BUSINESS INTELLIGENCE

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14 - 16 DECEMBER, 2018

पधारो
म्हारा देश जी

53RD ANNUAL CONVENTION 2018

Hosted by :
Computer Society of India,
Udaipur Chapter

Starts 14th December, 2018

Venue

INDER RESIDENCY

Hotel Inder Residency, Udaipur

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Contents

Editorial

Prof. (Dr.) S. S. Agrawal
Chief Editor

Dear Fellow CSI Members,

"A true sign of intelligence is not knowledge but Imagination"

- Albert Einstein

"Failure is simply the opportunity to begin again, this time more intelligently"

- Henry Ford

The current issue of CSI Communications is on Business Intelligence – An important and interdisciplinary area of research and applications. The issue is enrich by a number of articles received from professionals, researchers as well as business communities.

Business intelligence (BI) is a technology-driven process for analyzing data and presenting actionable information to help executives, managers and other corporate end users make informed business decisions.

The cover story is written by Dr. Neelam Jha, Sr. Faculty of Central Bank of India, Officers Training College. The article highlights the features and challenges of Business Intelligence as well as its scope. The impediments of BI and how it can be used as a solution is highlighted in the present article.

On the research front an article on CRISP Model has been written by Prof. Bhagwan Singh from school of Business Management and Science, Central University of Himanchal Pradesh. The other articles include importance of BI in Digital Marketing, IOT in BI, Internal and External Databases, Business Intelligence on Cloud (BIC) -Merits, Challenges and Solutions, Business Intelligence and Network Analytics: Research Directions.
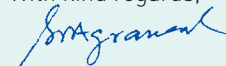
Current Trends

Currently organizations are starting to see that data and content should not be considered separate aspects of information management, but instead should be managed in an integrated enterprise approach. Enterprise information management brings Business Intelligence and Enterprise Content Management together. Currently organizations are moving towards Operational Business Intelligence which is currently under served and uncontested by vendors. Traditionally, Business Intelligence vendors are targeting only top the pyramid but now there is a paradigm shift moving toward taking Business Intelligence to the bottom of the pyramid with a focus of self-service business intelligence.

This issue also gives detailed information about CSI 53rd Annual Convention 2018 hosted by Udaipur Chapter to be held on December 14th -16th, 2018 at the Hotel Inder Residency Udaipur – Rajasthan and ICACCP-2019, INDIACom-2019. We encourage you to prepare for the same and actively participate in it. Information about the activities that have taken place at various regions and divisions and the students chapters are also given.

We are thankful to all the contributors and look forward to receive your valuable articles in future also. We express our gratitude to all the execom members and the CSI Officials. We look forward to receive constructive feedback and suggestions from our esteemed members and reader of CSI fraternity. Please log on to http://www.csi-india.org/ and email to csic@csi-india.org.

With kind regards,

Prof. (Dr.) S. S. Agrawal
Chief Editor

Message from the
Vice President cum President Elect

From	:	Vice President, Computer Society of India
Date	:	01 October, 2018
Email	:	vp@csi-india.org / Cell : (91) 82106 93239

Development of a country is influenced by many interrelated parameters like Economic, Social, Human Resource, Environment, Education, Infrastructure etc. Each of these parameters is important in itself. Generally the nations face many development challenges as a result of different combinations of these factors. It is recognized fact that Information & Communication Technology (ICT) can help to address the Challenges for the enhancement of the Socio Economic Transformation.

These are needs to bridge the gap between people with effective access to Digital Information & Communication Technology and those with very limited or not capable to access at all. Computer Society of India, since it's inception has tried continuously for the achievement of these national goal with multi directional approach for reaching out to the larger section of our society.

CSI understands that the inclusive growth is multifaceted & can be addressed as growth with justice. The justice signifies economic, political & social equality among all the citizens of the country. Inclusive growth does not have any self mechanism to reach the deprived & excluded section of the society.

Hence it is the outcome of planned & thoughtful action of Computer Society of India to go to the masses who are not being able to receive the benefit of ICT & where the CSI is having less presence.

