Consolidation Approach for Critical Data Identification in Optimal Clusters towards Big Data Security

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Abstract
Big data generally focuses on analysis based consolidated approach with the expectation of desired results in a standard way of responses. The role of critical data is very effective when used in relation to a big data dealing with specific clusters. Big data in business organizations are entitled with specific field surroundings which are able to make twist and turns based on the value it occurs or on the frequency it changes often. The process of identifying the critical data is the lead to identify the characteristics that affect the business organizations, in order to improve the process the critical data identification and reasons for the change cause along with the current impact predictions are essential to improve the monitoring process in an organization. This proposed method of consolidation approach allowing only the most relevant information being provided to yield a higher quality of critical data results. This paper deals with the consolidation approach for providing a critical data identification with its effects in terms of its roles towards Big data indirectly for its security. In near future the focus will be to implement the neuro fuzzy approaches in real time using neural network conceptual schema for Big data security.

Keywords: *Big data, critical data, cluster, consolidation, optimality*

I.INTRODUCTION

Big data is a field that treats ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software [2]. Big data is a term that describes the large volume of data both structured and unstructured, that affects a business on a day-to-day basis [1].

Fig-1: Big data applications

Cluster analysis or clustering is the task of grouping a set of objects in such a way that objects in the same group are more similar to each other than to those in other groups [3]. In other words Clustering is the task of dividing the population or data points into a number of groups such that data points in the same groups are more similar to other data points in the same group than those in other groups [4].The quality of cluster depends on the method used. Clustering is also called as data segmentation, because it partitions large data sets into groups according to their similarity [5].

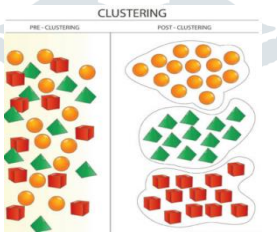


Fig-2: Clustering in Big data

Critical data plays a vital role in information management system that are used as criteria for processing , searching and matching the business or organization critical events , data categorization adjustment, actions to be taken on critical events found, and decisions around data survivorship. [7]. Data critical to one business area may not be critical for another [8].

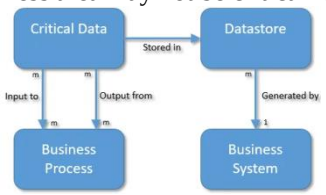


Fig-3: Critical data in big data

II.PROPOSED METHODOLOGY

The proposed methodology describes the process of identification and analysis of critical data from big data in a sequential process. Initially the big data in CSV/Excel/SQL tables are preprocessed by cleaning noisy data, removing blanks, and proper conversions and given as an input to the big data handling tool for the formation of clusters. The resultant output file with csv/xlsx/tables is taken into consideration for further processing with respect to the clusters formed by the tools. The output clusters contain the data value with proper possible primary key and point of sale to organization based on the business criteria such as sales/income/orders/process outputs as an individual impact towards the effective governance. The interpretation of the particular critical data field value are analyzed due to its value makes the twists and turns in business logic. Finally the feedback analysis system is given for the improvement of effective business or organization governance Big data analysis of critical data. Hence the security is essential for this critical data value in Big data which will be focused in near future.

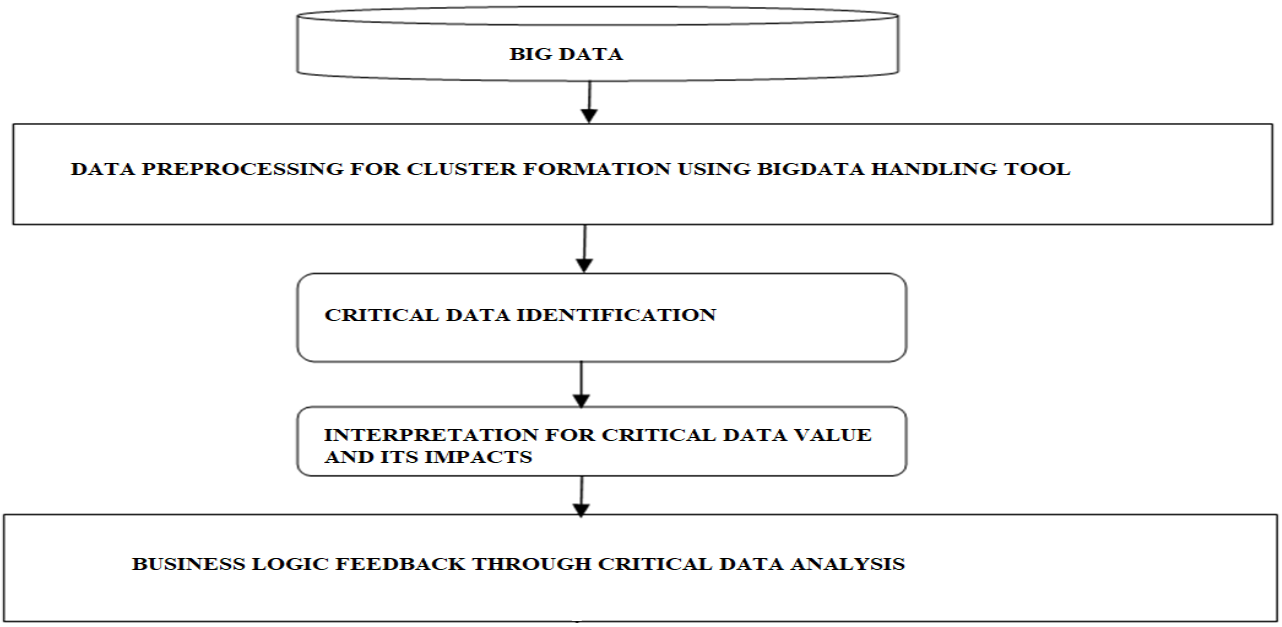


Fig 4: Proposed Critical data Identification and Analysis in Big data

The following algorithm steps explores the schema for the proposed methodology for any Business Big data governance,

Algorithmic Approach:

Step-1:

Input-Big data File; Tool-RStudio: Process-Cluster Formation: Output-Cluster data file

Step-2:

Identify the critical data field with its relation to Primary key

Step-3:

Critical data Value Analysis :{ Min, Average, Max}

Step-4:

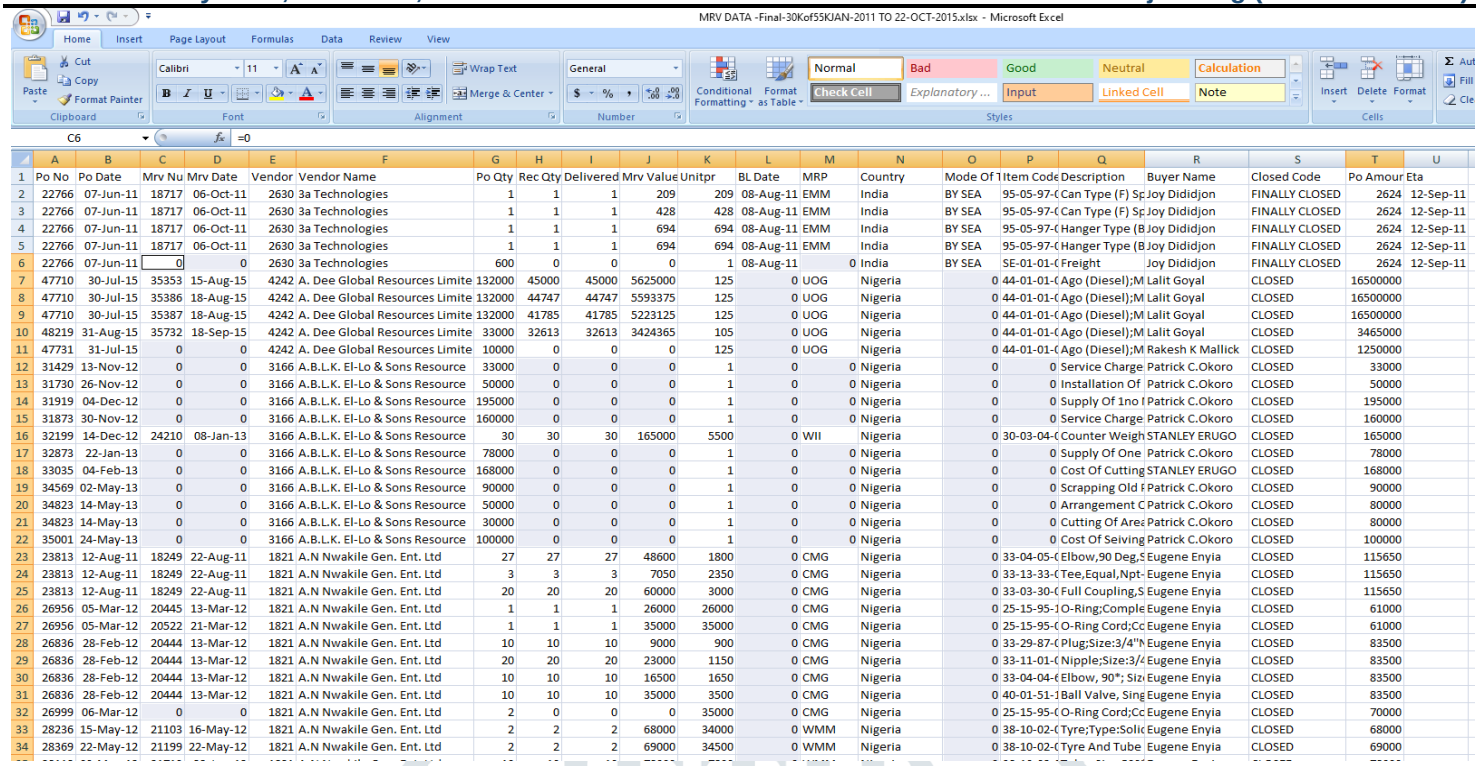
Compare Existing/Actual output vs. Expected Normal curve based output

Step-5:

Output-Feedback for Business Governance.

III. IMPLEMENTATION

The implementation of Big data in real-time data collection is a sequential process to handle it with proper care, this proposed methodology is implemented through the software R-Studio [10].A real-time product development and cargo company big data with conventional and conversional datasets are taken into consider for our proposed methodology implementation, this product development and cargo company may be named as XYZ company in the world. Data storage: initially the Big data contains nearly 65000 rows of Excel-CSV file storage. The data mining tools for vast data is not feasible in excel it. Data formatting and alignment are properly done through the proper removal of unwanted rows and columns along with the primary fields, numeric fields and descriptive fields and additional fields are ordered and added properly. The empty fields are removed by GOTO option in Excel for special field selection as Blank cells and identify the corresponding row selection for removal or deletion. The NaN are removed by setting NaN<-NULL in RStudio.



