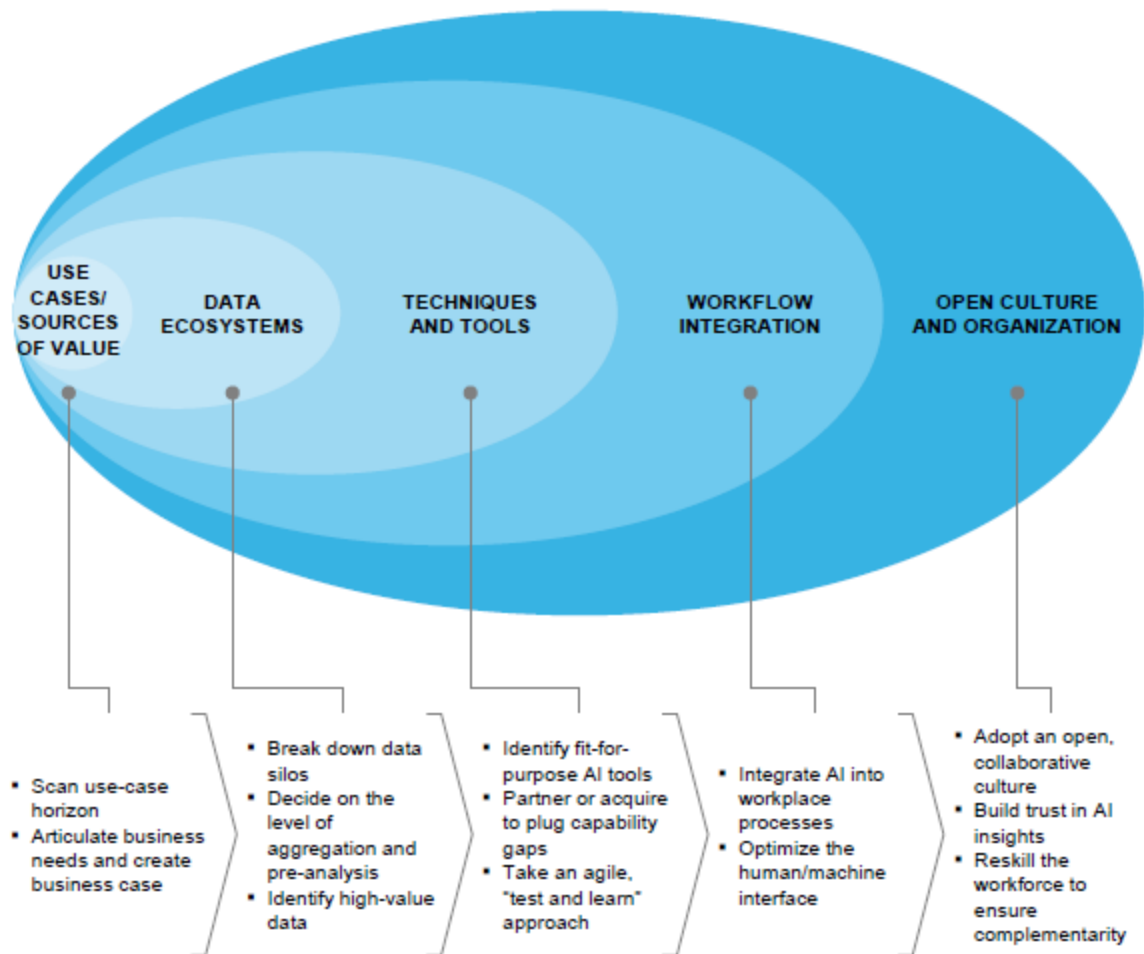| Sl.No	Requirement	Tasks To-Do
1	Identify / Design an ecosystem of tech areas of work, grouped by technology, our offerings, market segment, verticals, etc	For each service, product, or other offering, identify the tools, IDE, apps , libraries, OS, platforms as per best fit, log them in a matrix
2	Design landscape that shows our tools, products, that we use for various offerings	Group the identified tools, apps as per best fit based on project needs, client needs, problem, ease of admin, less overheads and maintenance, mark these groups in the log matrix Design landscapes based on these and market segments, needs
3	Capture these in an excel, later on make a graphical image one pager to fit as per the focus or theme	Based on the grouped tools, map these to the market segments, create images to show the fitment

Technology ecosystem template for Products, Services, Modernization, Research offerings, based on projects or consultation services

	USE CASES/ SOURCES OF VALUE	DATA ECOSYSTEMS	TECHNIQUES AND TOOLS	WORKFLOW INTEGRATION	OPEN CULTURE AND ORGANIZATION
	• Scan use-case horizon • Articulate business needs and create business case	• Break down data silos • Decide on the level of aggregation and pre-analysis • Identify high-value data	• Identify fit-for-purpose AI tools • Partner or acquire to plug capability gaps • Take an agile, "test and learn" approach	• Integrate AI into workplace processes • Optimize the human/machine interface	• Adopt an open, collaborative culture • Build trust in AI insights • Reskill the workforce to ensure complementarity

SOURCE: *The age of analytics: Competing in a data-driven world*, McKinsey Global Institute, December 2016; McKinsey Global Institute analysis