As the result, in the current years CSI has taken initiatives to extend it's presence in North East region by establishing it's chapters at Nagaland, Revieving the Chapter at Guwahati, Student Branch at Sikkim Manipal Institute of Technology, Sikkim, National Institute of Technology , Shillong. All of them are engaged with good activities. We are taking initiative to establish the CSI Chapter/Student Branches in near future in the State of Manipur & Tripura.

In recent past two new chapters are opened, one at Agra, Uttar Pradesh & another at Lakshman Garh, Modinagar, Rajasthan. I congratulate to the Respective regional Vice Presidents Prof. Arvind Sharma & Dr. Vipin Tyagi along with the Chairman, Managing Committee members & members of both the newly formed Chapters & wish them all the best on behalf of CSI for their future activities & achievements.

I seek the active & kind support of the Members to make CSI more Dynamic, Vibrant, Productive & Sustainable to achieve the height of excellence.

I sincerely request all the Office Bearers, Executive Members, CSI office staffs to kindly work with responsibility for the Society (CSI) to serve honestly for the cause of every Division, Region, Chapter, SIG, Student Branch & every Individual Members including Student Members.

The 53rd Annual Convention of Computer Society of In India, CSI- 2018 is being organized by CSI Udaipur Chapter from 14-16, December 2018 at Hotel Inder Residency, Udaipur for which the preparation is going in full swing under the dynamic leadership of a group of Young & Visionary Professionals Mr. Amit Joshi , Chairman, Dr.Bharat Singh Deora, Vice Chairman, Dr. Dinesh Sukhwal, Hony. Secretary & Mr. Gaurav Kumawat MC member of Udaipur Chapter. The call for papers, registrations, Exhibition & other related activities have been placed in this issue for the Information & perusal of the members for their active participation.

Thanking you & wishing you a very happy & enjoyable Durga Puja & Vijaya Dashami.

AKNayak

Prof. Akshaya Nayak
Vice President, CSI

Business Intelligence

▶ Neelam Jha
Faculty, Central Bank of India, Officer's Training College

| Data Collection	→	Cleansing & Structuring of Data	→	Analysis	→	Making Informed Decisions

Introduction

Welcome to the world of information where terabytes of data are being generated in nano seconds. Data has really made the world inclusive in real terms as it has no colour, caste, religion or nationality what so ever. The moment a thought comes to our mind and we search for it on the internet, the process of creation of data begins. Our activities of liking a blog, travelling to a place or simply posting our selfies creates footprints of data. We humans are generating data at an amazing speed from Australia to Antarctica. This data forms the foundation for information and meaningful insights for organisations. But all of this data is not of importance to organisations. So how do they make sense of this humongous amount of data? It is undoubtedly an uphill task.

The analysis of Demand & Supply is the fundamental concept of business. It is a deciding factor in choosing the right product at the right price in right market. To make these right decisions organisations use various tools. One such important tool is Business Intelligence which has gained a lot of prominence and has become an integral part of organisations irrespective of its sales, volume or size.

So what is Business Intelligence?

In simple words Business Intelligence as per Gartner refers to technologies, applications & process for collection, integration & analysis of data with motive to enhance operational efficiency and revenues. It is a time tested old concept which was more of a decision support system in the fifties. However the term Business Intelligence

per se was defined in 1989 by Howard Dresner, an analyst in Gartner Group. It would be a misnomer to look at Business Intelligence only as a Stastical report. It is in fact a proactive tool for customer engagement and boosting revenues.
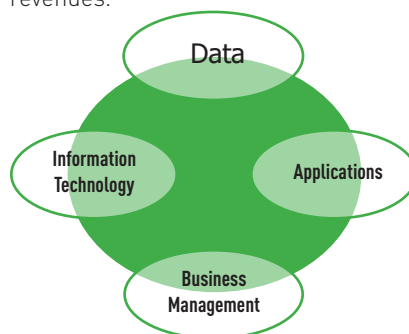
It is often said that you need to be intelligent to succeed in business and of course 'Nothing succeeds like success". Be it a micro enterprise or a big corporate, every organisation needs to take informed business decisions. The only difference is in the quantum of revenue being generated. For example MacDonald as well as a local vada pav vendor both analyse the data of footfalls/ online orders along with other factors to decide on their working hours. And yes in the days of Swiggy/Zomato local vada pav vendor also gets online orders!