MRV DATA -Final-30Kof55KJAN-2011 TO 22-OCT-2015.xlsx - Microsoft Excel

Po No	Po Date	Mrv Nu	Mrv Date	Vendor	Vendor Name	Po Qty	Rec Qty	Delivered	Mrv Value	Unitpr	BL Date	MRP	Country	Mode Of T	Item Code	Description	Buyer Name	Closed Code	Po Amour	Eta
22766	07-Jun-11	18717	06-Oct-11	2630	3a Technologies	1	1	1	209	209	08-Aug-11	EMM	India	BY SEA	95-05-97-(	Can Type (F) Sp	Joy Dididjon	FINALLY CLOSED	2624	12-Sep-11
22766	07-Jun-11	18717	06-Oct-11	2630	3a Technologies	1	1	1	428	428	08-Aug-11	EMM	India	BY SEA	95-05-97-(	Can Type (F) Sp	Joy Dididjon	FINALLY CLOSED	2624	12-Sep-11
22766	07-Jun-11	18717	06-Oct-11	2630	3a Technologies	1	1	1	694	694	08-Aug-11	EMM	India	BY SEA	95-05-97-(	Hanger Type (B	Joy Dididjon	FINALLY CLOSED	2624	12-Sep-11
22766	07-Jun-11	18717	06-Oct-11	2630	3a Technologies	1	1	1	694	694	08-Aug-11	EMM	India	BY SEA	95-05-97-(	Hanger Type (B	Joy Dididjon	FINALLY CLOSED	2624	12-Sep-11
22766	07-Jun-11	0	0	2630	3a Technologies	600	0	0	0	1	08-Aug-11	0	India	BY SEA	SE-01-01-(	Freight	Joy Dididjon	FINALLY CLOSED	2624	12-Sep-11
47710	30-Jul-15	35353	15-Aug-15	4242	A. Dee Global Resources Limite	132000	45000	45000	5625000	125	0	UOG	Nigeria	0	44-01-01-(	Ago (Diesel);M	Lalit Goyal	CLOSED	16500000	
47710	30-Jul-15	35386	18-Aug-15	4242	A. Dee Global Resources Limite	132000	44747	44747	5593375	125	0	UOG	Nigeria	0	44-01-01-(	Ago (Diesel);M	Lalit Goyal	CLOSED	16500000	
47710	30-Jul-15	35387	18-Aug-15	4242	A. Dee Global Resources Limite	132000	41785	41785	5223125	125	0	UOG	Nigeria	0	44-01-01-(	Ago (Diesel);M	Lalit Goyal	CLOSED	16500000	
48219	31-Aug-15	35732	18-Sep-15	4242	A. Dee Global Resources Limite	33000	32613	32613	3424365	105	0	UOG	Nigeria	0	44-01-01-(	Ago (Diesel);M	Lalit Goyal	CLOSED	3465000	
47731	31-Jul-15	0	0	4242	A. Dee Global Resources Limite	10000	0	0	0	125	0	UOG	Nigeria	0	44-01-01-(	Ago (Diesel);M	Rakesh K Mallick	CLOSED	1250000	
31429	13-Nov-12	0	0	3166	A.B.L.K. El-Lo & Sons Resource	33000	0	0	0	1	0	0	Nigeria	0	0	Service Charge	Patrick C.Okoro	CLOSED	33000	
31730	26-Nov-12	0	0	3166	A.B.L.K. El-Lo & Sons Resource	50000	0	0	0	1	0	0	Nigeria	0	0	Installation Of	Patrick C.Okoro	CLOSED	50000	
31919	04-Dec-12	0	0	3166	A.B.L.K. El-Lo & Sons Resource	195000	0	0	0	1	0	0	Nigeria	0	0	Supply Of 1no I	Patrick C.Okoro	CLOSED	195000	
31873	30-Nov-12	0	0	3166	A.B.L.K. El-Lo & Sons Resource	160000	0	0	0	1	0	0	Nigeria	0	0	Service Charge	Patrick C.Okoro	CLOSED	160000	
32199	14-Dec-12	24210	08-Jan-13	3166	A.B.L.K. El-Lo & Sons Resource	30	30	30	165000	5500	0	WII	Nigeria	0	30-03-04-(	Counter Weigh	STANLEY ERUGO	CLOSED	165000	
32873	22-Jan-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	78000	0	0	0	1	0	0	Nigeria	0	0	Supply Of One	Patrick C.Okoro	CLOSED	78000	
33035	04-Feb-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	168000	0	0	0	1	0	0	Nigeria	0	0	Cost Of Cutting	STANLEY ERUGO	CLOSED	168000	
34569	02-May-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	90000	0	0	0	1	0	0	Nigeria	0	0	Scrapping Old I	Patrick C.Okoro	CLOSED	90000	
34823	14-May-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	50000	0	0	0	1	0	0	Nigeria	0	0	Arrangement C	Patrick C.Okoro	CLOSED	80000	
34823	14-May-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	30000	0	0	0	1	0	0	Nigeria	0	0	Cutting Of Area	Patrick C.Okoro	CLOSED	80000	
35001	24-May-13	0	0	3166	A.B.L.K. El-Lo & Sons Resource	100000	0	0	0	1	0	0	Nigeria	0	0	Cost Of Seiving	Patrick C.Okoro	CLOSED	100000	
23813	12-Aug-11	18249	22-Aug-11	1821	A.N Nwakile Gen. Ent. Ltd	27	27	27	48600	1800	0	CMG	Nigeria	0	33-04-05-(	Elbow,90 Deg,S	Eugene Enyia	CLOSED	115650	
23813	12-Aug-11	18249	22-Aug-11	1821	A.N Nwakile Gen. Ent. Ltd	3	3	3	7050	2350	0	CMG	Nigeria	0	33-13-33-(	Tee,Equal,Npt-	Eugene Enyia	CLOSED	115650	
23813	12-Aug-11	18249	22-Aug-11	1821	A.N Nwakile Gen. Ent. Ltd	20	20	20	60000	3000	0	CMG	Nigeria	0	33-03-30-(	Full Coupling,S	Eugene Enyia	CLOSED	115650	
26956	05-Mar-12	20445	13-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	1	1	1	26000	26000	0	CMG	Nigeria	0	25-15-95-1	O-Ring;Comple	Eugene Enyia	CLOSED	61000	
26956	05-Mar-12	20522	21-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	1	1	1	35000	35000	0	CMG	Nigeria	0	25-15-95-(	O-Ring Cord;Cc	Eugene Enyia	CLOSED	61000	
26836	28-Feb-12	20444	13-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	10	10	10	9000	900	0	CMG	Nigeria	0	33-29-87-(	Plug;Size:3/4"'	Eugene Enyia	CLOSED	83500	
26836	28-Feb-12	20444	13-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	20	20	20	23000	1150	0	CMG	Nigeria	0	33-11-01-(	Nipple;Size:3/4	Eugene Enyia	CLOSED	83500	
26836	28-Feb-12	20444	13-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	10	10	10	16500	1650	0	CMG	Nigeria	0	33-04-04-(	Elbow, 90*; Siz	Eugene Enyia	CLOSED	83500	
26836	28-Feb-12	20444	13-Mar-12	1821	A.N Nwakile Gen. Ent. Ltd	10	10	10	35000	3500	0	CMG	Nigeria	0	40-01-51-1	Ball Valve, Sing	Eugene Enyia	CLOSED	83500	
26999	06-Mar-12	0	0	1821	A.N Nwakile Gen. Ent. Ltd	2	0	0	0	35000	0	CMG	Nigeria	0	25-15-95-(	O-Ring Cord;Cc	Eugene Enyia	CLOSED	70000	
28236	15-May-12	21103	16-May-12	1821	A.N Nwakile Gen. Ent. Ltd	2	2	2	68000	34000	0	WMM	Nigeria	0	38-10-02-(	Tyre;Type:Solic	Eugene Enyia	CLOSED	68000	
28369	22-May-12	21199	22-May-12	1821	A.N Nwakile Gen. Ent. Ltd	2	2	2	69000	34500	0	WMM	Nigeria	0	38-10-02-(	Tyre And Tube	Eugene Enyia	CLOSED	69000	

Fig 5: Big Data CSV file

Loading the file in RStudio

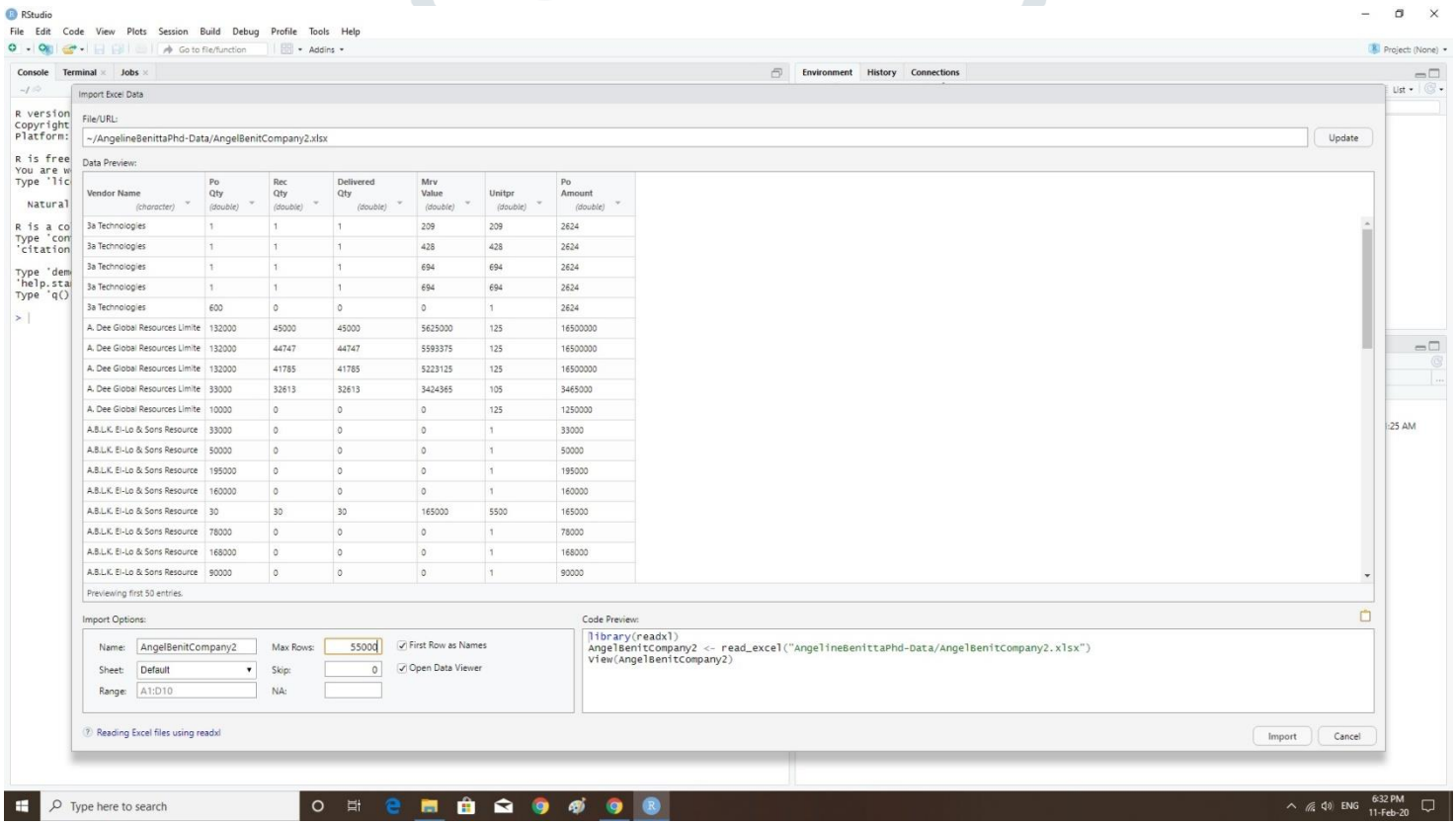


Fig 6: RStudio file loading implementation methodology

The output file generated by RSTUDIO which produces 1441 clusters based on the vendor name is as follows

