INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

IJRCM

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ASSESSING ROLE OF DIGITALIZATION IN IT BUSINESS PROCESS MANAGEMENT

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ABSTRACT

This white paper illuminates the major trends that are reshaping the way IT operates. This paper explains the role of digitalization to make IT business process management easier and make the product and services exceeds satisfaction to the customer. It also presents our take on the elements that will define the future IT operating model, and the key success factors critical to adopting this new-age operating model. We also illustrate our work in helping two Fortune 100 companies embrace this new approach. Digitalization is the IT-related process of organization which could either be a process of transferring any information into digital format or a process of replacing some clerical tasks into automated tasks. BPM is the management process of how the organization respond to the change; reorganization, high growth, or new system implementation. In that sense, BPM may not need the involvement of IT or Digitalization. However, it is commonly found that most BPM projects involve Digitalization as a tool and enabler, at least in the last ten years. Digitalization fits in the BPM as a tool for bridging the business process with the IT process. Using the tool, the BPM implementer will be able to see the interdependency among processes and generate a programming script, thus, introducing the automation. Furthermore, digitalization can be seen as an outcome of the BPM

KEYWORDS

digitalization, IT business.

INTRODUCTION

Revolution of business through digital technology started in the mid-1960s with the advent of commercial mainframes and green screens. People were working breathlessly for business delivery with the impending paperless office and repeated the same throughout the 1970s as minicomputers. Later their hopes, dreams and productivity invented in 1980 on networked PCs and Unix servers, and continued through the 1990s (into current times) with the mainstreaming of the Worldwide Web ands-called "Internet of Things." And still, the average worker generates more than two pounds of paper per day … so much for the paperless office!

Given all this, it might sound a bit naïve to proclaim that the era of digital business is now upon us. Yet as this issue of latest trend reveals, new technologies, tools and techniques are rapidly converging to push the vision of end-to-end digital business over the final barrier into an approachable reality. Big changes in the way we work, live, digitally maintain our health and manage our finances are right around the corner and are likely to become accepted norms sometime in the next decade. And this time, when we say "digital," we really mean it. Business leaders of the future will compete not on things we can touch but on something that's as intangible as it is powerful: code. When businesses successfully distill and apply meaning from the digital data that surrounds every person, process, organization.

This paper explains how the new era of digitalization exceeds the customer delight and organization run for optimizing their products and services through new digitalized technologies.