Data driven Decision Support System (DSS) is essence of business management. To put it in another way, Business Intelligence is an imperative key to successful organisations which are competing in a world (of Liberalisation,

Privatisation and Globalisation) without borders. Making the battle fiercer for established players there are emerging competitive players like Start Ups, Fintech, E commerce and many more. Today the markets are flooded with options; a consumer is spoilt for choice and it is getting increasingly difficult to keep the customers loyal and engaged to particular companies' products/ services. Hence the companies need to be well informed to stay ahead in the competitive world. It is all about procuring accurate information at the exact time and making it available to the right person.

Challenges to Business

An organisation is often faced by dilemmas like pricing, sales, costs, operations etc vis a vis changes in business trends and customer's preferences. There are issues regarding performance, management, competencies, customer service, recruiting right talent and of course the perennial question of adopting changes. Irrespective of the geographical location or the size or customer's demography, businesses encounter the following questions on an ongoing basis –

Businesses seek answers to the above questions pertaining to various areas of business like finance, sales, operations, inventory management etc for enhancing the effectiveness of core business procedures and better productivity. The solution lies in the data which is available in plenty. Just as bit

Why	What	When	Who	How Many

Excel	Data Mart	Data WareHouse	Enterprise Data Ware House
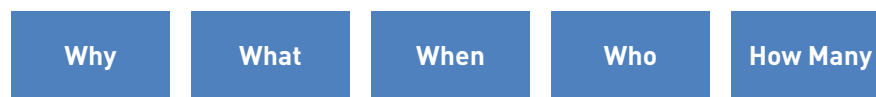
is the smallest computing unit, raw data forms the building block for information. But being flooded by data is not always a good idea as a major part of this data is ambiguous and of poor quality. Many companies are also struggling due to siloed data bases, legacy issues and lack of resources. This huge stockpile of raw data needs to be cleaned up and properly structured to be used as a valuable input by the organisation. Only then can it act as the missing links in jigsaw puzzle for the business entity.

Hence as a key business attribute, data needs to be contextual and relevant so as to provide meaningful insights into customer's behavior. This is crucial as all organisations these days have a customer centric approach and they build their strategies accordingly.

There is a possibility of gathering data without information **but there is no possibility of garnering information without data** which brings to the fore –**The paradox of data and its multiple sources** which is explained in the diagram below,

These issues forced the organisations to rethink and led to the growth of alternative options. Smaller organisations prefer excel/data mart whereas bigger organisations prefer warehouse as depicted in picture below:

Journey of BI

Customer is the king of the market and hence the intent of the organisations is always to analyse his behaviour and make a proper assessment of the the risks so as to make better business decisions. In the dynamic world Business intelligence has been evolving over the years. When we look at the journey of BI, it is observed that each stage builds on another.

