Recent IT Trends: A Review Paper

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Abstract- Today Information Technology is vast and rapidly growing field. Today, information technology has direct or indirect involvement in everywhere or every field. Due to advancement and innovations in the field of IT, it introduces many trends. The paper is written in the spirit of a review article. The topics, relevant to the field of recent IT trends, are discussed. The aim of the paper is to give brief introduction to the few recent IT trends in various fields. It explains and discusses the various application areas and the scope of recent IT trends. In this Paper we briefly review recent trends of Information Technology.. We emphasis in this paper few recent IT trends across the world like as Mobile Applications, Agile Development Methods , Intelligent Automation, Social Networking Sites, Digital Badges, New Wi-Fi Standards etc. The present study provide the extensive review of present work on recent trends in IT, the paper add up the knowledge of about the present work done on the issue. The paper is useful for academician and industry to know the recent trends in IT , research gaps and future scope of work to be done on this field.

Keywords- Information Technology, Trends, Computing, Architecture, Automation, Agile Development, Social Networking, New Wi-Fi Standards

I.   INTRODUCTION

Information technology trends play a major role in everyone's life directly or indirectly. The main factors for adopting any trend is Privacy, security, comfort ability as well as economically. The innovation and advancement in the field of Information technology attracts people towards adopting and using its recent trends. Generally as per the requirements and curiosity of knowing technology people uses trends of information technology. In Business Perspective people using trends of information technology to improve their production, quality accurate results etc. In industries using trends of Information technology repetitive and monotonous tasks performed like as Automation provides accurate and precise results as well as save labor cost and widely used by the manufacturing and textile industries in the form of Robotics. Trends of using Social Networking sites become an adventure now a days for connecting peoples as well as providing a better communication tool in the form of audio, video, messaging, chatting, talking purposes like as whatsapp, facebook, instragram, twitter ,print rest etc. Digital Badges are another new recent trends of information technology for providing better communication and learning facility. New wi-fi standards provide connectivity to internet and its applications. With the help of mobile devices portability many of the applications of information technology are

widely used like as mobile banking services, mobile medical applications etc. Agile development methodology provides prospect to assess the direction of a project encircling the development phases. The present study aim at bringing the recent literature on trends in IT, development in IT on single platform by reviewing the paper from last eighteen years.

The rest of paper is organized as follows section I contains Introduction, Section II contains the review of previous related work on various recent IT trends, section III contains need/importance of recent IT trends, section IV contains summary table, section V contains important applications of trends, section VI contains limitations, section VII contains future scope, section VIII contains conclusions that we drew. The last section contains the references.

II.   LITERATURE REVIEW:

In this section we highlighted the results and study of many authors on various important Recent IT trends.

2.1 Mobile Application:
Bohmer.et.al (2011) has analyzed and studied the app sensor a framework for analyzing smart phone application usage by using a large-scale deployment-based research study involving over 4,100 users of Android-powered mobile devices. Their findings reveals that the average session with

an application lasts less than a minute, even though users spend almost an hour a day using their phones. Also news applications are most popular in the morning and games are at night, but communication applications dominate through most of the day and finally despite the variety of apps available, communication applications are almost always the first used upon a device's.

Holzer and Ondrus (2011) has studied the mobile application development market and find that while there are many new opportunities for developer to develop, distribute, and generate significant revenues with the emerging mobile application portals. According to them since the mobile application development landscape has substantially changed over the past several years, mobile development platforms have become more integrated and generally play the role of application portal, device manufacturer, or even both.

Charland and LeRoux(2011) have studied web based and native mobile Application Development platforms they have suggested software makers to choose between Web and native development platform on the basis of primary objectives of application different development and business realities, and the opportunities that these platform will provide in future. They foresee the hybrid solution to come in near future which utilizes both the platform equally. They further suggested developer to identify and implement different software development trends.

2.2 Agile Development Methods:

Rao et al (2011) in their study of the agile software development methods they found its Applicability and implications in industry. They described main Agile Development Methods with their importance. Their research gave the answers like as agile methods (XP, Scrum, DSDM) and practices, benefits of agile methods and their level of applicability and impacts in industry. They also differentiate between traditional software development method and agile software development method. Their research work is based on questionnaires, telephonic interviews, surveys, case studies on the Indian IT companies. They also identified internal validity and external validity of threats by using agile software development process.