Tool No	General Tool Name / Tool details	Usage / Use case
1	KNIME Analytics Platform	
2	R Studio /CRAN pkgs	
3	Library package- Pandas, Mahout, NumPy, Scikit-Learn, Spark MLLib, PyTorch, MXNet	
4	Cassandra 3.0/csqlsh, cython with RedHat JDK	
5	Hadoop, HDFS	
6	Apache Phoenix for HBase interface	
7	Cloudera sandbox 5.8	
8	Eclipse Java edition	

9	Statistics using Excel	
10	Anaconda3, Orange, Spyder	
11	BigML	
12	Jupyter Notebook	
13	Apache CouchDB	
14	Node.js	
15	Kafka Connect	
16	Databricks	
17	Hive	
18	MySQL / MySQL WorkBench 8.0	
19	Perforce Hansoft	
20	JDK 1.8	
21	JetBrains IntelliJ IDEA	
22	MongoDB /pymongo	
23	Python 2.7 for MongoDB/ 3.7 for Anaconda and Jupyter Notebook	
24	XAMPP	
25	MS Office / 365	
26	MS Project	
27	MS HDInsight	
28	Datsets from Global Open Data, Scientific data, Open Science Data Cloud, Google Trends, Google Correlate, JSON PlaceHolder, Kaggle, Univ of Melbourne	
29	PM tools : Jira, AzureDevOps, VersionOne, Rally, AgilityHealth	
30		

Tool No	AWS product / Tool details	Usage / Use case
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Tool No	GCP product / Tool details	Usage / Use case
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Tool No	Azure product / Tool details	Usage / Use case
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Products landscape / ecosystem (as per MASTER PRODUCTS CATALOGUE - V1.2)

Domain	Our Product	Our Products landscape / ecosystem/ value adds
AGRI PRODUCTS	1. Farmer's climate aid 2. Precision agriculture/satellite farming aids 3. Agricultural tube farming aids 4. Smart Agriculture farm safety 5. Smart Agriculture crop safety 6. Smart Agriculture processing 7. Smart Agriculture storage	**Weather forecast** – Spark, Hive, climate, rainfall, snowfall , GIS datasets, Jupyter notebook, Google maps, historical time series forecasting algorithms using ML, Docker, and Kubernetics. **Precision agriculture** (**PA**), **satellite farming** or **site specific crop management** (**SSCM**), **decision support system, on observing, measuring and responding to inter and intra-field variability in crops –** GIS, spatial datasets, LEO satellite data feeds, Drone data feeds, images, and image classifications algorithms based on texture, mapping to issues, normality, dryness, wet, under-water, contamination levels etc. Co-relate similar, seasonal, historical data using CRAN statistical packages using R. Spark, HBase, Jupyter notebooks, Python, Linux, Neural NW based decision support system, batch –processing using data pipelines, nano, bio-sensors for various levels of monitoring, reporting and roll-up status , Analyzing satellite feeds to detect early warnings for pests, bugs, swarms approaching crops, snow, hails, temperature variations that enable farmers responses. Rodent and flies management by way of switching on sensors, buzzers to chase away using mini robots, rule based and fuzzy logic systems, LAMP , MEAN stack based portals hosted on Azure or AWS platforms Use of computer vision based robotic arms, conveyor belts , image sensors, real time classification of varieties of grains, at various configurable setting based on ISO, standards, sorting of wide range of raw crop deliverables and using farmer-friendly GUI settings to sort and auto value the market value. These all use various datasets, cost metrics, market value, expert systems inputs, that enable better return to farmer Stock Inventory management software along with real time analysis and degradation analysis, lab reports that enable better supply chain stock movements using MS Project, AI based Scheduling software using Python, R, robot-arms and integrated vision cameras Grain Storage system bio-sensors, nano-sensors collect various ecological , environment, ambient that enable better visibility and alerting farmers to sprinkle required remedy, all run in real time and batch- modes driven by centralized community servers/ cloud that offer value to supply chain

		Expert robot systems that will support basic farming tasks like tilling, sowing, harvesting, sorting fertilizer spraying, fruit picking all make better productivity and allow farmers to do more of planning and profit making sales activities
AI PRODUCTS	8. AI based Multi-agent system package 9. Concordance software for text discovery and analysis	MAS systems using Java, Prolog/ Synergy, under Linux help realization, O-MaSE, JADE and autonomous intelligent agents to design agent societies that use genetic algorithms to better the agent society. This has lots of uses like in Digital Twin for new product design, Simulation of war like situations and games that help in better reinforced learning and adoption of virtual roles/ avatars that can help real world entities and humans. Realization of Use cases like Natural disaster management for proactive evacuation using mobile apps, automated mobile instructions (ambient and local aware services) using Android, iOS and other popular OS. Use of Autonomous Learning Agents for Decentralized Data and Information Network(ALADDIN), Industrial Sensors, Decision support systems using graphics. For Telecom 5G, private spectrums, AM/FM and other usable bands, using AI / ML algorithms and real time analysis, we offer load balancing, security features to prevent intrusion of live programs and a sense of comfort that operations will resume even with a disruption, to achieve 99.9% uptime. Smart grid functions, with edge computing, field based analysis and reporting and lot more that integrates electrical, electronics and software interfaces using NIST, ISO, and IEEE standards Text analysis packages using R based CRAN, NLP packages, Open NLP, and Natural Language Toolkit (NLTK) for unstructured big data analysis, mining and use of HBase, Hive for large volume storage in TB, enables better insights of the text semantics, meta-data and sentiments
AUTOMOBILE PRODUCTS	10. Manufacturing Robotic process automation system 11. Electric car using a solid state hybrid battery	Kofax, AutomationAnywhere, HelpSystems, RAGE, IBM PowerAI Robotic systems from FANUC, KUKA, ABB , GE Overlay virtual systems , ROS, Motherboards, Raspberry pie boards, explainable AI tools for inference engine based decision system/ controller Photovoltaic cells, supercapacitors, nano-wired battery kits with micro batteries for nanosystems/ embedded systems, and battery for health-gadgets / long running remote systems
AVIATION PRODUCTS	12. Aircraft delay analysis using big data with R	R packages for delay analysis, multi facet charts, MIL STD 1553B, ADC, sensors, LRU unit processing, testing and performance w.r.t. delays in flights, SoC