The traditional approach worked on

Huge Uncertain Inaccurate Obsolete Unstructured Complex

Multiple Sources of data

Survey Device data Customer data Location data Social Media Platform

- Timely identification of business trends
- Optimum usage of resources
- Employee satisfaction
- Fastr & fact based business descisiion making
- 360 degree view of customer
- Increase in sales & revenue
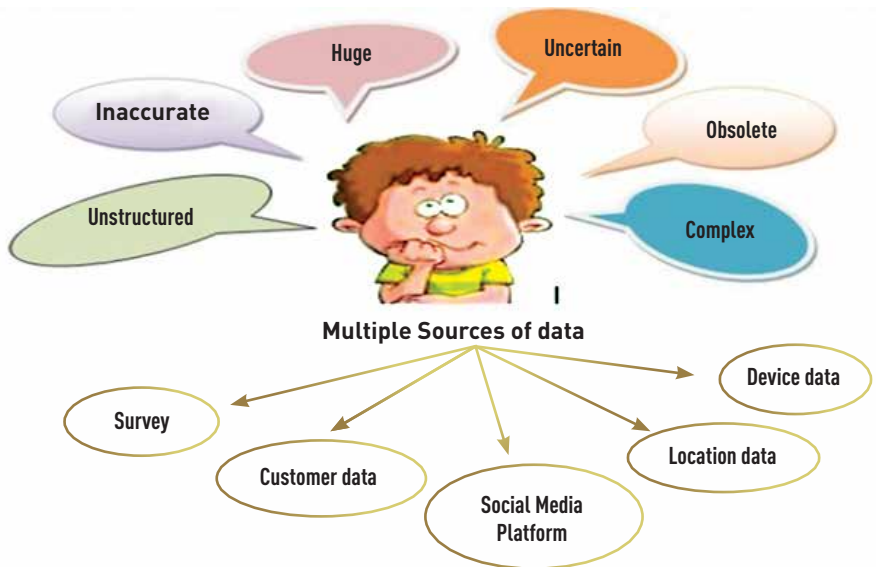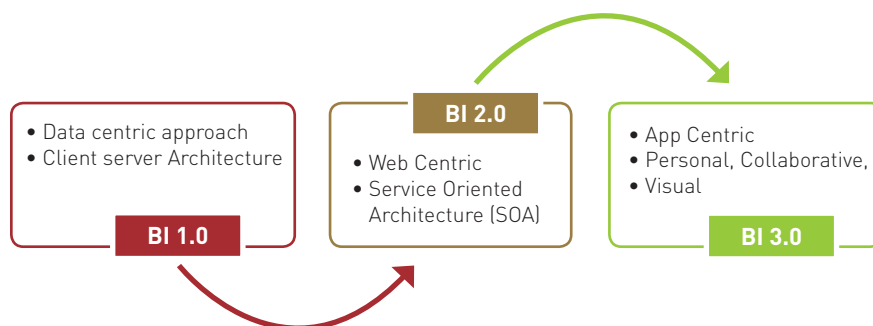
a linear sequential process. The journey began with a tool centric approach and slowly progressed towards being a collaborative partner of business. The focus continued on reducing costs, initiating BPR (Business Process Re-engineering) and identifying new business opportunities in the dynamic business scenario. As we all know that data driven decisions are more reliable than those based on assumption, perception or instinct. Hence the

BI 2.0
- Web Centric
- Service Oriented Architecture (SOA)

BI 1.0
- Data centric approach
- Client server Architecture

BI 3.0
- App Centric
- Personal, Collaborative,
- Visual

success of BI implementation hinges on data alongwith many other factors. But then there are problems galore in getting scalable, accessible and good quality data.

The modern BI approach is about optimizing the execution engines while summarizing the technical complexities. Agile BI is another approach which focuses on automation, speed, flexibility and responsiveness. Further it tends to reduce total cost of change. BI can also be embedded directly to other platforms and hence can be used on various web platforms. There are certain tools like Microsoft Power BI which allow non technical users to aggregate analyze and visualize data. While choosing a BI strategy, companies can either use tools that come free with ERP, or purchase a third party BI solution. Big Companies may prefer to build their own customized BI solutions. BI does not operate as a single standalone tool. Along with the changes in the business environment, BI is also becoming more adaptable & flexible. Now BI is working towards end to end self service tool.

There are immense benefits of Business Intelligence, some of which are enumerated below:

Business Intelligence hinges on choosing the appropriate software that is best suited to a particular business need. Microsoft, Google, SAP, IBM are leading software companies and some examples of popular BI Software/tools are as follows:

How does it work?