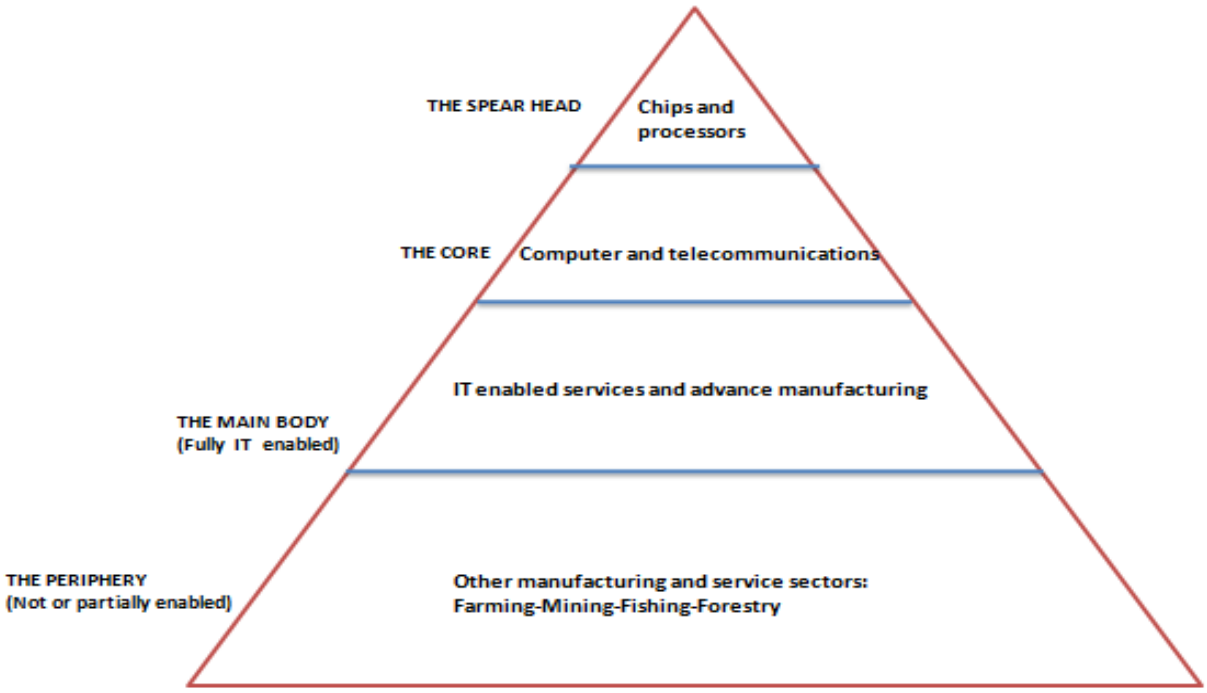
DIGITAL CHANGES RULES OF BUSINESS

Digital tools and technologies are the major contributors in the industrial resolutions. These major resolutions are possible by the innumerable data around us. This data assists for IT strategy makes to come up with better business strategies and practices. Thee leaders, winners and outliers are trying to set new rules of business based on the data generated by us, using our apparatus like text messages, Web site, songs, articles we down load, number of clicks we made like face book likes. Internet would not have become so popular if business and households wouldn't have gotten access to micro computers and network technologies like digital subscriber lines (DSL) and cable modems'. Amplitude in the application and its content through internet was the powerful drive towards more computers and connections available in the enterprises, home and schools. Globalization and emergence of other digital devices like smart phones, camera, flat panel TVs improved the digital convergence. Digital convergence continuously improves the process and increases the different dimensions of business that produces new companies, new products and new possibilities of value added creation.

Digital technologies are spreading the entire economy now. All most all industries like Manufacturing (Computer manufacturing, Automobile, Aerospace, textiles, electrical manufacturing), Service Sector (Finance, health, retail, transport and travel), agriculture, fishing, mining are depended on digital apparatus, computers, softwares, advance telecommunication services. Remote sensing and geographic information systems are being used by forest and agricultural industries. Fishermen and farmers are using global positioning systems, radar and sonar.

The pyramid of digital economy is mentioned below:

FIG. 1



Pyramid of the digital Economy

The largest part is still remains almost nonexistence for digitalization especially agriculture, fishing and foresting are being percolated by digital technologies.

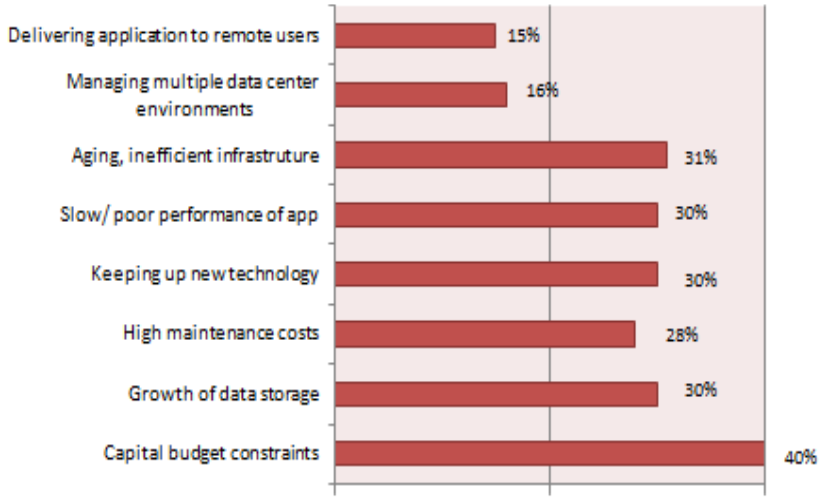
VIRTUALIZATION OF REALITY THROUGH DIGITALIZATION

Latest technology in IT brings realty in to virtualization; customer can preview, enjoy and review everything before of you. Digitalization placed a major role in this transition. There are 2 types of virtualization is required in the IT business process management and its operation. As explained early, digitalization provides multi business opportunities. Unless IT business process supports and enhances digitalization and virtualizing hardware and software support will not be possible.
IT Business process can handle following virtualization through digitalization.