1	3a Technologies 5	5	Akidi Technical & Inpection Se 7	7	Andrew N.J. Osaro And Sons 2	2	Automation And Control Systems 2	2	Bently Nevada Inc. 3	3	Bureau Veritas Nigeria Ltd 2	2	Christino International Ltd 46	46
2	A-Plus Enterprises Pvt. Ltd. 88	88	Akinbos Engeering Services Ltd 6	68	Anem Df Resources 61	61	Avcon Controls Pvt. Ltd. 2	2	Bestcome Technologies Ltd 2	2	Business Tools Limited 13	13	Chromalox Uk Ltd 4	4
3	A. Dee Global Resources Limite	5	Akinbos Engineering Services L 23	234	Angel Ezubito Ventures Limitec	3	Avery Nigeria Limited 3	3	Bestline Nigeria Limited 1	1	Buss-Sms-Canzler Gmbh 3	3	Chrome Oil Services Limited 1	1
4	A.B.L.K. El-Lo & Sons Resource 1	11	Akobulife Pc.Limited 6	6	Annoquick Oil And Gas Ltd 1	1	Avis Nig Marketing Agency 96	96	Betos Multi-Link Nig.Ltd 8	8	C & I Leasing Plc 2	2	Chu-Banc Business Link Interna 2	2
5	A.N Nwakile Gen. Ent. Ltd 92	92	Akolife Technology Limited 5	5	Anointed Chris Resources 4	4	Avolad Nigeria Ltd 4	4	Bgi Engitech Pvt Ltd 4	4	C. Amatex Business System 52	52	Chu-Chems Resources 1	1
6	A.S.Kura Brothers Ltd 1	1	Akubest Integrated Services 22	22	Anok Global Ventures 35	35	Awalanta Nig Ltd 2	2	Bhise Ceramics Pvt. Limited 2	2	C. John-E Resources 247	247	Chujoe Tech Global Ventures 251	251
7	A.U & Sons Facilities Enterpri 12	125	Aladine Nigeria Limited 41	41	Antel Nigeria Ltd 1	1	Awuchi Integrated Services 43	43	Bhojsons Plc 17	17	C. Woermann Nigeria Limited 1	1	Chujor Integrated Services Ltd 87	87
8	A.Z. Hollink South Africa (Pty 8	8	Alale .J. Ventures 96	96	Anthonio Engineering Services	1	Azbil Europe Nv (Yamatake) 4	4	Bhuwal Insulation Cable (P) Lt 2	2	C.E. Brothers Technical Ent.(N 46	46	Chujutech International Compan 42	42
9	Aabchuss Ventures Ltd 18	18	Alcon Nig Ltd 2	2	Anthopet Projects Services Lim	47	Azu-Onye & Sons 271	271	Big Gift International Nigeria 2	2	C.N.D Ezeamaka Global Ventures 120	120	Chukwumezie Global Resources 3	3
10	Abbng Limited 4	4	Alcorech Janitorial & Supplies 16	16	Anupam Heaters & Controls (P)	5	B.B.J. Ventures Ltd 20	20	Bipico Industries (Tools) Pvt 4	4	Calmfield Services 115	115	Chuwelly John Nig 50	50
11	Abgelisco Resources Nig 34	34	Aleconnah Global Services 162	162	Anzallah Ltd 12	12	B.N Ventures 45	45	Birla Ericsson Optical Ltd 1	1	Cameron Valves & Measurement W 1	1	Chuxel Computers Limited 96	96
12	Abiodun Osoba 17	17	Alesejima Services Nigeria 43	43	Aos Orwell Inc. 4	4	Ba-Machine Services 138	138	Bivison Global Resources Ltd 5	5	Candix Engineering Limited 5	5	Chyke-Res International Servic 6	6
13	Able Instruments & Controls 3	3	Aleto Clan Global Resources 2	2	Aos Orwell Limited 119	119	Baay Resources Limited 3	3	Biz Pages Limited 26	26	Carbon Commodites 18	18	Chymoz Global Resources Compan 45	45
14	Abuchi Global Services 47	47	Alexiz Global Resources And Lo 5	57	Apar Industries Limited 4	4	Bamdivine Enterprises Nig. Coy 4	4	Bj Concepts Nigeria Enterpris 15	15	Cardinal Point And Projects Lt 3	3	Cica-Cicar Integrated Services 2	2
15	Acm Nig Ltd 3	3	Alhaji Yusuf Garba & Sons Ent 1	1	Apex African Gas Nigeria Limit	37	Basalj Ventures 1	1	Bkwt Trading & Invest Pvt. Ltd 4	4	Castello International Limited 4	4	Cirtain Providers Nig. Ltd 163	163
16	Active It Distribution Fzco 5	5	Alizee Equipment Limited 5	5	Apex Paints Limited 322	322	Basecom Tech 7	7	Blefa Ltd 136	136	Cbi Services S.R.L 3	3	Clayton Finance Limited 3	3
17	Adams Armaturen Gmbh 17	17	Allexzenco And Sons Services 95	95	Api Heat Transfer Inc. 4	4	Basf Se 3	3	Blessed Skypower Communication 100	100	Cedarview Communications Limit 3	3	Cleaning Crew Limited 16	16
18	Addak Power Engineering Ltd 2	2	Allied Home Appliances Ltd 14	14	Apollo Metal Industries 192	192	Basic Sharp Services 1	1	Blue Sea Mega Power 15	15	Cee Vee Cee Nigeria Limited 1	1	Clear Point Instrumentation Pv 2	2
19	Adef Ventures 2	2	Alpatech Engineering Nig Ltd 4	4	Aps Power Systems Pvt. Ltd. 1	1	Batam Resources Limited 1	1	Blue Seal Water & Process Comp 7	7	Celecon International Agency 1	1	Clemarine Services Company Nig 11	11
20	Adeka Palmarole Sas 1	1	Alpha Tech U.K 10	10	Aquaclear Global Ventures 72	72	Baur Pruf-Und Messtechnik Gmbh 4	4	Bluetide Nigeria Limited 2	2	Cfao Motors Nig. Ltd 1	1	Clemce Investments Limited 1	1
21	Adept & John Nig Ltd 3	3	Altak Industries Limited 14	14	Ar Valve Resources Ltd 2	2	Bcn International Company Nig. 38	38	Bnowestiro Enterprises 21	21	Chachris International Co. 3	3	Climax Synthetics Pvt. Ltd 3	3
22	Adetunji Ilori Stores 8	8	Alumetal Ag 157	157	Aragon Steel Limited 27	27	Be-Tek Services 6	6	Boc Gases Nig Plc 84	84	Changes Deco Resources 285	285	Cnv Valve & Control Company In 1	1
23	Advance Compseals Pvt Ltd 20	20	Amakom Enterprises 4	4	Aranla Seals Manufacturing Ltd	50	Bea Srl 6	6	Boig & Hill, Inc. 6	6	Chanrai Nigeria Ltd 2	2	Cobef International Limited 2	2
24	Advanced Filtration Solutions 2	2	Amarillo Gear Company 4	4	Arek Global Concepts Ltd 44	44	Bea Technologis Spa 7	7	Bokwe Technical Enterprises (N 11	11	Charson Equipment Services 175	175	Comet Engineers 12	12
25	Afesemi Investment Limited 12	12	Amekabe Obari Resources 263	263	Armteque Limited 5	5	Beamco Nig. Ltd 112	112	Bola Technical Engineering Ser 112	112	Chelsea Shopping Plaza 92	92	Compact Engineering Nig Limite 16	16
26	Afisemi Nig. Ltd. 6	6	Amekabeobarijblack Ventures 2	2	Arpan Associates 2	2	Bearing Man Group 2	2	Bombay Tools& Hardware Mart 347	347	Chemical & Allied Products Plc 17	17	Compactco Worldwide Company Lt 17	17
27	Aforma (Nig) Coy 35	35	American Appraisal India Pvt. 1	1	Arpanam Press 161	161	Beaulieu International Service 42	42	Bombay Valves & Hydraulics Pvt 35	35	Chemolords Integrated Services 14	14	Compasspower Solutions Ltd 13	13
28	African Fertilizer & Chemicals 1	119	Ametek Inc. 1	1	Artee Industries Limited 335	335	Beaumont Aromatics Nigeria Lim 16	163	Boomtown Resources Limited 4	4	Chempump, Division Of Teikoku 6	6	Compusoft Nigeria Limited 15	15
29	African Petroleum Plc 51	51	Ameyaosor & Sons Nig Ent. 1	1	Asahi Brands Ltd 30	30	Becon Nigeria Limited 46	46	Born Great Integrated Services 334	334	Chempute Software (Pty) Limite 1	1	Computer Designs, Systems, Ser 4	4
30	Afza Material Handling And Sto	2	Ami Cooling System 2	2	Ase - Chemicals 14	14	Bedmate. Nig. Int. Ent. Co. L 4	4	Bos B- Com Oil Services 17	17	Chemtech Industrial Valves Pvt 60	60	Computer Warehouse Group 10	10
31	Ageco International Fze 2	2	Amigo Corporation Pvt. Ltd. 25	25	Ashok Nahar 1	1	Bejafta Group Nig.Ltd. 59	59	Branch Project And Development 52	52	Chenor Nig Limited 1	1	Comtest Distribution (Pty) Ltd 4	4
32	Agogos Resources Nigeria 32	32	Amn Dpi 4	4	Asphey Nigeria Limited 4	4	Bekool & Associates Ltd. 1	1	Branco Commercial Agency Limit 6	6	Cheson-Kelly Global Ventures L 7	7	Con-V-Air 1	1
33	Ahmid Idris Limited 6	6	Amnaovik Global Resources Limi	4	Aswin Nig Enterprises Ltd 5	5	Bell Oil & Gas Limited 107	107	Brawl Shipping Nig.Ltd. 1	1	Chi - Ekele (Nig) Limited 230	230	Conclave International Limited 1	1
34	Aibes Communications 2	2	Amo & Partners Engineering Com	1	Atb Tamel Spoika Akcyjna 12	12	Bell Oil & Gas Ltd 134	134	Breath Services 9	9	Chidio Integrated Services 36	36	Conficol International 18	18
35	Air Liquid Nigeria Plc 4	4	Ampelite Manufacturing Co. Ltd 4	4	Atlantic Affairs Limited 1	1	Bellavis Integrated Services 33	33	Breigns Gifts Trading Llc 3	3	Chinedum Nwakanma Nig. Ent. 80	80	Connection Technology Center, 7	7
36	Air Liquide Uk Limited 84	84	Amtradeco Sub-Sahara Ltd 4	4	Atlantic Bluewater Services Lt 4	42	Bencally And Sons Nigeria 122	122	British Safety Council 5	5	Chinic N. International Compan 494	494	Connectric Systems Inc. 2	2
37	Air Wave Limited 5	5	Anagene Engineering Co 1	1	Atlas Copco Nigeria Ltd. 11	11	Benek Engineering Co. Ltd 29	29	Britomatics Engineers (P) Limi 2	2	Chinna Tech Granite Co 2	2	Consider & Bros Worldwide Comp 4	4
38	Ajomesco Concept Enterprises	45	Anasemi Dm Resources 15	15	Atlas Geosolutions Limited 2	2	Bennei Ventures 12	12	Broady Flow Control Ltd 2	2	Chiola Ventures 9	9	Construmat Nig Ltd 2	2
39	Aju-Doh And Sons Ltd. 3	3	Ancylet International Co.Ltd 85	85	Aton Global Limited 21	21	Bennett Mirror Technologies Li 2	2	Bsl Gulf Llc 59	59	Chrisason Fire Protection Ltd 60	60	Contracting Plus Services Ltd 2	2
40	Akadan Global Services 4	4	Andino Handelsgesellschaft Gmb	7	Ausland Services Nigeria 2	2	Benson Project Company 37	37	Buchi Concerns Enterprises Nig 26	26	Chrisfag Building Products 7	7	Control Risks 1	1