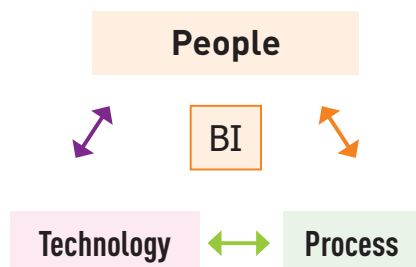Having discussed the technology part in detail, it should not be construed only as an autonomous technological process. BI is basically a business process wherein people take the centre stage. BI is the key to prudent decision making as it joins the above three constituents to help businesses make optima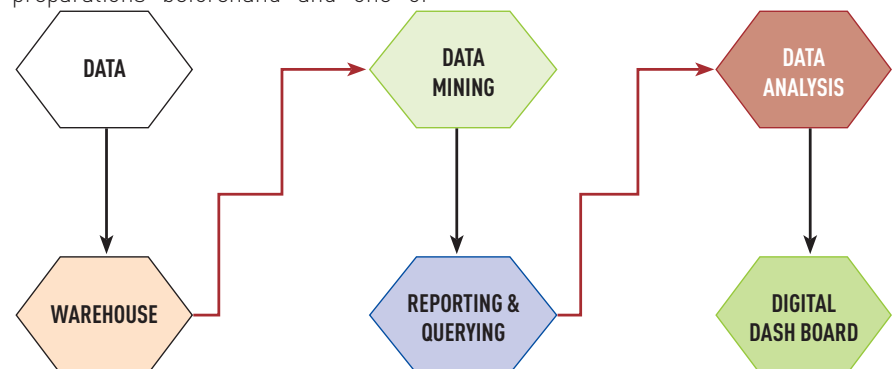l decisions. It helps in spotting patterns between numbers, identifying trends and their underlining reasons. It is much more than just being a technology, it is in fact a combination of people, process and IT as shown in the picture:

The traditional process of Business Intelligence can be briefly understood in the diagram below:

It starts with gathering of data from various sources and collecting it into a central repository called warehouse. A data warehouse may contain one or many data marts.

▪ Then in the next step of Data mining (also called as knowledge discovery in database) which is an integrated application, the raw data is structured. It aims at detecting the hidden display patterns in the data.

▪ The users can now create various reports from the data. Further stastical and multidimensional analysis is done using algorithms and/ or models.

▪ Various hypotheses are now tested based on the results of analysis. It could be exploratory, descriptive or predictive in nature.

▪ Dashboards simplifies the complex datasets and display the current metrics and is a snapshot of various KPI(key performance indicators) and business trends and thus data is turned to relevant information so as to help in the decision making process.

These steps are now being blended into an open, fluid interaction where experiments can be run in each phase of cycle individually and hence it should be given adequate importance. BI implementation takes a lot of preparations beforehand and one of its fundamental components is data integration. It faces huge challenges as data is often from heterogeneous and incompatible sources.

Impediments in the path of BI

Although BI is growing at a good pace, yet it has not achieved its full potential. Inspite of having a sound technical implementation, BI projects sometimes flounder due to lack in strategic focus. It might result in budget over runs, delays in projects and annoyed customers. Many a times organisations treat it as a tool, rather like an operating system. We need to understand that BI is complex and hence it needs continuous attention. The process is time consuming, but even the ancilliary steps needs to be followed. Otherwise there is a possibility of incorrect conclusions being drawn.

The decision to implement BI is taken at the topmost level and many times BI projects are not limited to one particular department in the organisation. Also there are various kind of cultures in an organisation. All these add up to creating hurdles in implementation of BI. **Some obstacles to BI are given hereunder:**

▪ Lack of synergy between IT & Business
▪ Results not forthcoming fast
▪ Delayed results make the business look for other IT enabled solutions
▪ Businesses are looking at iterative process styles
▪ It is costly for small business.
▪ Long development life cycle
▪ Availability of too many types of software causes confusion for the management.
▪ Struggling with unstructured data, which does not make apparent

People

BI

Technology ↔ **Process**

DATA

DATA MINING

DATA ANALYSIS

WAREHOUSE

REPORTING & QUERYING

DIGITAL DASH BOARD

sense

- Integrating data is a tough task particularly when it is collected from heterogeneous sources
- Checking & validation of data is not properly
- Complexities & rigidities in some of the tools