HARDWARE SERVICE VIRTUALIZATION

Computer data is information /knowledge executed or stored by a computer. This information may be in the form of text documents, images, audio clips, software programs, or other types of data. Computer data may be processed by the computer's CPU and is stored in files and folders on the computer's hard disk. Data centers are the centralized repository; it could be either virtual or physical. It is used for the management, storage, annunciation of data. IT Digitalization helps for data center virtualization, basically called as hardware virtualization. IT leaders are facing following challenges:

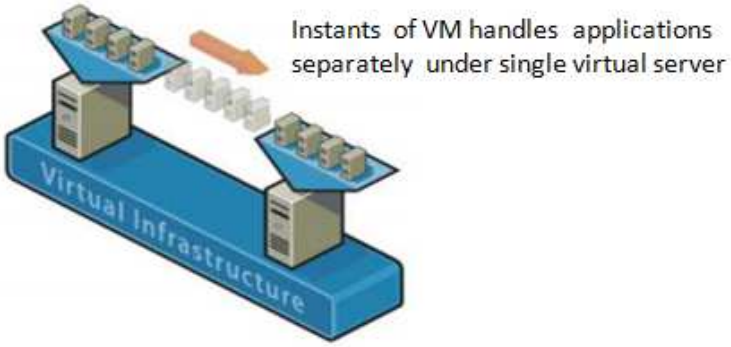
FIG. 2: TOP CHALLENGES IN MANAGING DATA CENTER ARE BELOW



Hardware virtualization solves most of above said challenges. Software controls hardware. Hardware virtualization intrinsically is decoupling software from the hardware that enables more workloads to operate in a single machine. It allows hardware resources to work more efficiently. Virtualization also aids to grow the data storage requirements.
Hardware virtualization deploys a virtual machine manager (VMM), which creates a virtual layer between software and underline hardware. Once VMM in place software relies on the virtual processors rather than physical processors. Virtual computer hardware resources can be outfit in to isolated instants called virtual machines. Where operating systems and applications can be installed. Every VM logically isolated from another VM. It means virus attack in one VM will not

hamper another VM. For example, rather than buying 10 separate servers to host 10 physical applications, a single virtualized server can effectively host same 10 application in different VM instants on the same system. So that this hardware virtualization improves hardware utilization. This handles most of the above notified challenges.

FIG. 3



In short, while improving productivity, organization should manage Virtual environment and physical environment on the same way in order to reduce the complexity. Management of Virtual resources is important in the IT Business process. This is to ensure that customer can move along with service virtualization and extends its many benefits beyond the support for Datacenter.

This digitalization of service virtualization allows customer to respond quickly to the business by increasing flexibility of the environment and speed time to the application.

SOFTWARE SERVICE VIRTUALIZATION

We were discussing about the impact of digitalization in IT business process which brings Hardware virtualization to improve the business though optimizing the resources in better way. Now we are going to discuss about service virtualization. It just mimics the software services and eliminates it dependency. This improves the productivity in the process management and provides the product early to the customer with better quality

Your work, my work and every work are changing significantly, rapidly and dramatically by a beautiful shift underpinned by digitalization and service virtualization. Basically it is managing virtual workers. Digitalization is shifting all most all manual process in to automation. That improves IT Business process

Here I am stating the example of digitalization and subsequent service virtualization. Companies were owning, maintaining and operating their own systems. Business was valued based upon their assets and employers. For example, an airline owned airplanes, manage their software, and organize customer care services. Airline company who owns its manages everything like, Managing ticket reservation system, Manage Software programs, hardware systems, IT Datacenters Manage Human management, Manage vehicles Breakdown and preventive maintenance and much more. Here all services are organized by the airline itself. The assets and the people were all an integral part of the company. They were the business.