1	Coorstek Limited 1	1	De-Young Global Engineering Se 9	9	Dorman Ghana Ltd 2	2	Egja Engrg & Construction Limi 13	13	Equipment & Controls C.I Usa 1	1	Fintelius Engineering Pvt. Ltd 2	2	Gca Energy Ltd 55	55
2	Coperion K-Tron (Schweiz) Gmbh 12	12	De Blessed Nosky Investment Li 7	7	Dorman Long Fzco 53	53	Ehl-Rickar Int'L Company Ltd 6	6	Equipment And Control Ltd 3	3	First Aluminium Nigeria Plc 3	3	Ge Energy Control Solutions In 6	6
3	Cordial Wisdom Global Resource 3	3	De Damason Limited 22	22	Dos Nigeria Limited 6	6	Eisnl Engineering Solution & D 26	26	Equipment Hall Limited 10	10	First Integrated Gold World Se 24	24	Ge Energy Parts International, 219	219
4	Corona Services Limited 18	18	De Onyii-Link Global 2	2	Dosefia Ventures (Nig) 7	7	Ej-Ab-Ol And Compay 2	2	Eridagail Global Resources 4	4	Flextech Engineering Inc. 2	2	Ge Intelligent Platforms Europ 2	2
5	Corpsterling Nig. Limited 6	6	De Ruth God Supply Enterprises 66	66	Doxa-Candor Engineering Compan 2	2	Ejiolak Enterprises 81	81	Escorts Limited Construction E 3	3	Flowserve (Austria) Gmbh 145	145	Ge International Operations(Ni 10	10
6	Coscharis Motors Ltd. 1	1	Debyl Ltd 1	1	Dr.-Ing. K. Busch Gmbh 17	17	Ejirose Nig Ent 78	78	Eson Enterprises(Nig) 6	6	Flowserve (Gb) Ltd 3	3	Ge Oil & Gas 75	75
7	Covenant Enterprises Solutions 2	2	Dedamelody Concepts 81	81	Dr. V. L. Shyam 11	11	Ejivo Multilink Global Service 8	8	Essem High-Tech Pvt.Ltd 17	17	Flowserve Control Valves Gmbh 12	12	Ge Power Management S.A 4	4
8	Crystal Industrial Syndicate P 11	11	Deeaar Laboratories 2	2	Drury Industries Limited 29	29	Ejor-Eleme Enterprises (Nig.) 7	7	Est Group B.V. 6	6	Flowserve Essen Gmbh 2	2	Ge Sensing & Inspection Techno 1	1
9	Crystalmarine Integrated Servi 1	1	Deke Technical Services (Nig) 10	10	Dumik And Sons Enterprises 17	17	Ekato Africa Pty Ltd 17	17	Ethos Energy 1	1	Flowserve India Controls Pvt. 3	3	Gebruder Lodige Maschinenbau G 9	9
10	Cube Relations Ltd 2	2	Delattre Bezons Nigeria Ltd. 1	1	Durr South Africa (Pty) Ltd 1	1	Ekato Ruhr-Und Mischtechnik Gm 3	3	Ethos Energy (Thailand) Ltd 1	1	Fluid Misch-Und Dispergiertech 5	5	Geecy Eng. Pvt Ltd 13	13
11	Cummins West Africa Limited 3	3	Delse Projects Ltd 15	15	Dyna Filters Pvt. Ltd 7	7	Elastomer Lining Works 1	1	Ethosenergy Poland Sa 1	1	Fluidline Valves Company Pvt. 1	1	Gen Mot Coils 1	1
12	Cway Nigeria Drinking Water Sc 26	26	Delval Flow Controls Pvt Ltd 5	5	Dynavac India Private Limited 4	4	Elebode Commercial Ents. (Nig) 15	15	Evergreen Industries 2	2	Flying Dove Limited 41	41	Gen World Limited 42	42
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17	Dachiafor Industries Nigeria L 32	32	Destiny Olak'S Ent.Nig 41	41	E.U. Mandate Enterprises 53	53	Elliot Turbomachinery Limited 125	125	Exide Industries Limited 11	11	Fortress Networks (Nigeria) En 3	3	George Mary & Joy Chris Nig,Lt 25	25
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19	Daewoo Nigeria Limited 1	1	Devine Ejitexx Limited 2	2	Eagle Edge Support Services Ni 31	31	Elliott Turbomachinery Sa 5	5	Exneb Engineering Services Lt 1	1	Frank-White Global Services 135	135	Gerald Nwanedi Ventures 16	16
20	Dai - Show Corporation 2	2	Dexera Investment Limited 11	11	Eagleburgmann Seals South Afri 8	8	Elytex Steel Ent.Nigeria 77	77	Exotic Ip Limited 19	19	Fs-Elliott Co., Llc 120	120	Gesbi Engineering Ltd 3	3
21	Daid Nigeria Limited 37	37	Dhroni Ayurvedas 4	4	Eaglewings Enterprises 322	322	Emel Enterprises Ltd. 6	6	Expel Prosys 15	15	Fugro Nigeria Limited 2	2	Gg Erectors Limited 1	1
22	Daikin Mcquay Middle East Fze 1	1	Dhyey Solution 2	2	Eason Industrial Engineering C 38	38	Emile Egger & Cie Sa 23	23	Expert Electro-Mech Ventures 24	24	Fundamentals Logistics Service 3	3	Ggi International Nigeria Ltd 98	98
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24	Dan Bross Tech. Services Nig 7	7	Digimed Solutions Limited 3	3	Eauxwell Nigeria Limited 8	8	Emma O. General Enterprises 3	3	F.M. Ochee & Sons Nig Ltd 9	9	G & W Internation Ltd 14	14	Gift From Above Motors Limited 48	48
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26	Danez Resources Nigeria 23	23	Digoms Nig. Services 4	4	Ebus Pharmacy & Varity Store(N 8	8	Emmanuel Okolie 1	1	Fanny Global Services Ltd 1	1	G. Koepcke & Co. Gmbh 95	95	Gijuwie Bio-Medical Electronic 1	1
27	Dangote Agro Sacks Limited 29	29	Divine Motors Limited 7	7	Eca Oilfield And Industrial Se 1	1	Emmanuel Prince Global Ven 5	5	Fareast Merchantile Co. Ltd. 23	23	G. Pros Enterprises 2	2	Gil Automation & Control Servi 11	11
28	Dangote Cement Plc 6	6	Dizengoff (West Africa) Nigeri 74	74	Eco Water Management Ltd. 1	1	Emmavic Integrated Services 1	1	Fcg Power Industries P.Ltd 9	9	G.Emmagloben Nigeria Limited 67	67	Gil Automations Limited 40	40
29	Daniel Iheanache Integrated Se 42	42	Dlm Services Ltd 1	1	Ecow Telecommunication Service 5	5	Emmylink Steel And Constructio 535	535	Fedico And Bros Ent.Nig 4	4	G.Koles And Sons Global Resour 142	142	Gilat Satcom 8	8
30	Danrochable Integrated Limited 26	26	Dloop System & Computer Ventur 27	27	Ed John & Sons Enterprises 21	21	Energy Utilities (Nig.) Ltd 7	7	Felista & Company Limited 21	21	Gael Products Ltd 5	5	Gilberto Pragmatic Nig. Ltd 85	85
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37	Davinka Limited 88	88	Dongguan Shinestar Storage Equ 1	1	Eee & Tee Saftech Services 22	22	Epcl Cooperative, Thrift & Cre 679	679	Fides Pharma Limited 1	1	Gardner Denver Water Jetting S 1	1	Global Mascot Services 69	69
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39	Dawnson Technical Services Nig 1	1	Donovan Oil & Gas Services Lim 1	1	Effiong E.I.Ventures Nigeria 3	3	Epoxy Oil Serv. Ltd 10	10	Fike Middle East Spc 3	3	Gbidum Enterprise 1	1	Gloryhouse Limited 1	1
40	De-Samcos Enterprises 13	13	Dontaley Resources Nig Ltd. 8	8	Efuahose Allied Investments Lt 4	4	Eppie Enterprises (Nig) 243	243	Fine Job Company Limited 14	14	Gburuke Enterprises 29	29	Gmaths Nigeria Limited 15	15