	13. Engineering Test rig 14. Avionics units software test modules 15. Smart flight safety 16. Smart passenger travel 17. Smart fleet maintenance 18. Smart digital twins 19. Smart ticketing, cargo tracking, delivery	FPGA , wired \ wireless protocols, Boards from DDC, Apollo, 4GL libraries, 2d/3d graphics libraries, static / dynamic time spectrum analyzers, relays, safety trip switches, mobile app, POST, Cloud, edge computing, avionic parameters analysis using big data, spark, ML libraries, reporting and analysis using Tableau, MIS reports , virtual reality, simulations/ trainings based on proper / improper use, misuse, abuse of controls, safe flying training test environments using mixed, hybrid reality and automated corrections plan based on a pilots digital twin that captures the personality, traits and human preferences. Simulated space travel, using historical data about the facts of the universe, risks and how they can be removed for an actual flight that travel to far off planets In-flight experience for passenger who plan to tour the flight exterior , flying area using location aware, context aware apps, screens, virtual guides. Using big-data, satellite datasets, local view of the travel point is generated for virtual experience, for connecting flights, cabs, hotels, and transit information offered in mobile with no internet
DATA CENTER-COMPUTING PRODUCTS	20. Smart Nano computing system 21. Smart Quantum Cryptography 22. Wireless Nanosensor Networks (WNSN) 23. Edge, fog computing	DNA bio-material, nanotubes, gate circuits, computing platform using bio-sensor interfaces, energy efficient computing. Health science, genome packages , R and Python packages for analysis and quality testing Azure Edge, AWS lambda, Azure IoT using 5G Quantum kits using IBM, Google and AWS
DEFENSE PRODUCTS	24. Intelligent Army suite system 25. Force fields systems 26. Stealth technology kit	Nano-technology, Intelligent fabric, Integrated virtual views, 3d view using mixed reality, various guides/cues for helmets, watch, inbuilt health monitor, gadgets, body temperature / movement generation of power (emergency), bio-sensors for poisonous gas detection, in body computing , location tracker, safe homing guidance even when suite is removed, auto locator alerts to base stations, GPS, GIS, satellite datasets, Spark, HBase, real time and batch processing, intelligence data decryption, in body memory erasure tools with biometric approvals Stealth technology carbon nano-tubes, nano-computing, user programmable interference amount generation for deflection, software, hardware interfaces
EDUCATION PRODUCTS	27. Predicting Grant Applications using Spark's machine learning 28. RPN Calculator (using C) 29. Simple Math Calculator (using Java and JavaScript) 30.Hangman game (using Java) 31.Graph nodes reachability analysis	Simple educational aids that help students get the real inside working of tools like calculators that show them how the equations / theorems are translated to solve real world problems. Pieces of code, equations and results, along with errors are shown using interactive apps, software written by us. We use variety of languages, visualization and graphics (2d/3d) that help students learn easily and do interns happily. We use C, C++, Java, Pythton,4G libraries, R, virtual reality, mixed reality and make PC based learning fun that enables better memorization, quicker