Digitalization in business process through latest IT infrastructure has changed a lot the mode of running the business in the efficient way. As part of Service virtualization, the above mentioned business process can be categorized in to different services. The next generation airlines every service will be outsourced and work under a shared banner and brand. Brand and cash flow are assets. Human resources are contractors; company has no liability on them. Company recruits thorough a third party vendor. All risks including managing skill and training programs will be virtualized. Means Valuation is no longer bounded with hard asset like aircraft and staff head account. Valuation is tied with Respectable customers and Cash flow. Customer care still will be under the responsibility of the airline.

Company still be transporting passengers and freights, but using highly virtualized model of business that brings all service components together from verity of service providers. Here all services are virtualized and quality would be really optimized as part of delivery. Here entire Airline Company is virtualized through digitalization. I agree that coordination is required in the virtualized environment because delighting customer is still airlines responsibility, but all services are outsourced and there will be a code of conduct and rules of protocol about managing operation in quality way. If services are not delivering positive responses to the right request from the airline management, those providers will be punished with penalty and they should be in a position to produce the corrected standard operating procedure and disaster recovery plan to make the continuous improvement in the IT Business process.

This digitalization brings a new era of business management which enables optimized quality delivery with almost zero defects. We can only achieve transformation if we digitize every aspect of the business. We will rely heavily upon automation, distributed intelligence, and cognitive computing to perform tasks that were once labor based work. We are heading towards a world of "self-service

Once every aspects of the business is virtualized through digitalization, business will be operated with just few hundred of staffs. The staff will be made up of lawyers for contracts, accountants for financial administration, and project managers for logistical control. This virtualized work will look, feel, act, and be one unified entity to the consumer, but under the covers, it will be a very differently constructed and structured business than we have seen for the past eight decades. It will be a composition of tightly coupled services.

Certain examples for Service virtualization of IT business process through digitalization as follows:

TABLE 1

Organization	Digitalizing Business Process through Service virtualization
Uber	Largest Taxi company in the world, owns no vehicles, no man power, No space required for maintaining resources. Only mangers vendors for IT and operation
Face book	World's most popular social media works without web contents and middleware components, Only manages handling vendors for Advertisement maintenance
Air bnb	The world's largest accommodation provider owns no real estate. Something interesting is happening
Amazon	Largest Internet-based retailer in the world by total sales and market capitalization. Owns only cloud computing, Resources management, Operation management are outsourced and running successfully as Service virtualized organization through digitalization.
Alibaba	The most valuable retailer, has no inventory

DELIVERING HIGH QUALITY IT PRODUCTS THROUGH DIGITALIZATION

The Nature of new aged digital technology, increases customer expectation and focus. Organizations are forced to deliver the quality products and services at the earliest with optimum business process. As part of journey, IT leaders to brainstorm the new ideas and business process to tie up the new age of digitalized technologies.

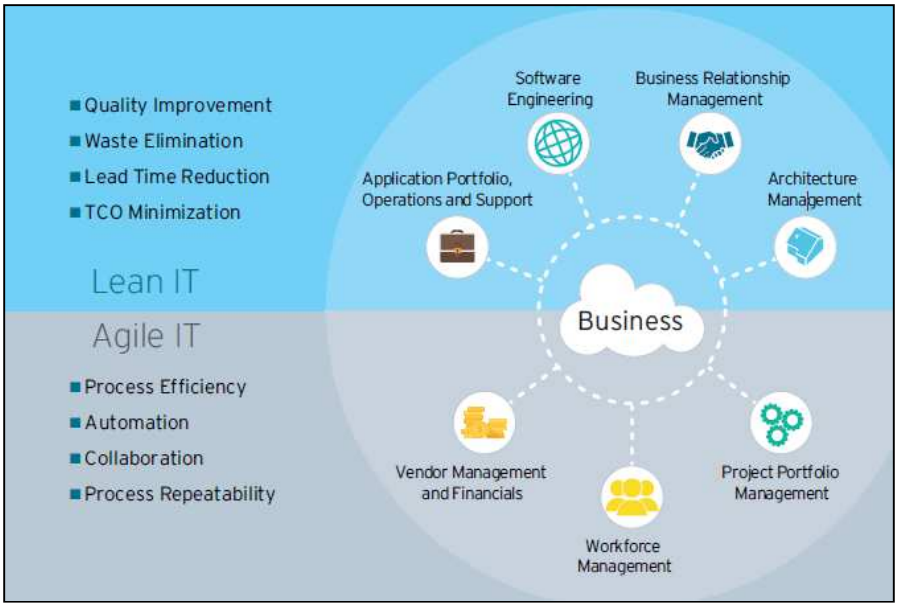
IT business process has to optimize with agile development, testing, Raid release cycles with continuous integration of business process and continuous delivery of Defect free products and services to the end users with optimum usage of digitalization. Agile is now the best business process methodology to bring up IT products and services at best in class companies, many of them operates 60 to 70 % of portfolio using form of iterative or agile development methodology