Hneif and Hock OW (2009) in their study of review of Agile Methodologies in software development described three agile approaches including Extreme Programming, Agile Modeling and SCRUM. They also describe differences between them and recommends when to use them. Agile methodologies based on the four principles like as customer satisfaction, accepting the change of requirements in any phase, cooperation between developers and customers and test-driven.

2.3 Intelligent Automation

Yao (1998) reviews and compares theories of fuzzy sets and rough sets. He reviews two approaches for the formulation of fuzzy sets one is based on many-valued logic and the other is based on modal logic and two views of rough sets which are set-oriented view and operator-oriented view was compared he finds that rough sets under set-oriented view are closely related to fuzzy sets, which leads to non-truth-functional fuzzy set operators. Both of them may be considered as deviations of classical set algebra. In contrast, rough sets under operator oriented view are different from fuzzy sets, and may be regarded as an extension of classical set algebra.

Zilouchian and Jafar(2001) has studied the use of intelligent Automation for reverse osmosis (RO) plants at Atlantic Ocean at Boca Raton, Florida they have find that the due to developments of intelligent control design and integration of sensory information, computation, human reasoning and decision making. It has become possible to design and implement soft computing methodologies for desalination processes. The intelligent system use fuzzy logic (FL), neural, network (NN), generic algorithms (GA) and probabilistic reasoning (PR) to implement the proposed intelligent control methodology for RO Plants. It is it is believed that the cost of producing water can be decreased using the proposed fully automated control strategy as it leads the reduction in manpower requirements and reduction in overall chemical consumption.

Akbarzadeh-T et al (2000) have illustrated the utility of soft-computing approaches in handling complex models and unstructured environments like robotic systems. With the help of three different experiment using Neuro-fuzzy [9], GA-fuzzy [27], and GP-fuzzy [28] hybrid paradigms they have successfully solved three prominent robot control issues that are control of direct drive motors, control of exible links, and intelligent navigation of mobile robots. Further they added that with the current advancement in DSP parallel processors and increase in speed of processing now it is possible to have various combination of hybrid soft computing..

Abraham et al (2000) has proposed a hybrid intelligent system based on an artificial neural network trained using scaled conjugate algorithm and a neuro-fuzzy system for stock market analysis. The proposed neuro fuzzy model also gave 100% trend prediction showing the efficiency of the technique. The proposed hybrid system is easy to implement and showing very promising empirical result. Their findings revealed that error in stock forecast could be reduce by using individual neural networks rather than a single network and proposed neuro-fuzzy system can be used for doing various trend analyses like individual stock trend

predictions and interdependency of different stocks with respect to the main index as well as individual companies.

2.4 Social Networking Sites

Dwyer et al (2007) compared of two popular social networking sites, Facebook and MySpace, on the basis of perceptions of trust and privacy concern, Members of both sites reported similar levels of privacy concern. Facebook members expressed significantly greater trust in both Facebook and its members, and were more willing to share identifying information. These results suggest that in online interaction, trust is not as necessary in the building of new relationships as it is in face to face encounters. They also show that in an online site, the existence of trust and the willingness to share information do not automatically translate into new social interaction.

Roblyer et al (2010) has done a small-scale survey to compare the perception of of faculty and student for use of Social networking site (SNS) such as facebook in higher education. their finding indicate that students are much more likely than faculty to use Facebook and are significantly more open to the possibility of using Facebook and similar technologies to support classroom work. Faculty members are more likely to use more "traditional" technologies such as email that potential more than do the faculty who teach and mentor them based on their finding they suggests faculties to change their perception about SNSs, as SNSs has a potential to be used for educational communication and mentoring purpose.

2.5 Digital Badges

Davis and Singh (2015) explore the opportunities and challenges associated with implementing a digital badge system in afterschool learning. They have conducted a focus group research on students and educators. Their finding reveals that a badge has been successful in providing a trustworthy record of the skills and achievements that students gain through their participation in the afterschool programs. Although credibility, validity of a particular badge, accessing the networked technologies needed to engage with badges, and ensuring that badges fit within the goals and values of badge earners emerged as the dominant challenge associated with digital badges. They suggest designers and implementers of badge systems to understand and analyze these challenges if they want to turn badges into a widely accepted, valued documentation.