	software (using DFS, BFS) 32.Dynamic Tree node management (using BST and node traversals) 33. Adaptive learning kit 34.Emerging business learning systems	learning. Our syllabus is based on popular adaptive learning techniques unique for each learner. We also blend the learning with business, engineering and medical syllabus that enables students can start practicing after they graduate with good hands-on. We use mixed reality, NLP techniques to help learn better
ENERGY PRODUCTS	35. Smart metering system 36. Digital Energy meter 37. Smart grid system 38. Nano-wired battery 39. Hybrid energy system interfaces and massive storage systems 40. Micro-batteries charged by everything from buildings to our bodies	Smart grid software using Azure IoT, AWS, Cisco NW, edge services backed by Low power protocols, ZigBee, Grid sensors, energy converters using digital techniques, DSP, filters to suppress surges, accidental trips etc Inbuilt power failure analysis, prediction using big data, Azure HDInsight, integration of operational planes, IoT planes data planes and management planes using dual redundant failover clusters using Dockers and Kubernetes Neural NW based Inference engines that enable better edge based IoT devices monitoring and feedback control mechanism Failover Backup grid to support main grid failure with interconnects that switch over in seconds and based on OLA, Suitable data center type availability of 99% is possible using our unique architecture, big data analysis and smart control Suitable standards from NIST, Smart grid alliance, Green standards all make our products industrial grade
ENGINEERING PRODUCTS	41. Digital TV	We have base design for digital TV using comb filter, DSP processing using fourier transforms. We plan to add more features that enable use of latest technologies like virtual reality, NLP based interactivity, android TV, intelligent DTH, world channels integration, introducing online learning from home for all courses and research work wherever possible. Use of satellite based phone services, FM radio and many more spectrum use using 5G, WiFi. We plan to offer TV in various form factors that meet needs of individual like on a mobile app for various age groups, professions and genders. Integrated with radio, Internet, IoT, Virtual Office , the way TV is used will change as many convergence and similar use to a laptop will ensure TV will live long
DRESS PRODUCTS	42. Intelligent dress material	This project leverages on exoskeleton as base wear along with cloth/ fabric that acts as a base for all types of gadgets. We customize the base gadgets and tailor them to match unique needs of individuals based on various factors. We have 10 models that will be mapped to requirements that enable better working condition, ambient and threat aversion including nearby abnormal human behaviors. We use

		IoT, AI/ML algorithms, NLP, sentiment analysis, adaptive learning and nano, bio-sensors to make the material suitable for industrial, commercial and home use
GAMING & ENTERTAINMENT PRODUCTS	43. Shape generator for Games using Computer Graphics	Using Computer Graphics, we plan to use 3D, 4D, images, sounds and newer modes of gaming experience using SnapDragon, Intel Graphics accelerators, GPU, and an adaptive learning virtual assistant that reads your moves and offers recommended moves
GOVERNMENT PRODUCTS	44. Multi agent system for natural disaster management 45.Smart City cyber physical systems	MAS systems using Java, Prolog/ Synergy, under Linux help realization, O-MaSE, JADE and autonomous intelligent agents to design agent societies that use genetic algorithms to better the agent society. This has lots of uses like in Digital Twin for new product design, Simulation of war like situations and games that help in better reinforced learning and adoption of virtual roles/ avatars that can help real world entities and humans. Realization of Use cases like Natural disaster management for proactive evacuation using mobile apps, automated mobile instructions (ambient and local aware services) using Android, iOS and other popular OS. Use of Autonomous Learning Agents for Decentralized Data and Information Network(ALADDIN), Industrial Sensors, Decision support systems using graphics. We adopt this to Govt frameworks, datasets, metrology labs, National agencies and generate advance reports using Tableau, Power BI, MIS charts and control room design Based on European Research Cluster standards and frameworks, we plan to develop cyber-physical systems that span across all major offering by city council. We offer flexible, unique solutions for each city while retaining the base model and offering localized solutions using IoT, Edge, Cloud, home gadgets, mobiles, laptops and interfaces to public services
GREEN ENVIRONMENT PRODUCTS	46. Clean Tech systems	Using Remap, IRENA global energy modeling framework, we plan to integrate conventional energies with newer energies using software, hardware, battery storage, smart grid, hybrid energy sources, nuclear, hydro energy, energy banks, that enable sustainable growth for at least one decade We plan to modernize existing power plant that will enable lesser pollution and better RoI, using better energy source overlays or new designs for the plants. We plan to even modernize the conventional energy systems that will use lesser power and can easily sustain for a week instead of a daily charge
HEALTHCARE / LIFESCIENCE PRODUCTS	47. Intelligent Health monitoring systems 48. Smart Drug delivery	Wireless Body Area network (WBAN), Intelligent fabrics, Bluetooth, 6LoWPAN, personal operating systems with less footprint like in android, iOS, AWS Cloud, Inference engine for sensor based edge intelligence decision making, lambda

	49. Smart nano coatings 50. Smart anti-microbial technologies 51. Smart medical batteries 52. Intelligent EHR services 53. Intelligent Doctor, physician services 54. Intelligent solutions for dental services 55. Intelligent paramedic services 56. Smart Diagnosis systems	functions, bio-sensors, oxy meters, pulse meters, mini-cardiac gadgets, mini-ECG, IOT systems Deep Learning based body scan, extraction of features, diagnosis of abnormality using CNN, slices, 2d, 3d reports for easier surgery. Nano scale drug delivery patch/ cloth, nano sensor for delivery metrics, part targeted delivery system using 2d/3d measures to pinpoint the cancer and deliver right amount instead of brute force delivery, use of AI/ML to segment and pinpoint the abnormal area Nano-devices planted in intelligent fabric allows in better diagnosis within few hours without humans using AI/ expert system and ready to use normal charts/ graphs. Nano, bio-sensors that work on the signatures of the molecules, pollutants, viruses and bacteria, will enable better analysis using AI/ML with an inference engine to assist pathologists to diagnose precisely Low power micro batteries with nano-coating that help 99% efficiency in transfer of electrons and rechargeable using inside-body temperatures and other natural elements Patient health records processing management and long term storage using big-data, NoSQL document databases like CouchDB
HI TECH PRODUCTS	57. Voice driven AI technology system 58. Intelligent Digital twin system	AWS AI, Lambda, Translate, Kinesis, Comprehend, API gateway all driven in AWS / Java Runtime engine enables the app to be embedded or used in a standalone mode Oracle IoT Digital Twin is being leveraged to build big-data systems along with Spark, Hive and NoSQL concepts. Hadoop/YARN used to wherever possible
HOSPITALITY PRODUCTS	59. Intelligent Hotel reservation management system 60. MAS based TAGA trading agent system 61. Intelligent food quality testing system 62. Intelligent Traveler's bots	Hotel and Hospitality system will be driven by hybrid cloud platform with near real time processing using Hadoop based transaction/ non-transactional events with guaranteed delivery using SMS, app alerts, push notifications. AI/ML used to recommend suitable offers, discounts and early bird / holiday plans to premium clients. Data sets from tourism, hotels, national offices and related agencies are used to feed continuously. GUI to be JavaScript, Node.js., React, MEAN stack with cloud based security and scalability FIPS based multi-agent system for online trading and deals management using Agent society based human behavior simulation and inference to design various