Lean / Six sigma principles go tie with agile methodology helps organization eliminates waste, variability and produce quality works. That brings additional values and with fewer resources. In addition to above, IT leaders start thinking automating Possible IT Business process through the new digitalized technologies. Automation of sending request and getting appropriate responses from the services connected to the IT business process, Automation of repeated IT process like patch management, release execution eradicates the manual intervention. That brings up speed in agile and lean mythologies that we discussed above.

In short, optimizing IT business process by Agile, Lean and process automation methodologies becomes reality and returns customer delight is only through the invoke of new digitalized technologies.

Please see the below presentation, that express lean, Agile and Automation driven different essential components in IT Business process.

FIG. 4



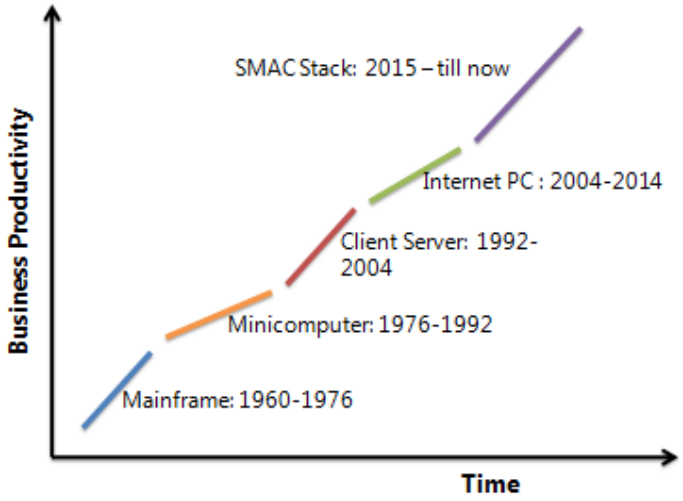
SMAC STACK ENABLES DIGITALIZATION IT BUSINESS PROCESS MANAGEMENT

New Era of competitive environment, IT process should not only support business enablement, it must also support or should have power next generation business models. Upcoming and existing digital technologies such as mobile channel for better communication, Social collaboration tools, Business analytics like master data analysis, wearable computing like flexible, optimized and easy to plug IT infrastructure transforming business process/models and streamlining the bride between Physical, online and virtual worlds.

Above said SMAC stack (Social, Mobile, Analytics and Cloud technologies) were working isolated, but due to advanced digital technologies and innovative IT process through Internet of things made IT Business process management in to new age of digitalized and efficient structure.

Please see the below diagram about IT transformation over the period that brought new business process and model

FIG. 5



CLOUD COMPUTING IN IT BUSINESS PROCESS MANAGEMENT

Cloud-computing providers target a variety of end users from software developers to the general public. Introduction of cloud computing enables the optimum way of managing IT business process with less cost of infrastructure. It changes the fundamental way in which IT Business model delivers the Services

Following are the salient features of digitalization of cloud computing over IT Business Process