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7	Gois Nigeria Limited 71	71	Heat Transfer Technology Ag 9	9	Ibianga Consulting & Construct 2	2	J & D Inv'T (Nigeria) Limited 7	7	K-Tron (Schweiz) 1	1	Kistal Equipment Supplies Ltd. 492	492	Lumas Services 35	35
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9	Gold Standard Integrated Servi 7	7	Heinrich Friedrich Schroeder (1	1	Icellpower Energy Resources Li 5	5	J.N.Jevic Nig.Ltd. 65	65	Kaka & Bros Limited 2	2	Koldserve Cc 2	2	Lushgreen Inegrated Services L 1	1
10	Goldridge Dev. Co. Limited 75	75	Helgatech Engineering Services 5	5	Idea Spectrum, Inc. 1	1	Jaagee Nigeria Ltd 5	5	Kal Nig. Limited 6	6	Kotisjoe Ornamental Garden Ser 81	81	M.A.S. Mixer Antico Services S 7	7
11	Golos Intergrated Services 66	66	Helintyna International Ltd 3	3	Igali Kalu & Sons Integrated S 100	100	Jacobs Consultancy Ltd 1	1	Kalyani Engineering Works 20	20	Kresta Laurel Limited 3	3	M.F.I Office Solution Africa L 55	55
12	Gomar Concepts 34	34	Helwig Carbon Products Inc. 1	1	Igatwin Polymers Private Limit 18	18	Jahson Golden Investment Servi 2	2	Kamsigreen Services 3	3	L S Engineering Services Ltd 6	6	M/S Parco Enterprises Nigeria 5	5
13	Gomasco Engineering Services 12	12	Hemant Industries 3	3	Igp Engineering (P) Limited 740	740	Jai & I Ventures Limited 9	9	Kanasko Electronics 51	51	L&T Plastic Machinery Ltd. 2	2	M/S Piyush Patel 1	1
14	Gomstel Optimal Enterprises 4	4	Henry Dos Ventures 14	14	Iheb Divine 8	8	Jamiu L. Afolayan 1	1	Kanpur Metal Products 1	1	L&T Valves Limited 4	4	M/S Rajiv Mukherjee 1	1
15	Gosana World Wide Solution Ltd 9	9	Hercules Hoists Limited 2	2	Ihitte United Nig. Ltd 34	34	Janisonic International Limit 37	37	Kantilal Chunila & Sons Appl. 21	21	Labort Fine Chem Pvt. Ltd 7	7	M/S Shreehari International Lt 1	1
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25	Gta Engineering Nigeria Limite 5	5	Hongin Tech Pte Limited 540	540	Industrial Solvents & Chemical 5	5	Jimoseb Engineering Nig. Limit 51	51	Kemet International Limited 3	3	Lavideepu Nigeria Limited 4	4	Magjul Global Nig Limited 44	44
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28	Gucci Pharmaceutical Nigeria L 41	41	Hosokawa Micron Ltd. 10	10	Ingersoll-Rand International L 5	5	Jocam Nigeria Limited 11	11	Kengo Global Logistics Ltd 5	5	Lela Agro Ind. Limited 831	831	Mahle Industriefiltration Gmbh 2	2
29	Gujarat Alkalies And Chemical 10	10	Host N.E. Services Ltd 2	2	Ingersoll-Rand South East Asia 22	22	Joe Waribs Integrated Services 25	25	Kennametal Stellite, Lp 2	2	Lewa Gmbh 15	15	Maintenance Partners 9	9
30	Gujarat Otofilt 4	4	Hova Gmbh 2	2	Ingersoll Rand Air Solutions 5	5	Joegi Osagi Integrated Service 19	19	Kent German Global Ltd 2	2	Lgc-Large Links International 28	28	Majolagbe Saliu 1	1
31	Gulf Publishing Company 1	1	Howden Bc Compressors 34	34	Ingersoll Rand Industrial Tech 1	1	Joekem-First Concept Ltd 12	12	Kerone 2	2	Liberty Shoes Limited (India) 23	23	Makinson Equipment Stores Ltd 1	1
32	Gumo Global Links 9	9	Htds International 6	6	Innochicent Integrated Service 65	65	Joemybass Nig 1	1	Kev Easy Ventures 20	20	Librod Chemicals Limited 2	2	Makites (Nig) Limited 2	2
33	Gutor Electronic Asia Pacific 9	9	Hyde Energy Limited 1	1	Innyeb Services 5	5	Joestarlink Integrated Service 46	46	Kewalram Nigeria Ltd. 5	5	Lighting Protection Internatio 3	3	Malton Technologies Ltd 11	11
34	Gutor Electronic Llc 5	5	Hydratight Ltd 10	10	Insap Eng.Pvt Ltd 74	74	Jofremann Trading Company 8	8	Kezif Integrated Resources Ltd 10	10	Lightning Protection Int. Pty 15	15	Mandilas Enterprises Limited 1	1
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37	Hach Lange Gmbh 1	1	Hydrodyne (India) Pvt. Ltd. 6	6	Integrated Petrochemicals & En 4	4	Jomannag Nig Ltd 103	103	Kheraj Pumps & Tools 4	4	Liquidgold Enterprises 3	3	Mantra Switchgear Co. Ltd 3	3
38	Hach South Africa (Pvt) Ltd. 18	18	Hydrotab Services Limited 2	2	Intense Global Resources Ltd 1	1	Jonac Nig Ltd 19	19	Kingdom Realties Limited 2	2	Liquidmetal Global Services Lt 1	1	Mantrac Nig Ltd 177	177
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3	Marine Masters Nigeria Ltd. 5	5	Microtex Energy (P) Ltd. 1	1	Nagman Instruments And Electro 2	2	Nyeomanda Enterprises 2	2	Osca Creative Concepts Co. 112	112	Picker Sa 1	1	Progecad- Cad Solutions 1	1
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6	Mascot Valves Pvt. Limited 26	26	Mikano International Services 3	3	Nc Gilbert Indutrial Developme 1	1	O.Y.L Manufacturing Company Sd 21	21	Ozomax Inc 9	9	Pius 'E' Fg Services 32	32	Pronch Global Services 50	50
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8	Mast Concept 1	1	Mike & Sons. Services (Nig) 75	75	Neet Nigeria Limited 17	17	Oando Plc 137	137	Pacific Data And Services Ltd 9	9	Pm Contrl Systems Pte Ltd 4	4	Pt Grama Bazita 15	15
9	Masters Energy Oil & Gas Ltd 8	8	Mile Post Equip. Services 1	1	Nelezz World Wide Ventures 1	1	Obalinc Global Ltd 7	7	Pacific Pipe Systems Pvt. Limi 10	10	Pneucon Valves Pvt Ltd 7	7	Pt Ksb Indonesia 19	19
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16	Mc Totalcare Pharmacy Limited 538	538	Mjb International 211	211	New Alpha Network Systems 1	1	Oceanview Energy Services Ltd 4	4	Pamak Investment & Equipment S 20	20	Poretech Cc. 4	4	Pt. Primalayan Citra Mandiri 5	5
17	Mclono Associate Ltd 1	1	Mobul Integrated Services Ltd 1	1	Newbrand Industries Ltd 4	4	Octaves Nig Limited 1	1	Panabiz International Ltd 5	5	Port Harcourt Refinery Company 1	1	Pt. Schneider Indonesia 1	1
18	Mcquintus Limited 203	203	Molich Ent. Nig. 507	507	Newkem Engineers Pvt Ltd 3	3	Ofima Integrated Services 212	212	Pandey Exports 8	8	Portland Paints & Products Nig 9	9	Pt. Suplintama Majusemesta 10	10
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21	Mec Construction Limited 17	17	Monig - Bengal Nigeria Limited 1	1	Ngochi Global Resources Niger 4	4	Oil & Industrial Services Ltd 16	16	Paradise Rubbers Ptv Ltd 7	7	Power Cable Corporation 5	5	Purechem Manufacturing Limited 10	10
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24	Megelec Nig Limited 43	43	Mopec Global Services 189	189	Nicalder It & Engineering Serv 4	4	Ok Computer Ltd 2	2	Pascito Technical Services 3	3	Powertech Intermediary Service 1	1	Quality Engineering Works 21	21
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26	Mekason & Co 1	1	Morpol / Jaihind Indorama Gas 1	1	Niezgodka Gmbh 2	2	Ok Millions Technical Services 8	8	Patkee Construction Nig. Limit 27	27	Ppc Limited 8	8	R.T Briscoe (Nig.) Plc 7	7
27	Mekaster Tools Limited 42	42	Morpol Engineering Services Li 2	2	Nigerchin Electrical Developme 117	117	Oker-Chemie Gmbh 13	13	Patnick Nigeria Limited 6	6	Prabha Steel Industries 17	17	R.T. Forehouxe Ltd 3	3
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29	Merald Technology Solutions Ni 16	16	Mouka Nig Limited 9	9	Nimbasia Stabilizers 34	34	Okinelin Industrial Services L 4	4	Peehcee Nigeria Enterprises 2	2	Premier Polyfilm Ltd. 2	2	Radwell International, Inc. 11	11
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33	Metalog International Dmcc 19	19	Mrs Oil Nigeria Plc 188	188	Nkikiemere Enterprises Nig.Lim 61	61	Olungwe J. Integrated Services 189	189	Pentair Valves & Controls Sale 5	5	Pressure & Flow Control Indust 2	2	Ramakrishna Electrical Winding 1	1
34	Metaltek International 1	1	Mufaham Company (Nig.) 14	14	Noicom Communication Services 1	1	Olympus Industrial Systems Eur 13	13	Pepperl & Fuchs India Pvt Ltd 3	3	Pressure Systems Integrated Se 68	68	Ratnadeep Metal & Tubes Ltd 2	2
35	Metalurgica Torrent S.A. 21	21	Multi-Concepts Investment Ltd 2	2	Noit Amos Technical Services L 3	3	Omalink Nigeria Ltd 23	23	Pergan Gmbh 2	2	Price Pumps Pvt. Ltd 8	8	Rauzab Scientific Company 166	166
36	Metro Elevator Co. Pvt Ltd 4	4	Multi Kharisma 1	1	Nspire Technologies 1	1	Omel Global Resources 51	51	Perujk Multi-Link Resources Lt 678	678	Prime Plastichem Nig. Ltd 7	7	Ravikiran Chemicals Pvt Ltd 6	6
37	Metro Metals 22	22	Multichoice Nigeria Limited 13	13	Ntama Steel Nig Ventures 248	248	Onasechi-Ka Resources 27	27	Petersimon And Sons Nig Ltd 1	1	Prinz Engineers (India) 1	1	Rayero Ventures (Nig)Limited 16	16
38	Metrotec Engineering Ltd 1	1	Munarch Global System Limited 1	1	Nte & Sons Enterprises 4	4	Onsite Engineering Limited 3	3	Petroseal 10	10	Prisms India Pvt. Limited 6	6	Rays Blind & Insteriors 2	2
39	Metso Automation S. P. A 8	8	Mushroom Networks Inc 2	2	Nuovo Pignone Spa 46	46	Onyibest Communication Ltd 4	4	Phemmy Global Prospects Ltd 11	11	Proceq Middle East 2	2	Real Hardware Mart 251	251
40	Mettler Toledo Garvens Gmbh 12	12	Mzzgreat Enterprises 24	24	Nutech Jetting Equipments Indi 2	2	Oriental Compressor Accessorie 10	10	Pherdhills International Limit 25	25	Process Engineering Services L 3	3	Redington Nigeria Ltd 4	4