		options for deals using Java, Python, Kafka, Akka, Eclipse, MongoDB, CouchDB and lambda functions to trigger events and offline processing Food quality testing for viruses, Covid, poison, lead, heavy metals, silica based on software signature mapping and classification based on various user selected features, Nano and bio-sensors used with nano-measurements being scaled for physical real size using AI algorithms Travel virtual guide using location, context aware apps integrated with tour data, history and real data to offer a great user experience even without no internet with offline ready to use data, use of GIS, satellite, local data sets, lambda, bot framework
HR PRODUCTS	63. Resume shortlister AI agent system	Use of Text mining algorithms, NLP libraries for unstructured data, Spark, EMR, ranking and priority algorithms, improved ATS pipeline with various user friendly filters that allow narrowing from a large pool of open resume to a limited setoff 100 for personal review. Use of recommendation for top fitting resources with unique skills
IT-BT PRODUCTS	64. Intelligent routing & resolution system for a Call Center	NLP based algorithms for real time analysis and routing using Spark, Kafka streams that offer transactional guarantee
LAW PRODUCTS	65. Intelligent Lawyer system	An adaptable Neural network with feeds from expert systems that allows rule based and fuzzy based decision to be possible for best judgment. Aprior algorithm based knowledge offers better results. May be Markov chains will help
MANUFACTURING PRODUCTS	66. Intelligent Industry 4.0 robotic system 67. Collaborative Robot Cell safety system 68.Smart manufacturing robots 69. Smart manufacturing virtual assistant 70. Smart manufacturing inventory intelligence 71. Smart manufacturing plant automation 72. Smart manufacturing scheduling 73. Smart manufacturing process automation	Systems from FANUAC, ABB, GE, and KUKA will be used to tailor made GUI that enable better data integration with Azure and AWS clouds and Robot OS. Use of real-time data feeds from moving parts with possible deviations using look up statistic charts enable quicker decisions using various NIST standards, Type A/B/C standards for collaborative systems Use of various packages, frameworks from Rockwell, ISA, and integration with enterprise packages like SAP, Oracle that enable better insights and better supply chain movement from one station to another

	74. Smart manufacturing quality intelligence 75. Smart manufacturing product ideas 76. Smart manufacturing niche industry solutions	
RESEARCH PRODUCTS	77. Experimental claytronics 78. Molecular electronics digital technology 79.Programmable matter 80. Using The Internet For Hardware Downloads — Not Just Software 81. Nanobots brain plug-ins for the cloud 82. Gene therapy for deafness 83. Next Tech or NT aids, integration and systems 84. Early Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) gene editing technology	To Do
RETAIL PRODUCTS	85. Smart retail SCM 86. Smart retail inventory and anti-theft system 87. Smart retail shopping recommender 88. Smart retail warranty 89. Smart retail safety 90. Smart retail logistics 91. Smart FMCG 92. Smart retail innovations	Virtual shopping aids, real time retain inventory updates, theft detections at checkout, fraud detection all make it possible using AI/ML, NLP, tag reader, remote vision, auto checkouts, without any personal aid will enable better shopping experience Recommendation display on the shop gadgets to the shoppers allows them to shop without remembering their needs, use of personal data, history using big data and personal recommendation systems, algorithms For owners, better insights of sales, rolled up charts on day, week, quarter reports enable better tax compliance and audits
SECURITY PRODUCTS	93. Anti-theft detectors for business online details safe 94. Personal security kit for personal-family safety and safety of assets 95. Personal defender kit for early warning and self defense 96. Nanotech sensors for preventing individual and group terrorism	To Do