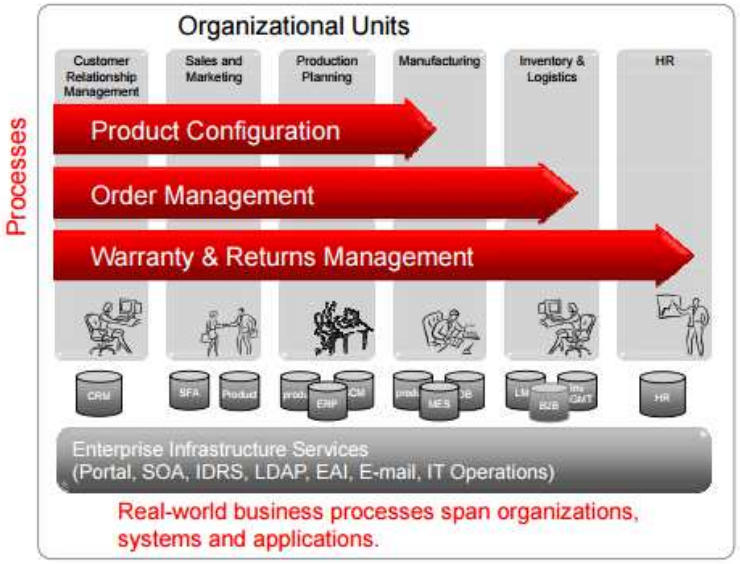
- Customers do not own network resources, such as hardware, software, systems, or services
- Network resources are provided through remote data centers on a subscription basis

- Network resources are delivered as services over the Web
- Brings following Services in IT business in optimum and effective way:
  - Software-as-a-Service (SaaS)
  - Platform-as-a-Service (PaaS)
  - Infrastructure-as-a-Service (IaaS)
  - Business Operations Platform (BOP)
  - Public Cloud and Private Cloud

Hardware virtualization is the back bone for the cloud computing. Virtualization means that the services provided by a hardware device are abstracted from the physical hardware. Hardware services are built on top of the virtualization layer that helps service providers to operate efficiently the services and offer standard-ized platform to the customers. New digitalization technologies help to integrate Cloud computing and virtualization in optimum way. That helps for Business leaders to strategies the efficient way of managing IT business process.

Please see the below presentation that gives over view of digitalizing cloud technologies manages IT Business process today. Here it is given examples for leading enterprise information systems.

FIG. 6



CLOUD CHALLENGES TO BPM

We explained the benefits of integrating cloud computing with IT business process. We also required overcoming below challenges as well.

- Management of processes in the cloud needs to be available anytime and from anywhere.
- Process optimization choices need to be as rich in the cloud as they are in the enterprise.
- Integration and security require greater attention with distributed systems that cross the public domain.

ROLE OF ARTIFICIAL INTELLIGENCE IN DIGITAL TRANSFORMATION

The Scientific fiction: Artificial intelligence began around 1960s. Basically educating systems to act like human being and use self-intelligence for decision making and processing in critical area. AI is the umbrella for the related technologies. This includes natural language processing (Improving the logical interaction between human and computers) and machine learning (Software program is self-sufficient to learn, analyze and find out decision with right direction when new data comes for processing) This Machine learning is the major factor in the current digital transformation across industries. The future projection says the impact of artificial intelligence in Digitalization improves the IT business process and labor productivity up to 40% and enables human being to make more efficient use of their time. Through digitalization, AI can be used different business domains. Following are the examples:

1. AI in Financial and banking services for following
   a. Auto payment based on changes in the payment ecosystem
   b. Bank process large volume of data and required large volume of people for the repetitive task. This business process can be automated by adding the layer of machine learning for this complex and repetitive task.
2. AI with machine learning is useful utility for image analysis to identify distinct forms and shapes, means face and finger print recognization for the verification
3. Thorough and systematic learning to generate rules for big data handing and analysis.
4. Pattern recognition to analyze code for weakness such as criticality and code smells
5. Object identification and forecasting the combined video streams and mutli sensor for autonomous driving.