1	Regatta Industries Limited 13	13	Sai-Indo Metal Resources Pvt L 3	3	Simpex Engineering Inc. 242	242	Stallion Nigeria Ltd 48	48	Taiwo Onileowo 1	1	Transformer Chemistry Services 2	2	Vee Bee Filtration Uk Ltd 2	2
2	Rexnord Industries Llc 1	1	Sai Integrated Services Ltd 25	25	Simpex Engineering Pvt. Ltd. 12	12	Standard Xchange, A Div. Of Xy 5	5	Tao-Spectrum Int'L Ltd 21	21	Tricon Dry Chemicals Llc 37	37	Vega Instruments (Pty.) Ltd 34	34
3	Rhine Ruhr Pty. Ltd. 9	9	Sajon Ventures Nigeria 3	3	Simplex Engineering Works 2	2	Stanley Opara 29	29	Tata Africa Services (Nig) Ltd 6	6	Tricon International 1	1	Veritas Stainless Co. Pvt. Lim 81	81
4	Rhom-Bus Marine Services Limit 3	3	Samemu Ventures Nigeria 21	21	Sims Nigeria Limited 1	1	Starlight Tech Ventures 641	641	Tdk-Lambda France Sas 1	1	Trigon Chemicals Pvt. Ltd 1	1	Vermentrol Global Resources Li 2	2
5	Richardson Oil & Gas 17	17	Sammyno Global Services 20	20	Sing-Out Multiple Concept 79	79	Statec Binder Gmbh 152	152	Team Transaction Ltd 4	4	Trigon Llc 4	4	Vester - Bili (Nigeria) Limite 5	5
6	Richyu Chemical Co. Ltd 58	58	Samoka Ventures 3	3	Sinwako Global Services Limite 2	2	Steel Tubes (India) 4	4	Team Viewer Bmbh 1	1	Tristar International 2	2	Vewmer (Wa) Ltd 1	1
7	Ripowel Services 3	3	Sando Rotary Equipments Pvt. L 7	7	Siriram Filteration & Engineer 15	15	Sti S.R.L. Con Unico Socio 2	2	Tec Automatismes 2	2	Triumph Technical Services Ltd 1	1	Vewmer Group (W.A)Ltd 13	13
8	Rishabh Instruments Pvt Ltd 2	2	Sanjoda Integrated Global Serv 37	37	Sit Flexible Hose Pvt Ltd 27	27	Stone Kraft 8	8	Technical Associates Of Charlo 8	8	Tropical Agrix Resources Ltd 26	26	Vic-Austin And Sons Nig. Ltd 3	3
9	Rising Faith Generation Servic 4	4	Satyam Fabrics 7	7	Sitexpee Technical Company 20	20	Streambakers Nigeria Limited 15	15	Technika 2	2	Turbomachinery Engineering Ind 2	2	Victa Technologies Limited 14	14
10	Ritzpack Company Ltd 6	6	Satyam Polyplast 2	2	Six Sigma Gases India Pvt Ltd 8	8	Streit Group Fze 2	2	Tele Traffic Uk Limited 1	1	Turnkey Hydraulics (Pty) Ltd 3	3	Viewpoint Ventures And Company 2	2
11	Riza Investment Limited 64	64	Savita Oil Technologies Limite 3	3	Sixtwenty Resources 6	6	Structured Resources Business 2	2	Teledyne Instruments, Inc. 16	16	Turret Engineering Services Lt 1	1	Vigad Commercial Enterprises 17	17
12	Robinson Global Services 9	9	Schneider Electric Nigeria Ltd 31	31	Skf Eurotrade Ab Goteborg Swed 1	1	Sulzer Pumps Nigeria Ltd 2	2	Teletok Nigeria Limited 1	1	Tuv Rheinland Sonovation B.V 1	1	Vigeo Limited 3	3
13	Rockpeters Nigeria Limited 1	1	Schroedahl Arapp Spezialarmatu 16	16	Skf Reliability Systems 3	3	Sumation Technical Services Lt 10	10	Tezer Oil & Services Ltd 52	52	U-Ben Ventures Nigeria 145	145	Vijayalaxmi Agencies Pvt. Limi 15	15
14	Rolls Rock Entertainment Ltd 6	6	Scientific Devices (Bombay) Pv 25	25	Slot System Ltd 21	21	Sun-Prisca Coatings Services 122	122	Th. Jansen-Armaturen Gmbh 24	24	U-Lexceel Nig Limited 3	3	Vikina Integrated Services Lim 4	4
15	Romson Oil Field Services Limi 29	29	Sellout International Limited 12	12	Smartmark Limited 5	5	Sun-Silver Global Services 3	3	The Coopers Benly Ventures & 4	4	Uchebek Ventures 93	93	Vikram & Co 5	5
16	Ron Global Alliance Limited 2	2	Serafhim Nig Ltd 32	32	Smithers Pira 1	1	Sun-Tex Electrical Services 8	8	The Honda Place Limited 20	20	Ud-Markinews Resources 39	39	Vineet Integrated Services Ltd 1021	1021
17	Ronan Engineering Limited 6	6	Servomex Group Limited 2	2	Smithers Rapra Technology Ltd 1	1	Sun Motors Limited 2	2	Thermal Care Eng. 18	18	Udekpo Ventures Nig Limited 163	163	Vio-Cai Nigeria Ltd 1	1
18	Roots Multiclean Limited 2	2	Seven Stars Trading(Pte) Ltd 245	245	Snl Sales & Service Ltd 52	52	Sunash Eng.And Equipment.Coy.N 141	141	Thermal Hire Ltd 21	21	Ugoboss Logistics Concepts Ltd 59	59	Viramsun Nigeria Limited 29	29
19	Roots Systems Ltd 1	1	Severn Glocon Ltd 27	27	So Link Consults Ltd 21	21	Sunjab Nigeria Co 13	13	Thermax Limited 3	3	Ultimo Engineers 2	2	Viropa Nigeria 179	179
20	Roslabam Resources Limited 65	65	Sgs Inspection Services 4	4	Sohan Engineering Enterprises 1	1	Sunlek Investments Limited 31	31	Thermotech [Uk] Ltd 1	1	Ultleo Technical 3	3	Vishal Agencies 1	1
21	Rotork Controls Limited 2	2	Shah Alloys 3	3	Sojitz Corporation 1	1	Sunnet Systems & Data Services 8	8	Thod Resources Limited 26	26	Uncle Park Ventures 3	3	Vitafoam Nigeria Plc 12	12
22	Rotostat Limited 309	309	Shanthi Gears Limited 10	10	Sojitz International Pte Limit 61	61	Sunstar Intercontinental Ventu 5	5	Tianjin Binhai Hongyuan Intern 7	7	Uni Klinger Limited 10	10	Vital Solutions Ltd 2	2
23	Rotostat Services Private Limi 4	4	Sharefile Llc 1	1	Solarcare Nigeria Limited 6	6	Super Packaging Limited 260	260	Tim-Nto Linkserv Enterprises 3	3	Unifa Resources Nig. 1	1	Vitoks Pinnacle Ent. 6	6
24	Royal Housing Fze 3	3	Shaw Moisture Meters 1	1	Solo Tech Communication Concep 1	1	Superior Steel Ind 344	344	Time Logistics Limited 1967	1967	Union Special Gmbh 245	245	Vitotex International Nig.Co. 104	104
25	Royal Sacks Nigeria Ltd 35	35	Shelter Care Int'L & Decor Ser 862	862	Soloteks Nigeria Ltd 33	33	Superior Steel Overseas 330	330	Timken Gears & Services Inc 15	15	Unison Narula Exports Private 1	1	Volgreen Nigeria Limited 72	72
26	Rtb Oil Services Nigeria Ltd. 1	1	Sheriff A. Glory Ventures 15	15	Somotex Nigeria Limited 3	3	Suqian Unitecommerce Co.Ltd 1	1	Tino-Tech International Ltd 3	3	Unisteels And Engineering Co. 29	29	Voltamp Transformers Limited 2	2
27	Rubicon Electrical & Automatio 1	1	Shijiazhuang Decking Athletic 3	3	Sona Industrial Gases Limited 22	22	Sure Safety (India) Pvt. Ltd 12	12	Tld Limited 2	2	Unistockist Nig. Ltd 11	11	Vox Technologies 1	1
28	Ruchit Enterprises 2	2	Shiv Energy Nigeria Limited 20	20	Soundgozian Services Nig. 26	26	Surecon Fastening & Engineerin 2	2	Tolive Pharmacy Limited 2	2	Unistockists Nig Limited 94	94	Vsm Technologies Pvt. Ltd 3	3
29	S & V Rocks Ltd 11	11	Shk Valve Group Co., Ltd. 4	4	South Asia Metal & Alloys 3	3	Sustainabiliti Limited 2	2	Toni-Mek Integrated Service 164	164	United Engineering Corporation 1	1	Vuports 6	6
30	S.E.Global Services 34	34	Showers Limited 4	4	South End Integrated Services 2	2	Sweco Europe Sa 1	1	Toolrite Engineering 3	3	United Spectrometer Technologi 2	2	Wadams Technical Services Ltd 2	2
31	S.I.T. Hydraulic Engineers 2	2	Shreenath Agencies 18	18	Sp Safe Control Systems (Pvt) 14	14	Switch Build Engineers India P 1	1	Topack Ceramics Pvt. Ltd. 7	7	Universal Furniture Ltd 19	19	Wai-Awala (Nigeria) Enterprise 3	3
32	S.M.E. Integrated Services 218	218	Siad Macchine Impianti S.P.A 39	39	Spaky Corporation 15	15	Switzer Instrument Limited 7	7	Tophouse Investment & Technica 1	1	Uop M.S.Srl 5	5	Waidi Technical Services 1	1
33	Saabinc Ltd 2	2	Siemens Ag 40	40	Special Metals Wiggin Limited 2	2	Syndicate Engineering Industri 25	25	Torq Tech Offshore Services Li 1	1	Usdirect Nig Ltd 7	7	Walayo Eng.Ser. Ltd 13	13
34	Saabinc Nig Ltd 4	4	Siemens Energy, Inc 8	8	Special Piping Material Nig. L 1	1	Synergy Water Park Rides Pvt. 2	2	Total Blasting 25	25	Vako Seals Pvt Ltd 53	53	Wallwell Resources 9	9
35	Saap-Tech Nigeria Ltd 2	2	Siemens Ltd 2	2	Sperry Global Services Nig. Li 3	3	Systematics Telecommunications 1	1	Total Hypertech Projects Ltd 1	1	Valley Hardware Co Ltd 4	4	Warner Lewis Ltd 5	5
36	Safco Engineering S.P.A. 9	9	Sierra Instruments 2	2	Sponmor Services Nigeria Limit 47	47	T. Valton Services Nig. Ltd 10	10	Touchline Hayes Limited 4	4	Vally Hardware Co. Ltd 201	201	Warri Refining % Petrochemical 60	60
37	Safe Air Technology Llc 2	2	Silejor Ventures 4	4	Spredax Services Ltd 2	2	T.C. Enterprises Nig 5	5	Tower Aluminium (Nigeria) Plc 20	20	Valour Concept 3	3	Water Link Company Ltd 2	2
38	Safety Consultants & Solutions 106	106	Silvernover Nigeria Limited 5	5	Springfield Agro Limited 4	4	T.D.Williamson Nigeria Limited 1	1	Toyin Mujibu Nig. Enterprises 76	76	Vardhman Yarns And Threads 2	2	Wayne [West Africa] Limited 2	2
39	Saga Global Consultants 2	2	Simba Industries Ltd 1	1	Spx Flow Technology 30	30	Tableau Software 4	4	Trans - Kontinental Services L 7	7	Vartech Ventures 32	32	Weam & Company Limited 11	11
40	Saga International Fze 2	2	Simpex Engineering Gmbh 12	12	St.G.G. Ventures (Nig) 7	7	Tactile Technologies Pvt Ltd 6	6	Transfer Multisort Elektronik 2	2	Vashi Electricals Pvt. Ltd 14	14	Webex Communication Bv 1	1

1	Webster Inspection Services Lt 1	1
2	Weg Equipamentos Eletricos S/A 3	3
3	Weir Bdk Valves 171	171
4	Weka Ag 2	2
5	Weldwell Speciality Pvt Ltd 58	58
6	Wellitex And Sons Limited 4	4
7	Whiteflag Telecoms Nigeria Lim 1	1
8	Wichtech Industries Ltd 6	6
9	Wider Technologies Limited 1	1
10	Wika Instrument India Pvt Ltd 1	1
11	Wika Instruments (Pty) Ltd, So 2	2
12	Wikea Wood Designs 4	4
13	Wilamzo Resources Limited 4	4
14	Wilton Global Resources Ltd 16	16
15	Winelight Analytical Systems L 2	2
16	Winnamoxx International Ltd 10	10
17	Wisner Controls 2	2
18	Wm. W. Nugent & Co. (Inc.) 1	1
19	Wnl-Tech Ltd 3	3
20	Wolfsburg Engineering Limited 1153	1153
21	Wood Group Gas Turbine Service 1	1
22	Workinghands And Boldsteps Ltd 5	5
23	Wuagbeta Enterprises 12	12
24	Wuxi Ding Long Co., Ltd 5	5
25	Wuxi Dongcai Textile Industria 4	4
26	Xerox Nig Limited 9	9
27	Xixco Oil Limited 7	7
28	Xlx Cre8tivs 2	2
29	Yale Controls Limited 42	42
30	Yautec International Ltd 3855	3855
31	Yokogawa India Limited 1	1
32	Yomfemat Nig.Ltd 1	1
33	York Inter. Sa Inc 68	68
34	York South Africa Inc. 6	6
35	Young Pioneers Enterprises 18	18
36	Zalbonds Nig Limited 8	8
37	Zayo-Sigma Chemicals Limited 19	19
38	Zematech Nigeria Limited 9	9
39	Zeroids Engineering Kunsult Lt 5	5
40	Zest Interiors Decor 5	5
41	Zhangjiagang Dongguang Trading 3	3

Fig 7: Cluster Field Values for Critical data Identification in Big data

Procedure to Identify Critical data:

The critical data identification based on the number of orders handled by the cargo company yields the analytical view of the organization performance towards feasible handling of package deliveries. The tool used for processing is XLMiner and Excel -Addins [11] for data analytics package.

The usage of Min, Max functions along with the Count If function is used to exhibit the required critical data field values for further processing.

Table 1: Critical data Analysis

Order range	Type Value	Companies Count
Minimum orders	1	228
Maximum orders	3855	1
More Than 100	>100	130
More Than 200	>200	61
More Than 300	>300	34
More Than 400	>400	21
More Than 500	>500	17
More Than 600	>600	12
More Than 700	>700	9
More Than 800	>800	8
More Than 900	>900	6
More Than 1000	>1000	6
More Than 1100	>1100	5
More Than 1200	>1200	2
More Than 1300	>1300	2
More Than 1400	>1400	2
More Than 1500	>1500	2
More Than 1600	>1600	2
More Than 1700	>1700	2
More Than 1800	>1800	2
More Than 1900	>1900	2
More Than 2000	>2000	1
More Than 2100	>2100	1
More Than 2200	>2200	1
More Than 2300	>2300	1
More Than 2400	>2400	1
More Than 2500	>2500	1
More Than 2600	>2600	1
More Than 2700	>2700	1
More Than 2800	>2800	1
More Than 2900	>2900	1
More Than 3000	>3000	1
More Than 3100	>3100	1
More Than 3200	>3200	1
More Than 3300	>3300	1
More Than 3400	>3400	1
More Than 3500	>3500	1
More Than 3600	>3600	1
More Than 3700	>3700	1
More Than 3800	>3800	1
More Than 3900	>3900	0
But 2 to 99	>1 & <99	439