TELECOM PRODUCTS	97. Intelligent Telecom resource management system 98. Mobile Ambient intelligent system 99. 5G planning, migration services 100. Network planning 101. Network infrastructure implementation 102. Telco software design 103. Cloud integration services 104. Smart Telco NW 105. Smart Telco virtual assistants 106. Smart Telco Inventory 107. Smart Telco predictive maintenance 108. Smart Telco process automation 109. Smart Telco industrial solutions	Using DeepCog concept we design 5G capacity forecasting, use of virtualized network, cloud burst, DWDM, OFDM, and orchestrations using API, GUI, data logger big data analysis, spectrum usage monitors and handling of millions of dynamic secure key handshakes across million IoT devices and use of Azure IoT, edge analysis, will help better usage, reduced theft and avoiding outages with availability of 99.9% Suitable apps and websites will be developed using real time lambda, IoT, real time Kafka streams, data-pipelines and caching
Transport products	110. Intelligent Telemetry system for multi-modal vehicles 111. Intelligent Transport and logistics tracking 112. Cognitive Travel system 113. Cognitive Driver's aid 114. Intelligent traffic Management system 115. Intelligent Drones' Order dispatch system	Wireless PAN, WAN, LoRA, OFDM, LEO satellites, GPS and blind navigation systems will help us to build a long term regional and national infra that will help to scale population, and transactions, using Java, API, decentralized, edge systems with intelligent inter connects and cloud based integration
BANKING PRODUCTS	116. Bit coin and crypto currencies 117. Anti-quantum hackers aids	FPGA based Bitcoins mining software, crypto wallets software, smart contract, ledgers all make our solution mature and use of post quantum algorithms makes it less prone to quantum hacking
CO-WORKING PRODUCTS	118. Solution Café - personalized co-working space	A collaborative cloud platform for virtual office, home office and physical office experience using gadgets, mini-conference systems, offline and live operations management, shared desk, personal and official setup using Cisco, MS Office, Azure, virtual desk tools

Services landscape / ecosystem (as per MASTER SERVICES CATALOGUE - V1.2)

Domain	Our Services	Our Products used to offer services/ ecosystem
ENGINEERING SERVICES	1. Software engineering 2. Systems engineering 3. Cost engineering 4. Robotics engineering 5. Multi-disciplinary engineering 6. Electronic engineering / Electrical engineering 7. Telecom engineering 8. Civil engineering / architecture 9. Mechanical engineering 10. Biotechnology engineering / related product 11. Research Engineering 12. Farm engineering part 1, 2, 3 / Farm retail engineering 13. Real estate engineering 14. Enterprise engineering 15. Aeronautics / Space engineering 16. Nano-Technology engineering 17. Transportation engineering 18. Oil & Gas Industry engineering 19. Manufacturing engineering 20. Industrial Plant engineering 21. Health care / Life Science engineering 22. BFSI industry engineering 23. Engineering Education –	

	Mentoring 24. Engineering Management & Leadership 25. Quantum Engineering	
MANAGERIAL SERVICES	26. Program Management services 27. Project Management services 28. Company secretarial services 29. Company registration services 30. Company Payroll services 31. Company Accounting services 32. Company Employment / labor services 33. Company mobility services 34. Company HR services 35. Company travel / hospitality / visa services 36. Company stationeries / legal books / logo 37. Company International Trade / Banking / Forex services 38. Company Tax services 39. Company Embassy / Consular services 40. Company Legal services 41. Company partnership services-products, & services 42. Company sales / marketing / ERP-CRM services	
RESEARCH SERVICES	43. Clean Tech Innovations 44. Health and Life Science Innovations	

	45. Social Innovations 46. Engineering Innovations- Advanced materials 47. Quantum Technology 48. IT Innovations 49. Nano Technology	
INDUSTRIAL SERVICES	50. Agriculture sector 51. Aviation 52. BFSI 53. Education 54. Govt-Public 55. Healthcare 56. Manufacturing 57. Oil and Gas 58. Retail 1, 2 59. Service Providers 60. Telecom 1, 2 61. Transportation	
REAL ESTATE	62. Development 63. Construction 64. Managing 65. Licensing 66. Rentals 67. Corporate matters-Tax, Compliances	
RETAIL	68. Grocery & stationeries 69. Agro & farm goods 70. Fast food, FMCG	
INFORMATION	71. Cloud Architecture	

TECHNOLOGY	72. AI general 1, 2, 3	
	73. Digital 1, 2	
	74. Automation 1, 2	
	75. R&D services	
	76. Engineering services 1, 2	
	77. Mentoring Services	
	78. Data center services 1, 2	
	79. Outsourcing 1, 2	
	80. Robotics	
	81. AI Neural Networks, & Algorithms	
	82. Advanced AI services	
	83. Computer Vision	
	84. MS Azure end to end services 1, 2, 3, 4, 5, 6, 7, 8, 9	
	85. AWS end to end services	
	86. Data Science Services 1, 2, 3	
	87. IT Cloud Security 1, 2	
	88. Programming language/ coding service	
	89. Cognitive Enterprise	
STARTUP SERVICES	90. Advisory services	
	91. Innovation services	
	92. Start up accelerators	
	93. Raising capital	

Modernization landscape / ecosystem (as per MASTER MODERNIZATION CATALOGUE - V1.1)

Domain	Our Services	Our Products used to offer services/ ecosystem
National level	1. Intelligent safety of in-transit goods / assets, & travelers 2. Intelligent food supply, logistics and sanitation 3. Intelligent power distribution and monitoring 4. AI vigilance eye for cyber/ real threats and accidents- real and virtual 5. Improved travel management with adv. booking, check-in features 6. Improved border safety- easily role based configurable apps/ systems 7. Real time border traveler inspection for various threats, illness, history 8. Intelligent border management and dispute resolution cobots 9. Intelligent ecosystem / biosphere monitoring systems 10. Intelligent food safety inspection machines for public	
Provincial level	11. Intelligent datacenters for upstream and downstream data management	