BI as a solution

BI could be referred to as the brain in the human body. Just as millions of thoughts come to us every day, out of which the brain retains the important information. Similarly BI is used to process important data even from disparate databases and provide valuable insights therein. However it faces various challenges and two of them are depicted in the graph: As can be seen in the graph, considerable business opportunities and time is lost due to data latency (i.e. delays in fetching data from warehouse or dashboard) and decision latency (delays in making informed decisions).
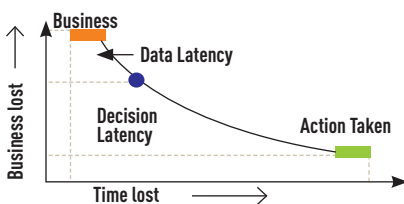
Features in BI Solutions :

The features of Business Intelligence help in the Decision making process by providing meaningful insights into customer behaviour and spending pattern. Let's understand a few them:

➢ **OLAP:**

Online Analytical Processing helps users to view data from various view points; hence it can also be called a multidimensional tool. Common operations of OLAP are Slice and Dice, Drill down Up, Nesting, Pivot etc.

➢ **Predictive Analysis :**

Helps users to predict customer behaviour, forecast demand and prepare strategies using various tools like Regression Analysis, Time Series Model, Hypothesis Validation, Forecasting etc.

➢ **Interactive Dashboard :**

It provides a real time view of the ongoing business by automatically refreshing the data thus enabling the decision makers to take a suitable call as per the trends and business needs.

➢ **Geo spatial Applications :**

It helps businesses to gain location based insight for effective decision making. It is very useful for organisations having a worldwide presence.

➢ **Performance Metrics :**

It helps to organize and distribute metrics on the performance of the business. Organisations need profits and hence they need to quantify performance using KPI's.

➢ **Spreadsheet:**

It has many good features and is still cost effective for smaller data volumes.

Scope for improvement:

BI implementation projects are different from software development projects. They require simultaneous usage of data sources and applications. The success of BI depends on understanding the data structure and its integration. BI also helps in maximizing the customer journey for future projects. The BI should focus on providing solutions to the companies for their immediate as well as long term problems. The BI team should also provide early alerts on the basis of patterns being generated by the data. A few suggestions that provide the structured framework for improving BI:

- Smaller but more frequent releases of functionalities/services to users
- Development team to work alongwith end users
- Knowing your users requirements and aspirations beforehand
- Use either Inmon/Kimball as per specific needs.(In Inmon methodology a design is created before starting development of software solutions whereas in Kimball focus is on deployment of individual solutions)
- Get all the stakeholders (i.e. finance, marketing, operations, sales etc) on the same page
- The manual interventions need to be reduced, as automated BI data integration is seamless and provides better experience.
- Data integration needs to be done

at deepest level

- There should be quality checkpoints for discrepancies after data integration
- The ETL (Extract, Transform, and Load) process should be carefully monitored, so that Extract & Load Process occurs at the appropriate level.
- As per the business requirements, the volume of data should be checked with real time updates.
- Usage of probabilistic & fuzzy logic based event processing
- Continuous assessment should be done and the strategies be modified accordingly to maximize ROI

Conclusion:

It's been ten years that on a black Monday, Lehman Brothers filed for bankruptcy thereby turning the financial crisis to a near panic. The events that followed created more chaos in the world economy. To avoid such chaotic situations, BI tools should be used more proactively and the information needs to be analysed accurately. It is a business process improvement initiative and has huge potential in all areas of business like Finance, Banking, Retail, CRM, Sales etc. Cloud BI is another good option as it provides 100% uptime and scalability but then the security as well as legal issues regarding privacy need to be dealt with.

However there appears to be a gap between enterprise and consumer software which is forcing the managements to rethink on ROI on Business Intelligence tools. Hence one should also look at the collaboration of machine learning tools, cognitive computing and IOET with Business Intelligence so as to make it a driving force to propel the organisation towards its goals. It is imperative that organisations have a board mandated vision and mission policy of which Business Intelligence should form an important component. BI is not only about gathering more and more information for the users; rather it is about creating intelligent inputs for the businesses. BI is not just a reporting tool; it is in fact an instrument to redefine the business strategies. **Remember BI is not optional but mandatory. The only question is how well the organisation**

executes it.