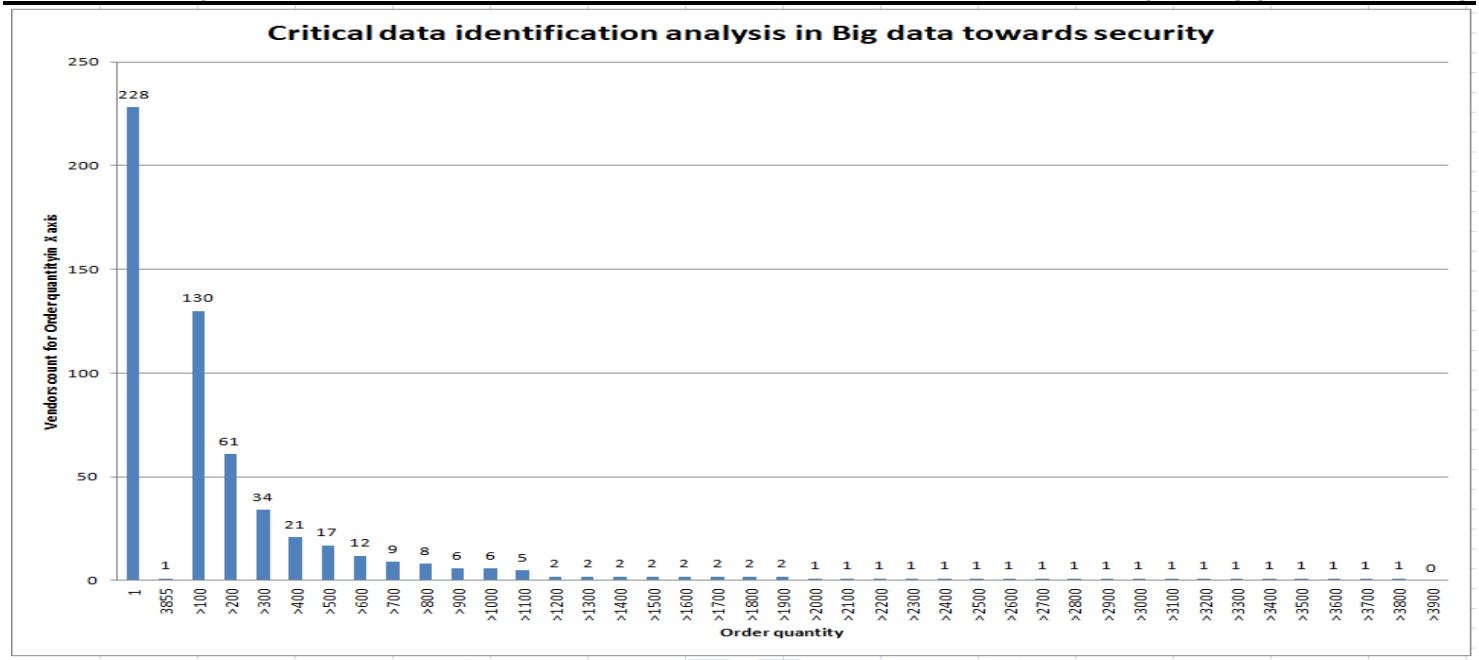

Fig 8: Critical data value Identification

Critical Data Analysis:

The following data analysis by add-ins in excels produces the various categorical lead values in critical data field for further processing towards organization governance.

3a Technologies 5	5	Minimum orders	1	228
A-Plus Enterprises Pvt. Ltd. 88	88	Maximum orders	3855	1
A. Dee Global Resources Limite 5	5	Between 2 and 10	2 to 10	644
A.B.L.K. El-Lo & Sons Resource 11	11	Between 11 and 20	11 to 20	161
A.N Nwakile Gen. Ent. Ltd 92	92	Between 21 and 30	21 to 30	82
A.S.Kura Brothers Ltd 1	1	Between 31 and 40	31 to 40	52
A.U & Sons Facilities Enterpri 125	125	Between 41 and 50	41 to 50	43
A.Z. Hollink South Africa (Pty 8	8	Between 51 and 60	51 to 60	31
Aabchuss Ventures Ltd 18	18	Between 61 and 70	61 to 70	22
Abbng Limited 4	4	Between 71 and 80	71 to 80	17
Abgelisco Resources Nig 34	34	Between 81 and 90	81 to 90	14
Abiodun Osoba 17	17	Between 91 and 100	91 to 100	17
Able Instruments & Controls 3	3			
Abuchi Global Services 47	47			
Acm Nig Ltd 3	3	Between 101 and 200	101 to 200	69
Active It Distribution Fzco 5	5	Between 201 and 300	201 to 300	27
Adams Armaturen Gmbh 17	17	Between 301 and 400	301 to 400	13
Addak Power Engineering Ltd 2	2	Between 401 and 500	401 to 500	4
Adef Ventures 2	2	Between 501 and 600	501 to 600	5
Adeka Palmarole Sas 1	1	Between 601 and 700	601 to 700	3
Adept & John Nig Ltd 3	3	Between 701 and 800	701 to 800	1
Adetunji Ilori Stores 8	8	Between 801 and 900	801 to 900	2
Advance Compseals Pvt Ltd 20	20	Between 901 and 1000	901 to 1000	0
Advanced Filtration Solutions 2	2	Between 1001 and 2000	1001 to 2000	5
Afesemi Investment Limited 12	12	Between 2001 and 3000	2001 to 3000	0
Afisemi Nig. Ltd. 6	6	Between 3001 and 4000	3001 to 4000	1
Aforma (Nig) Coy 35	35	More than 4000 orders	>4000	0
African Fertilizer & Chemicals 119	119			1442
African Petroleum Plc 51	51	Subtract the repeated Max order		1
Afza Material Handling And Sto 2	2	Total Clusters		1441
Ageco International Fze 2	2			
Agogos Resources Nigeria 32	32			
Ahmid Idris Limited 6	6			
Aibes Communications 2	2			
Air Liquid Nigeria Plc 4	4			
Air Liquide Uk Limited 84	84			
Air Wave Limited 5	5			
Ajomesco Concept Enterprises 45	45			
Aju-Doh And Sons Ltd. 3	3			
Akadan Global Services 4	4			

Fig 9: Critical data Analysis

Step-1: Focus on the Max ordered values

The critical data of max 3855 orders issued and processed by the single company is "yautec international limited". The following table illustrates the high range of orders processed during the five years.

Table 2: Trusted customer companies

Highly Satisfied orders	Range	Number of Companies
Between 1001 and 2000	1001 to 2000	5
Between 2001 and 3000	2001 to 3000	0

Between 3001 and 4000	3001 to 4000	1
More than 4000 orders	>4000	0

The following figure shows the max ordering companies for the organization,

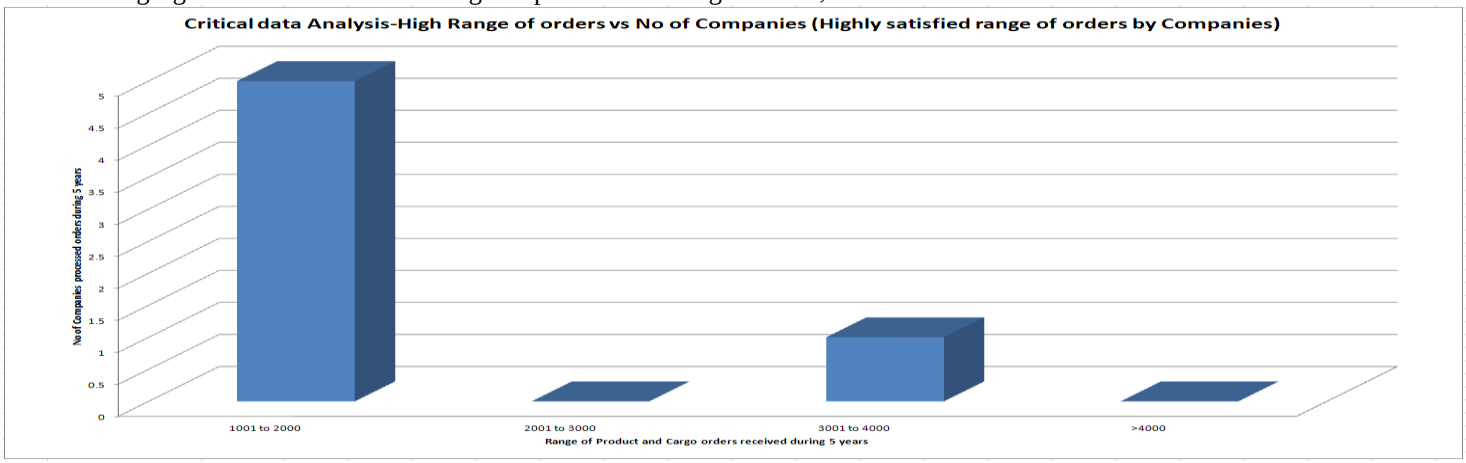

Fig 10: Maximum order raising companies

Step-2: Focus on the Min ordered values

The critical data of min only 1 order issued and processed by the companies=228.

The critical data of 2 to 10 order issued and processed by the companies=644.

In a span of 5 years (2011 to 2015) the number of companies accessed our products and cargo company for processing is 872 out of 1441. The following table illustrates the minimal orders processed by the organization during the period of 5 years.

Table 3: Minimum order supplied by customer companies

Processed orders during 5 years	Companies count(Clusters)
Only one order	228
2 to 10 orders	644
Total No of Min orders	872
Total Companies/Clusters	1441
Min order Companies percentage %	60.51

The following figure shows the actual scenario for the organization.

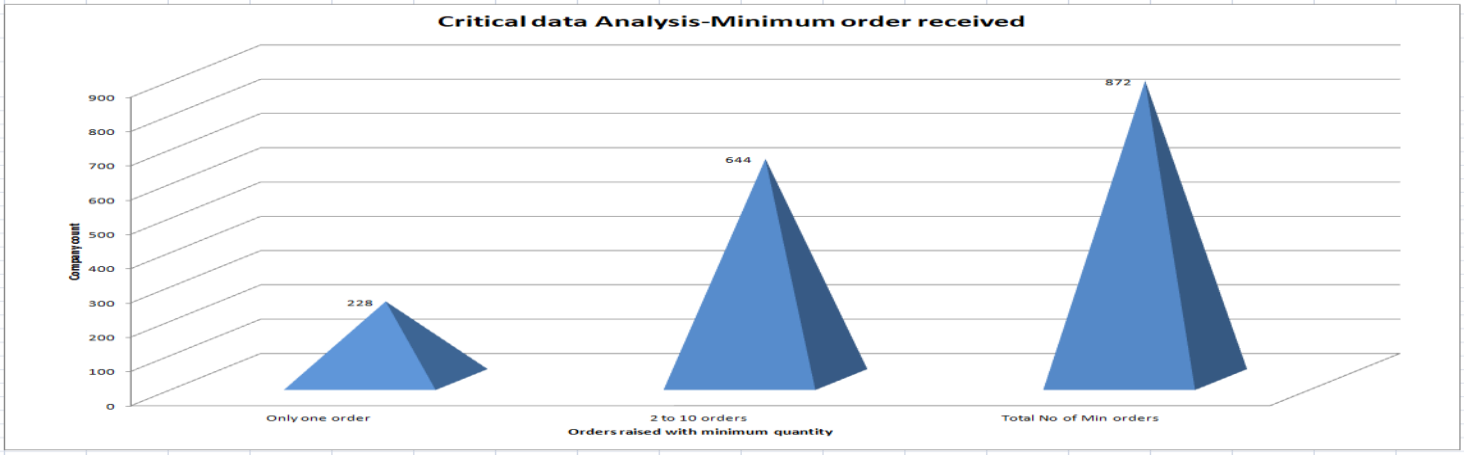

Fig 11: Minimum ordering companies

Step-3: Focus on the middle ordered values

The critical data of middle or tolerable mean orders issued and processed by the companies=1441-872-(Max) =1441-878=563

Table 4: Average order supplied customer companies

Processed orders during 5 years	Companies count(Clusters)
Max ordered Companies	6
Min ordered Companies	872
Total Companies/Clusters	1441
Average order companies	1441-878=563
Average order Companies percentage %	39.07

The following figure shows the actual scenario for the organization.