	12. Provincial related canonical DB/datasets for various programs 13. Intelligent, integrated provincial programs data and cross-analysis 14. Automated compliances related to federal, legal, & revenues streams 15. Intelligent Govt. ledgers, balance sheets, & portfolios 16. Intelligent expenses, funding and budget allocation 17. Cobot assisted virtual expert systems for various policies, & rules	
Company level	18. Intelligent personalized start-up packages, ready to serve 19. Intelligent integrated database of companies / affairs 20. Cash-less transactions, digital footprints for B2B, & B2C 21. Intelligent online markets for all B2B, B2C operations 22. Intelligent Pooling of shared resources and sharing 23. Intelligent production monitoring and supervisory control 24. Intelligent operations management 25. Intelligent Ware house	

	management, & allocation 26. Intelligent shipping and forex management	
City level	27. Intelligent entry/ exit point security, screening for threats, & diseases 28. Intelligent resident apps for safer and faster services 29. Interconnected AI digital cameras for public safety & surveillance 30. Intelligent pooling of public / private transit modes/ systems for sharing 31. Real time safety of strangers travelling together , pick up, & pooling 32. Intelligent safe driving lane guide in-car apps	
Individual level	33. Intelligent apps for Govt. relations like Individual tax 34. Intelligent , health management apps, gadgets, & emergency responders 35. Intelligent Job management, & training 36. Smart living, & nutrition apps 37. Intelligent home supplies / inventory management 38. Personalized City-life guide,	

	news , & emergency numbers 39. Online advertisement - write once, & advertise in many portals	
Rural areas	40. Intelligent parks, animal , assets, & food supply management system 41. Natural resource intelligent data management using robots, & drones 42. Intelligent Forest/ bio-diversity conservation system 43. Intelligent digitalization of tribal culture, history & habitat 44. Setup of traditional jobs and shops	

Modernization landscape / ecosystem (as per MASTER RESEARCH CATALOGUE - V1.1)

Domain	Our Services	Our Products used to offer services/ ecosystem
AGRICULTURE SECTOR	1. AI based Lidar systems 2. GIS-AI based remote services 3. AI based soil morphology, & minerals composition analysis 4. Flora & fauna, topography mapping & analysis 5. Urban hotspots analysis 6. Flood analysis, soil chemistry based water logging effects 7. Sustainability for agriculture and living 8. Intelligent tracking of locusts, & birds 9. AI based predictions, drone maps	
AI SECTOR	10. Bio-inspired systems 11. Cognitive systems	
B2B, B2C service providers SECTOR	12. Sterile rooms, equipments, co-working areas 13. Infection warning systems, and incident management 14. Paperless transactions, virtual meetings, virtual funds 15. ERP, CRM systems revamp to newer work styles 16. Work from anywhere, Future of Work concepts	

	17. Industry specific SOPs, like Veg. vending , UV based systems	
Data center-Computing	18. Computational Engineering 19. Mini - Hybrid cloud, nanoservers 20. Nano networks -using nanomaterials 21. Low energy consumption devices, auto off when not active	
Defense	22. High altitude soldier gear, navigation and path finder 23. High altitude logistics for carrying heavy equipments 24. Long storage power supply 25. Low power devices using nano materials 26. Exoskeletons for heavy jobs 27. Food preservation and oxygen generation from ambient air	
Energy	28. Hybrid energy system interfaces and massive storage systems 29. Micro-batteries charged by everything from buildings to our bodies	
Engineering	30. Smart Nano-materials and Nano-composites 31. Smart nano-computing	

	32. Smart AI and nano modeling 33. Wireless Nanosensor Networks (WNSN) using Internet of Nanothings (IoNT)	
Government	34. Digital Govt 1 , 2 35. Weather management	
Clean Tech sector	36. Smart Nano-particles for water / air purification 37. Smart AI and nano modeling 38. Smart nanorobots for river water cleaning 39. Smart nanorobots for industrial waste cleaning	
Healthcare / LIFESCIENCE	40. Gene therapy 41. Telemedicine 42. Smart Drug Delivery 43. Smart Diagnosis 44. Smart Nanocoatings 45. Smart anti-microbial technologies 46. Smart Medical batteries	
Hospitality	47. Covid-19 care systems for prevention, incident mgmt 48. Sterile rooms, sterile kitchen, eating wares 49. Covid-19 diet for client under quarantine	
HR	50. AI assisted analysis of job	

	fitment and real staff merits against open pool resource 51. Big data for timely talent search from open pool	
Manufacturing	52. Additive manufacturing 53. Nano material based manufacturing	
Telecom	54. IONT	
Transport	55. Vehicle predictive maintenance 56. AI based Flight safety 57. Railway safety & predictive management 58. Naval safety and intelligent navigation	
BANKING	59. Distributed ledger, block chain systems 60. Staff-less banking , Adv fraud detections	
B2B, B2C management	61. Sterile rooms, equipments, co-working areas 62. Infection warning systems, and incident management 63. Paperless transactions, virtual meetings, virtual funds 64. ERP, CRM systems revamp to newer work styles 65. Work from anywhere, Future	