In simple words Business Intelligence as per Gartner refers to technologies, applications & process for collection, integration & analysis of data with motive to enhance operational efficiency and revenues. It is a time tested old concept which was more of a decision support system in the fifties. However the term Business Intelligence per se was defined in 1989 by Howard Dresner, an analyst in Gartner Group.

It would be a misnomer to look at Business Intelligence only as a Stastical report. It is in fact a proactive tool for customer engagement and boosting revenues.

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About the Author

Neelam Jha (CSI membership no.: 2010000188) Currently working as Faculty, Officers Training College, Central Bank of India

Professional qualification: CAIIB, MBA, Certified Bank Trainer, Cyber Law, CeISB

Work experience: Have worked in Central Bank of India for last twenty years in various capacities: Branch Head, Credit Officer, Faculty, Senior Internal Auditor and different verticals at Branch/Regional/Zonal Office levels.

Benefits for CSI members: Knowledge sharing and Networking

- Participating in the International, National, Regional chapter events of CSI at discounted rates
- Contributing in Chapter activities
- Offering workshops/trainings in collaboration with CSI
- Joining Special Interest Groups (SIG) for research, promotion and dissemination activities for selected domains, both established and emerging
- Delivering Guest lecturers in educational institutes associated with CSI
- Voting in CSI elections
- Becoming part of CSI management committee

WEB DEVOLOPMENT USING ANGULAR 5

(Academic Year 2018-19)

As per the culture of Pillai's HOC College of Engineering, Department of Computer Engineering organizes various technical Workshops for aspirants assembling with various interests in the field with a very high competitive spirit to participant and with the strong determination to include their achievements & accomplishments to their resumes. For the current academic year 2018-19, we have organized a workshop on "Web Development using ANGULAR 5" on 28th July 2018.

Workshop on "Web Development using ANGULAR 5" was conducted by Mr. Ajinkya Zore; he has four year experience in Tata Consultancy Service (TCS). He is Oracle Certified Professional java programmer, now he is working in BPN paribus MFID Global Market Research.

Basically ANGULAR 5 is a java script based on open source front end web application framework mainly maintained by Google.

The workshop covered some following basic and advance topic based on ANGULAR 5:

- Basic Knowledge of ANGULAR 5
- Web Page Editing
- Dash Board
- Background Color Editing

- Node Module
- ANGULAR CLI
- Pipes
- Routing

Workshop on "WEB DEVOLOPMENT USING ANGULAR 5" on 28th July 2018

CRISP Model: A Structured Approach for Presentation of Research

▶ **Bhagwan Singh**
Head of Department, Department of Marketing & Supply Chain Management (M&SCM), School of Business & Management Science [SBMS]
Central University of Himachal Pradesh [CUHP], Dharamshala, H. P.   E-mail ID: bhagwansingh.bs@gmail.com

In this article, the need for a structured module to present once research is bridged by proposing a model christened CRISP. The model focusses on various aspects that need to be emphasised during once presentation of Research, Thesis, or Project (RTP) so that the researcher has a guided template that allows them to highlight their work. The model has been communicated to researchers in both pure Science and Social Sciences and has been discussed at various platforms so as to fine tune it and make it more comprehensive so that it could become an effective tool. CRISP model presented here has been utilised by researchers from various disciplines in Central University of Himachal Pradesh to present their research towards defending their thesis. The various attributes of the model have been researched with the help of questionaire to test the effectiveness of CRISP model as an important tool to fill the need for a uniform structured presentation approach to communicate the findings of their research. The findings strongly support the model for implementation towards research presentations.