Finkelstein et al(2013) has explored the potential and value of using digital badges for adult learners they find that digital badges are emerging as a new way to capture and communicate the skills and knowledge of individuals.The ability of badges to acknowledge very specific skills and their portability, offer a number of potential benefits for the recipient, the issuer, and the observer. The badges represents a specific skill for required for different types of work can offers greater employment opportunities for the recipient further they added that the most important factor is trust and credibility of digital badge for the recipient, the issuer, and the observer

2.6 New Wireless standards

Powell(2008) in his study on community wireless networks (CWN) has found that community wireless networks (CWN) has two purposes   i.e. to engage volunteers in discussing and undertaking technical innovations, and to provide internet access and local community . He has further classified community in two categories *as* geek-public of WiFi developers, and the community-public of local people using community WiFi. The paper challenges the assumption that community networks using technology development as a vector for social action is necessarily promote greater democracy as author findings reveals that CWN projects create new potential for local community engagement, but that they also have a tendency to reinforce geek-publics more than community-publics.

Kilpatrick et al (2006) have studied, software-defined radio (SDR) and proposed a new architecture for WIFI which can provide services for ubiquitous global laptop connectivity, they have find Softranceiver technology as equipped technology for increase flexibility while at the same time reducing cost, decreasing power consumption and increasing performance . The Softransceiver can effectively move its operating characteristics in real time by software commands. It can shift the   , modify the bandwidth and sampling rate, and change the linearity and noise figure of a transceiver channel in real time.

Verma et al. (2013) has articulated the need for multi-gigabit WiFi and studied two emerging standards (802.11ac and 802.11ad). They have find 802.11ac and 802.11ad suitable for supporting multi-gigabit use by discussing different cases of their usage. Their findings also reveals that reaction of consumer market to multi-gigabit Wi-Fi link capabilities is yet to be seen.

Middleton and Chambers has studied the utility of wifi in leveling the digital divide among various section of economy by conduting a first ever exploratory study to examine the influence of the adoption and use of public wi-fi technologies by SME owners on the digital divide Their findings reveals that high-speed wifi has the potential to reduce and/or eliminate the digital divide and access to wifi is critical for economic growth as projected changes in the digital divide can be expected to make a significant impact on SME productivity and performance.

Madani et al (2010) present a very low area reconfigurable MIMO detector which achieves a high throughput of

103Mbps and uses 27 Kilo Gates when implemented in a commercial 180nm CMOS process. The low area is achieved by using a architecture which implements the K-best algorithm and reduces area 4-fold compared to the widely used multi-stage architecture, it is also reconfigurable with antenna configuration during real-time operation. They also find MIMO wireless technology effective in increasing the data rates for a broad range of applications such as low cost mobile devices.

III. NEED/IMPORTANCE OF RECENT IT TRENDS

Information technology trends are very much important in now a days and their popularity also increasing day by day in every field. Information technology trends contribute in various important areas like as health care, business, industries, organizations, educations etc. Recent Trends of Information Technology makes peoples life easier in every field. Many kind of repetitive and monotonous tasks are performed by IT trends very effectively and efficiently.

Due to their portability features mobile devices, they are very much popular now a days. People can access information technology applications anywhere, any time at low cost using mobile applications. In software development field agile methods increase fastness, flexibility, agility and to be more adjusted environment. It is best suited when the deadlines and budgets are tight.

IV. SUMMARY TABLE

Table 1: Summary Table

S.No	Author	Findings	Technology
1	Yao (1998)	Rough sets under set-oriented view are closely related to fuzzy sets, which leads to non-truth-functional fuzzy set operators.	**Intelligent Automation**
2	Akbarzadh-T et al (2000)	The current advancement in DSP parallel processors and increase in speed of processing now it is possible to have various combination of hybrid soft Computing.	**Intelligent Automation**
3	Abraham et al (2000)	Error in stock forecast could be reduced by using individual neural	**Intelligent Automation**
		networks rather than a single network.	
4	Zilouchian and Jafar(2001)	Cost of producing water can be decreased using the proposed fully automated control strategy as it leads the reduction in manpower requirements and reduction in overall chemical consumption.	**Intelligent Automation**
5	Kilpatrick et al (2006)	Softransceiver technology as equipped technology for increase flexibility while at the same time reducing cost, decreasing power consumption and increasing performance	**New Wifi standards**
6	Dwyer et al (2007)	In an online site, the existence of trust and the willingness to share information do not automatically translate into new social interaction.	**Social Networking Sites.**
7	Powell (2008)	A community wireless network (CWN) has two purposes i.e. to engage volunteers in discussing and undertaking technical innovations, and to provide internet access and local community.	**New Wifi standards**
8	Hneif and Hock OW (2009)	Agile methodologies based on the four principles like as customer satisfaction, accepting the change of	**Agile Development Methods**