	of Work concepts 66. Industry specific SOPs, like Veg. vending , UV based systems	
Environment sector	67. Developing tools and methods to understand the coupling among biological, chemical, and physical processes 68. Formulating diagnostic and predictive models 69. Devising innovative technologies for environmental and public health protection 70. Discovering strategies to reduce the human footprint on ecological systems 71. Aquatic Toxicology 72. Computational Epidemiology and Response Analysis (CeCERA) systems 73.Wildlife Conservation	
Future of work	74. Work From Anywhere (WFA) 75. New Gears, furniture, virtual apps, virtual meetings etc	
Geology sector	76. Integrated Advanced warning system to avoid disasters 77. Under sea and space project works in areas of exploratory mining 78. IOT based GIS and remote	

	sensor network	
Infosec sector	79. AI based adaptive security systems 80. Cognitive security systems	
NanoTech sector	81. Nanostructures 82. Nanosciences 83. Nanotechnology 84. Material Science 85. Applications 86. Regulation and normalization	
Oil & Gas sector	87. Bio-inspired algorithms for works like drilling	
Power supply sector	88. Intelligent power supply for home, B2B, factories	
Quantum Technology sector	89. Smart Quantum Computing 90. Smart Quantum Cryptography 91.Smart Quantum Block chain 92.Smart Quantum Big data 93.Smart Quantum resistant security	
Smart clothing sector	94. Patchable wear 95. Flexible electro-optical sensor, mini boards 96.Washable gadgets 97.Low power hi-contrast	

	optoelectronics, bio-bulbs 98.Nano processor based on cloth computing 99.IoT based smart wears for various jobs 100. DIY, ready to use wearable with min configuration 101.Beecham taxonomy based systems	
Social sector	102. Smart Society 103. Smart Solution Cafe 104.Smart Living 105.Smart Social Credit Score system 106.Smart Elections	
Space sector	107. Space travel safety systems 108. Space travel living systems 109. Energy recycling, space energy 110. Homing guidance, stellar navigation system	
Sports sector	111. Computational Intelligence algorithms based trainings	

Role and product based ecosystem

Role	Our Services	Our Products used to offer services/ ecosystem
AWS Developer – IT services		
AWS Architect- IT services		
AWS Manager- IT services		
AWS Engineer- IT services		
GCP Developer- IT services		
GCP Architect- IT services		
GCP Manager- IT services		
GCP Engineer- IT services		
Azure Developer- IT services		
Azure Architect- IT services		
Azure Manager- IT services		
Azure Engineer- IT services		
Computer Engineer- Engg services		
Electrical Engineer - Engg services		
Electronics Engineer- Engg services		
Mechanical Engineer- Engg services		
Architecture Engineer- Engg services		
Civil Engineer- Engg services		

Mechatronics Engineer- Engg services		
Quantum Engineer- Engg services		
Nanotech Engineer- Engg services		
Cross- disciplined Engineering team - Engg services		
Program Manager – Mgmt services		
Client Engagement Manger - Mgmt services		
Project Manager – Mgmt services		
Business Analyst- Mgmt services		
Enterprise Architect- Engg services		
Hardware Engineer- Engg services		
Software Engineer- Engg services		
Network Engineer- Engg services		
Virtualization / Containerization Engineer- Engg services		
Specialized team / panel of doctors, engineers and nanoengineers		

1. Same as AWS done above, make GCP offers and Red Hat(mini)
2. Focus on projects and role based offers. Engaging with us is for a role and ecosystem of products from one or many vendors. Clients will be presented various combination stacks (based on proj needs, preference, performance, budget etc) that they can choose.

3. Make a program, services, ecosystem and role selector tool, may be a db with a webpage that you can share with clients.
4. Make an ecosystem for key technology areas like Big data, AI, ML, start with Excel sheet and make images
5. With the selector tools, the final list gets moved to an estimator tool, that offers key work packages, WBS, work required, type of roles and process, QA, tools that will offer the final ball park project costs. Get it approved from a Chartered engineer and accountant
6. With all these backing there is a good chance that our process meet the stds and possibly to get orders.

Selector tools:

1. Program/ Project / services selector tool:
2. Technology stack selection tool
3. Target cost based roadmap selection tool:
4. Target benefits based selection tool:
5. Target goal, milestone based selection tool:
6. Management process selection tool:
7. Software methodologies selection tool
8. Cloud assets type selection tool:
9. Cloud models selection tool:
10. Quality, standards selection tool:
11. Technical staff selection tool:
12. Total cost of Ownership based tool:
13. Cross- disciplines resources selection tools:
14. Regulations, rules, Laws, Govt policies based selection tool:
15.

All these tools will initially be excel based, later on ported to webportal or Google Docs, for easier user selection

Disclaimer: Few product details are sourced, from the web; we have no intention to infringe any text or web content. We are using this for illustration purpose only

For more details, contact below:

Contact

Bhadale IT Pvt. Ltd
   CTO: Vijayananda Mohire; Email: vijaymohire@gmail.com