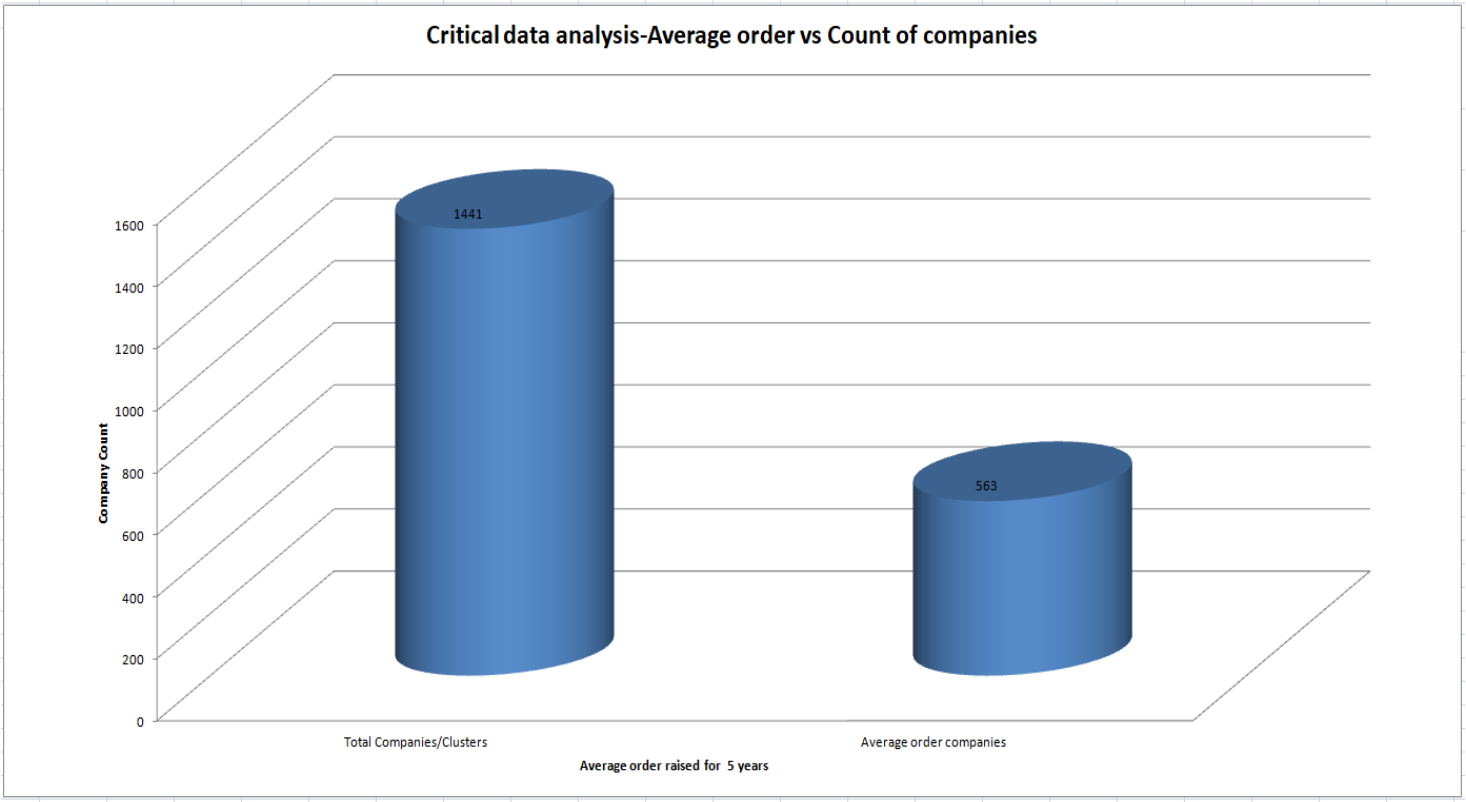

Fig 12: Analysis of Average ordering of companies

IV.RESULTS AND DISCUSSION

The critical data analysis for the Big data yields the sensitive information about the organization performance and moreover it acts as the datum to be confidentially maintained by any of the organization. The XLMiner tool works well in the Data analysis of 1441 clusters with critical data field validations and verifications. The different directional perspective view of critical data field value produces the results for the organization as in the following table. A well performing organization processing results must be in a Normal curve of 20% Min orders, 60% average orders and 20% Max orders.

Table 5: Organization performance based on critical data analysis

Orders for the past 5 years	No of orders	Performance % for the duration of 5 years	Expected Performance %	Deviation
Minimum orders	872	60.51	20	40.51
Average orders	563	39.07	60	-20.93
Maximum orders	6	00.42	20	-19.58
Total orders	1441			

The following figure shows the organization performance for dealing with min, max and average orders for the past 5 years.

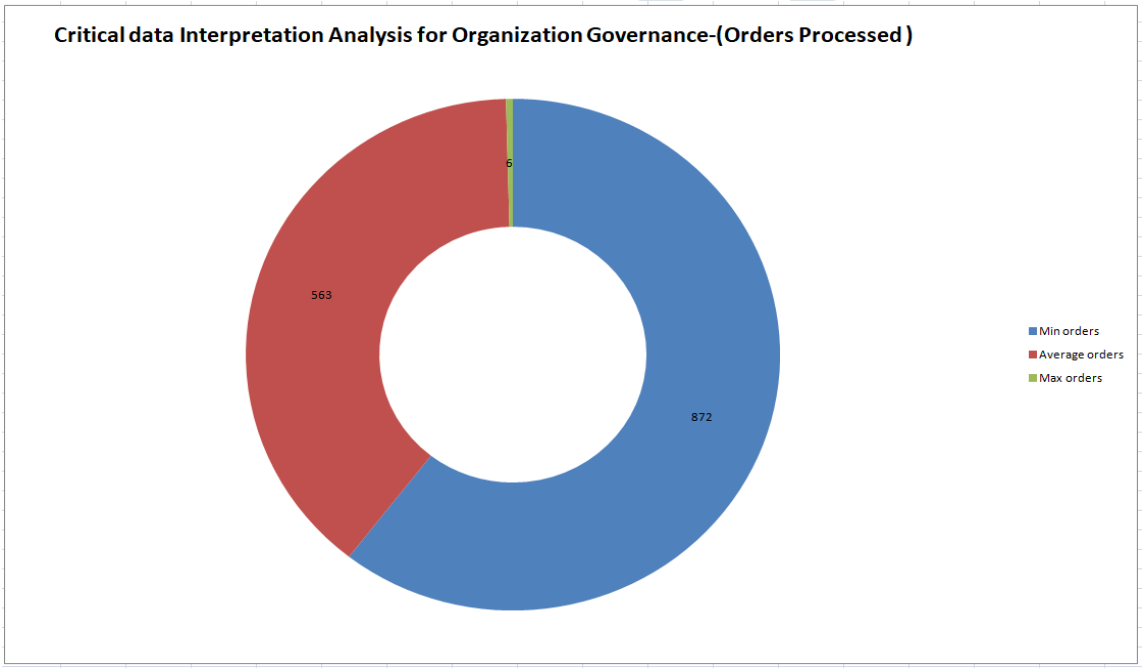

Fig 13: Critical data analysis results for the Organization order processed schema

The following figure shows the need for improvement in terms of comparison with the nominal expected output of a normal curve.

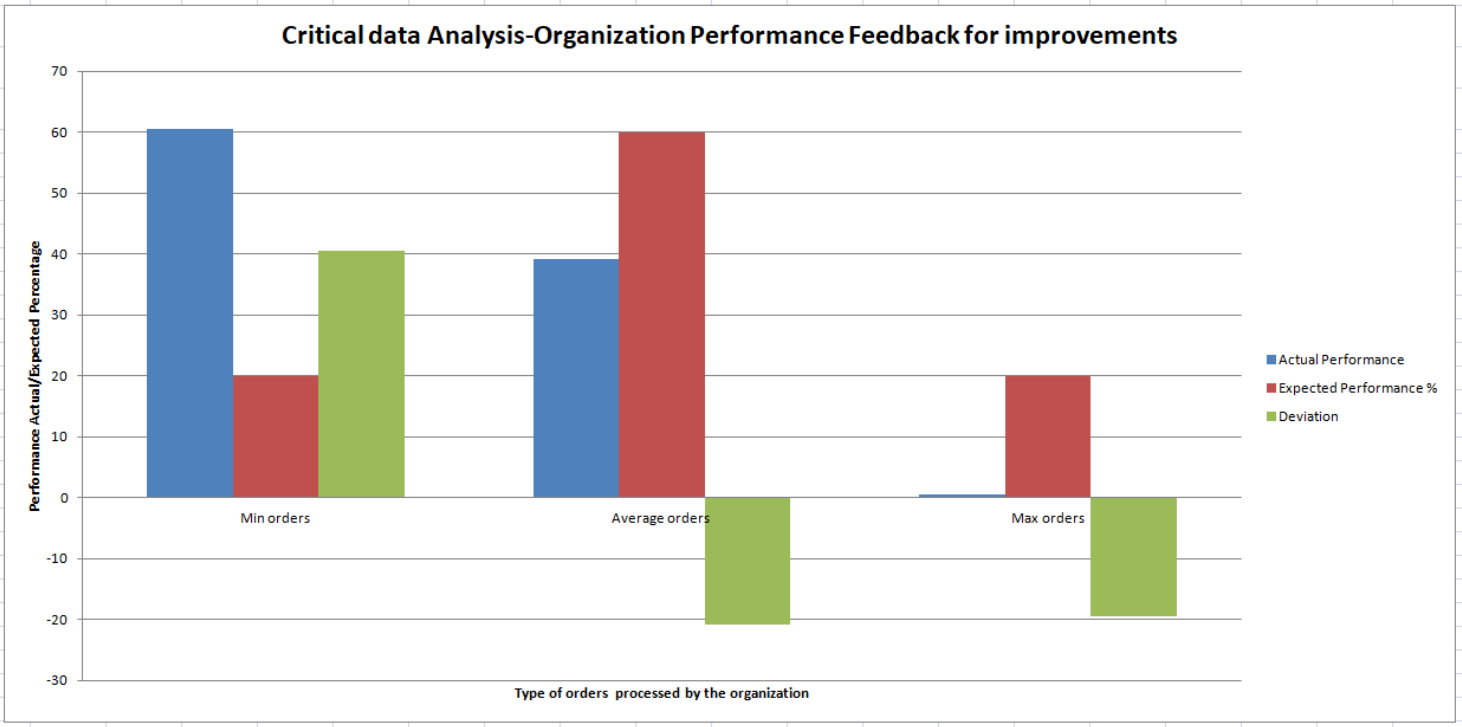

Fig 14: Comparison with the actual and nominal expected output performance based on critical data analysis

The proposed methodology shows that the deviation in performance of the organization resembles the need for the insight view of the business model for further improvements.

V.CONCLUSION

Big data is a data with vastness, variety, velocity of large magnitude of information's out of which analyzing the data using normal access or excel is not in a feasible condition so the inclusion of XLMiner or any add-ins for Excel or CSV is important to handle the analysis of data. The process of handling and extracting critical data from big data with individual component implementation of data cleansing for data preprocessing reduces the Big data analysis complexity, Critical Data field selection with its validity explores the business strategies with optimal magnitude in other words it will act as the glimpse or r turning point for the entire organization business process. Our proposed critical data analysis schema reduces the time complexity and data complexity along with XLMiner tool or Excel Addins pack and Solver pack reduces the complexity in towards critical data interpretations, the final result yields 95% (Level of significance=5%) optimal output for the organization betterment than the normal implementation. The overall method proves to be highly efficient compared to normal Excel and access based approach because of its denial of service towards the data consistent issues also, dramatically reducing running time and number of features required for the efficient critical data issues. Moreover, the experimental results revealed that the critical data in a Big data for an organization business process is highly sensitive and it must be kept confidential with higher level of security algorithms applied to it. In near future the focus will be to propose a fuzzy based neural network oriented critical data security for Big data domain.

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