AI machine learning employs following two strategies

1. SUPERVISED LEARNING

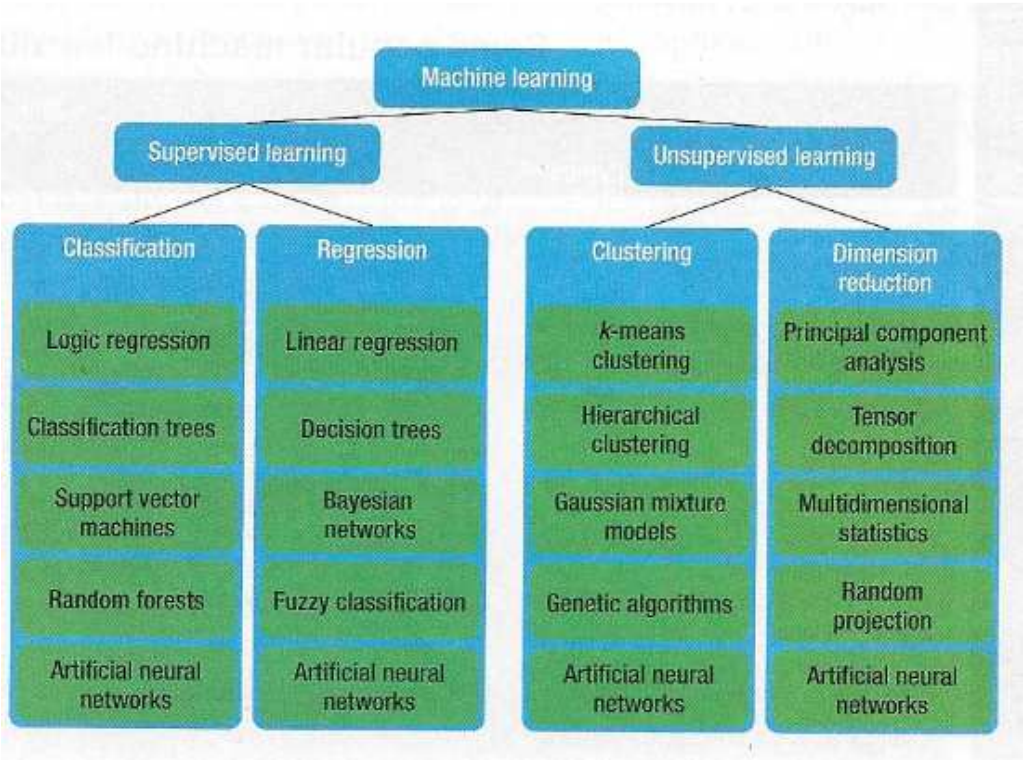
Here, contains data and correct output of task with that data. It gives direction with a set of problems and their solutions and telling that person to provide or find out how to solve other problems. He or she will have to deal with in the future. It includes classification and regression algorithms.

2. UNSUPERVISED LEARNING

Here, contains data but no solutions. Computer or machine learning must find out the solutions on its own. This is telling/ providing a person a set of patterns and asking him or her to figure out the underlying design that provides patterns. It includes clustering and Dimension reduction algorithms

Please see the below diagram for the same.

FIG. 7



CONCLUSION

Overall world is moving though digitalization which changes the rules for business through hardware/ software virtualization, SMAC stack enabled cloud computing and artificial intelligence. This helps organization to provide quality IT products to the esteem customer through accelerated services.
Cloud computing and artificial intelligence are the two major factors will change the perception of world business in the upcoming years. Cumulative worldwide spending on artificial intelligence (AI) will reach $40.6 billion by 2024. Through digitalization AI is on the verge of becoming a critical part of every business infra-structure, be a vital role for organization strategy makers to understand how the new technology or machine learning process can or will rearchitect the traditional business models in to the digitalized way.

ACKNOWLEDGEMENT

I am thankful to Dr. A. Chandramohan, Professor, School of Management, SRM University, Chennai, for his guidance and supervision.

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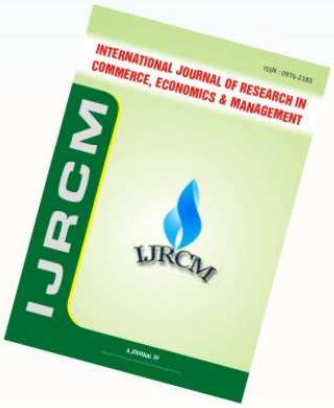
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