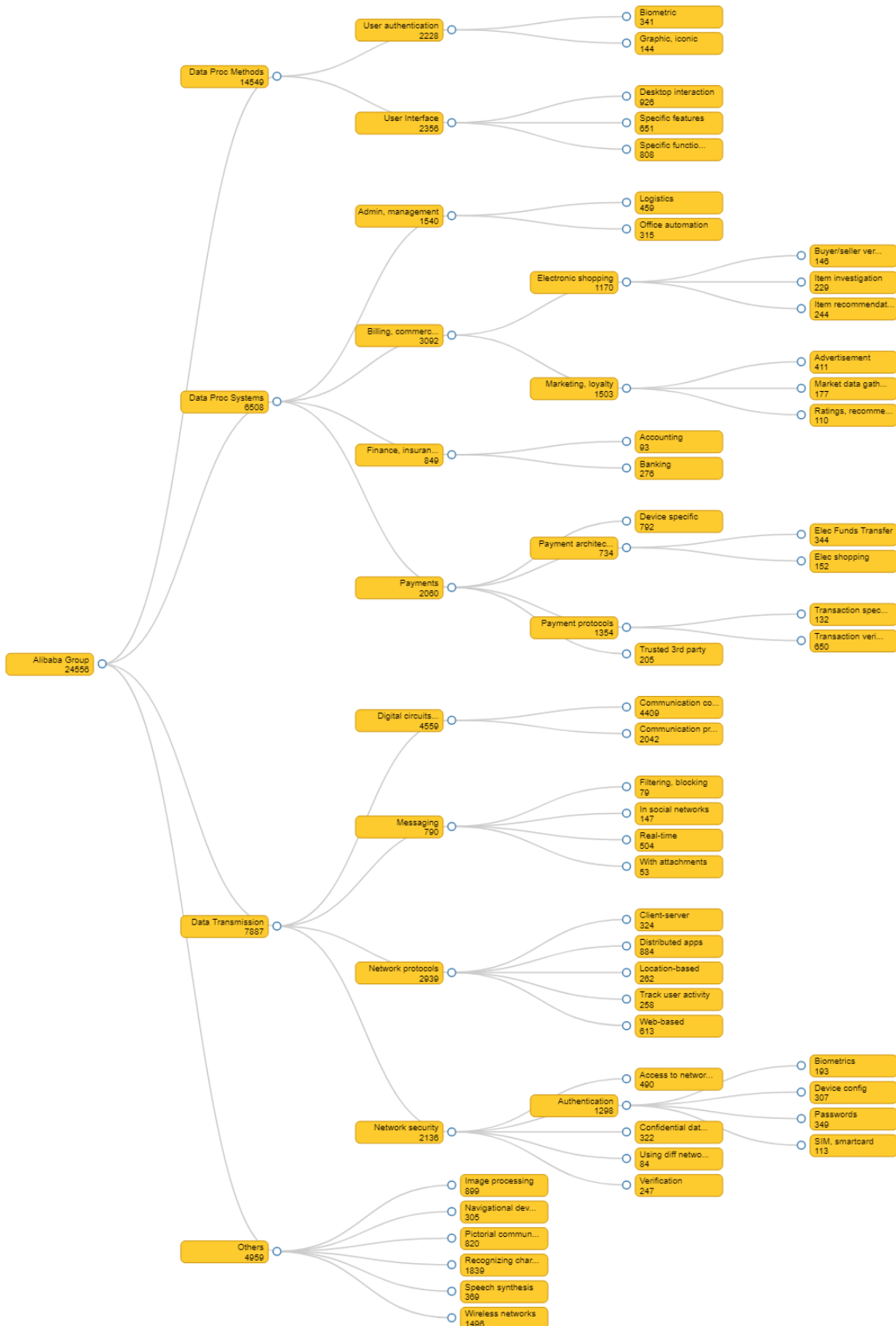


## Competitor Comparison – Break-up by Technology Categories

(# Applications given for color-coded categories)

Technology Categories				Alibaba	Alphabet	Amazon	Baidu	Tencent	Didi	Rakuten	eBay	
Data Proc Methods	User authentication	Biometric		341	301	51	82	133	0	20	30	
		Graphic, iconic		144	130	31	33	129	0	22	35	
	User Interface	Desktop interaction		926	2926	461	250	1120	21	284	272	
		Specific features		651	2018	330	250	845	18	175	112	
Data Proc Systems	Admin, management	Specific functions, operations		808	2654	437	231	1121	24	236	279	
		Logistics		459	231	1049	25	22	43	73	196	
	Billing, commerce or marketing	Electronic shopping	Office automation		315	2042	239	44	403	6	126	149
			Buyer/seller verification		146	42	42	3	17	5	18	101
			Item investigation		229	149	236	25	33	4	119	482
		Marketing, loyalty	Item recommendations		244	158	319	35	63	5	90	322
			Advertisement		411	3107	437	111	392	22	250	479
			Market data gathering		177	259	110	40	50	8	30	86
	Finance, insurance, tax	Accounting	Ratings, recommendation		110	136	65	8	29	4	47	107
			Banking		93	47	22	0	15	0	6	39
	Payments	Device specific	Banking		276	58	51	7	105	2	42	62
			Payment architectures		792	665	146	22	321	4	174	202
		Payment protocols	Elec Funds Transfer		344	208	107	10	134	3	70	133
			Elec shopping		152	187	121	7	113	0	66	106
			Transaction specific rules		132	83	34	5	39	0	5	26
Transaction verification				650	232	63	40	206	0	32	106	
Data Transmission	Digital circuits, systems	Trusted 3rd party		205	92	39	7	61	0	38	37	
		Communication control		4409	4963	2975	1341	5655	112	222	458	
	Messaging	Communication protocols		2042	2992	1785	521	2306	68	91	310	
		Filtering, blocking		79	224	21	0	94	0	6	12	
		In social networks		147	471	39	12	580	0	13	31	
		Real-time		504	606	45	28	937	6	20	35	
	Network protocols	With attachments		53	92	16	1	79	0	7	2	
		Client-server		324	613	344	29	293	0	14	122	
		Distributed apps		884	1756	1370	161	896	10	65	148	
		Location-based		262	544	159	54	202	52	12	62	
		Track user activity		258	648	189	37	257	9	20	82	
		Web-based		613	1164	577	107	620	1	59	224	
	Network security	Access to network resources		490	1001	694	47	355	0	23	107	
		Authentication	Biometrics		193	148	52	29	90	1	8	22
			Device config		307	160	111	14	126	1	15	5
Passwords				349	299	198	25	200	3	25	41	
SIM, smartcard				113	198	69	1	54	0	6	19	
Confidential data exchange			322	675	385	31	233	6	28	32		
Diff networks for security			84	61	42	3	40	0	0	9		
Verification		247	251	195	14	109	1	6	31			
Others	Image processing		899	4026	774	756	1465	16	495	310		
	Navigational devices		305	1856	234	587	249	196	53	80		
	Pictorial communication		820	7020	1184	456	2431	8	528	161		
	Recognizing characters		1839	4109	1002	1294	1436	51	382	335		
	Speech synthesis		369	2714	679	1052	655	24	79	37		
	Wireless networks		1496	7651	930	425	1910	203	285	390		

# Portfolio Taxonomy



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