		requirements in any phase, cooperation between developers and customers and test-driven.	
9	Middleton and Chambers(2010)	High-speed wifi has the potential to reduce and/or eliminate the digital divide and access to wifi is critical for economic growth.	**New Wifi Standards**
10	Madani et al (2010)	MIMO wireless technology effective in increasing the data rates for a broad range of applications such as low cost mobile devices.	**New Wifi Standards**
11	Roblyer et al (2010)	Students are much more likely than faculty to use Facebook and are significantly more open to the possibility of using Facebook and similar technologies to support classroom work.	**Social Networking Sites.**
12	Rao et al(2011)	Agile software development method applicability and implications in industry.	**Agile Development Methods**
13	Bohmer.et.al (2011)	The average session with an application lasts less than a minute, even though users spend almost an hour a day using their phones.	**Mobile Application**
14	Holzer and Ondrus (2011)	Mobile development platforms have become more integrated and generally play the	**Mobile Application**

		role of application portal, device manufacturer, or even both.	
15	Charland and LeRoux (2011)	Developer need to identify and implement different software development trends.	**Mobile Application**
16	Verma et al. (2013)	The reaction of consumer market to multi-gigabit Wi-Fi link capabilities is yet to be seen.	**New Wifi Standards**
17	Finkelstein et al(2013)	The most important factor is trust and credibility of digital badge for the recipient, the issuer, and the observer.	**Digital Badges**
18	Davis and Singh (2015)	Badge has been successful in providing a trustworthy record of the skills and achievements that students gain through their participation in the afterschool programs.	**Digital Badges**

V.   IMPORTANT APPLICATIONS OF IT TRENDS

5.1. Mobile Applications:
Mobile Applications frequently serve to provide application software's to its users with similar services to those accessed on PCs. Most commonly used services are Banking, Health Care, Online Shopping, Online transaction etc.

5.2. Agile Development Methods:
Agile Development Methods important application is to fastest development of software life cycle and it is suitable for that kind of software, where requirements may change in any phase of the development. Agile development methods also provide high level of customer satisfaction.

5.3. Intelligent Automation:
Intelligent Automation important application is to transfer the tasks man to machine. It's mainly used in manufacturing

industries, robotics, army, navigation, knowledge representation etc.

5.4. Social Networking Sites:
Social Networking Sites Important application to share and exchange information in the form of text, messages, audio, video, chatting etc. Social Networking Sites main objective is to provide communication by construct profiles or build online platform for social relations using web.

5.5. Digital Badges:
Digital Badges important application to capture and communicate the skills and knowledge of individuals. Digital Badges also acknowledge very specific skills and their portability, offer a number of potential benefits for the recipient, the issuer, and the observer.

5.6. New Wireless Standards
New Wi-Fi standards important application to engage volunteers in discussing and undertaking technical innovations, and to provide internet access and local community.

VI. LIMITATIONS

This paper does not address all the identified recent trends in depth. An empirical study on different trends is needed to know the rate of adoption of technology and validate the implications. In this paper *we* tried to cover major recent trends but still some more development in Information technology is needed to be explored. The other similar developments in different industries could be relevant to put into in order to compare the different developments.

VII. FUTURE SCOPE:

The future of information technology is very bright in terms of using its recent trends because of large number of organizations and industries are moving towards information technology tools and applications for their every task like as automation, communication, software development process, use of IT applications anywhere at any time by mobile applications, every task leading by technology. Information Technology trends also contribute in countries economic growth. As the topic is timely relevant and need further investigations. We suggest empirical analysis on different trends on IT discussed in the paper to know about their adoption rate and their affects on society as a whole. Also some other developments in IT are needed to be explored .The similar development in different industries and complementary industries are needed to be analyzed.

VIII. CONCLUSIONS:
The Information technology due to its user friendliness and fast penetration has impacted the society in huge way. This present study has also explored the recent development in IT and there implication to the society. This paper also aimed at providing some contributions to the industry. We hope that practitioners can benefit from our analysis in order to better understand the current trends in the IT development market. The paper will act as a base for academician and researcher for further study on Information technology and identified the gap in the research for further research**.**

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