Introduction

A bonding between research and teaching is always deemed to be spirit for higher education fraternity (Elen and Verburgh 2008). In keeping with this spirit, Higher educational institutes undertake research work in the form of desertations, projects and thesis with great zeal by putting in lots of efforts. At the end of their research work, the researchers have to make a presentation. After being an active listener to many of these project and thesis presentations over a period of time as one of the members on the evaluation board, I have noticed that most of the researchers tend to miss out on one or other of the important components that need to be stressed and hence get invariably questioned by the examiners to bring out those aspects. One of the major reasons for these lacuna is the lack of a uniform template for making their presentation. Another important aspect of a good presentation is, wherein the stakeholders who need to utilise the outcomes of the research are able to obtain what they are looking for, clearly and precisely. In the Bhartiya (Indian) higher education perspective of researchers' learning process, Currently there is no such presentation style/model/module which is uniformly accepted by all universities/colleges/institutions for presenting their Research outcomes from their Thesis/Project.

When we look at presentation of research/thesis/project (RTP) in higher education at the Post Doct/PhD/PG level, there is no such uniform module/model which can be taken for understanding the researcher's view across the disciplines. The difference of presentation style from sciences to social sciences and professional courses such as MBA, MCA etc, differs as the supervisors or guides assigned, design their own presentation style, following the prevailing practices. Thus the understanding of the output of the presentations from both within and across disciplines becomes varied and hence tough to be adopted by the stakeholders. In order to fill this gap of understanding the output of the research done by the researchers, a uniform presentation style is proposed through the CRISP model with a vision to standardise the format across disciplines.

The CRISP model has been implemented by many researchers over the past five years and has evolved to the current status that is presented in this paper. A need is felt to confirm the performance of the model in terms of student satisfaction. While students' learning approach majorly depends upon their perceptions of a particular learning context, it is also based on their prior experiences of studying and the present learning environment (Entwistle and Ramsden, 1983; Ramsden, 2003; Zeng, et al., 2013). To assess students' research experience in higher education system, two studies are relevant. For instance, the Postgraduate Research Experience Questionnaire (PREQ) adopted by Australian universities (Marsh, Rowe, & Martin, 2002) in the late-1990s to collect information about the research experience of postgraduate students. The PREQ includes supervision, intellectual climate, infrastructure, thesis examination, goals and expectations, overall satisfaction and skills development in postgraduate degrees). In the similar vein, Zeng, et al. (2013) attempted to validate the Student Research Experience Questionnaire (SREQ) developed in the Hong Kong context and to explore the relationships

between student research experiences and their perceived skill development and overall satisfaction. So as to streamline and give wider access to the use of the CRISP model, a small study has been undertaken to assess the perception of the researchers who have been using the model and those who have participated in discussion of the presented model. The various attributes chosen for the study are presented in the next section.

Attributes chosen for testing perception of the researchers' towards CRISP Model:

1. **Attitude** [AT] towards the presentation learning module: This psychological component was measured via six items which intended to measure researchers' attitudinal approach towards CRISP in terms of their like and dislike, association and disassociation important and not important etc.

2. **Reflection** [RF] towards the presentation learning module: The five items of this component intended to capture the reflective behaviour of researchers whether they are associated with CRISP module in terms of their presentation knowledge and skill enhancement etc.

3. **Motivation** [MO] towards the presentation learning module: This psychological measure attempts to capture researchers' motive towards CRISP module as a drive of adaptation in their research/ thesis presentation using four items scale.

4. **Skill Development** [SD] as outcome of the presentation learning module: The five items of this scale is intended to measure researchers' skill enhancement as an outcome variable of CRISP module.

5. **Satisfaction** [ST] as outcome of the presentation learning module: Finally the three items of this measure is used to capture the ultimate outcome of CRISP in terms of researchers' overall satisfaction level towards the above module in their research presentation.

Research Methodology

This research done is exploratory

"CRISP" MODEL for Presentation of Thesis / Research / Project

The "CRISP" mode is an INNOVATIVE Template for making comprehensive presentation in a structgured manner of the work undertaken during their Thesis / Research / Project in Social Science.

"CRISP" is an acronym for 5 important aspects that need to be emphasised while making these presentations in Social Science.

C=**C**oncrete Issues   R=**R**esearch Methodology   I=**I**nsight Generation   S=**S**ummary   P=**P**ublications
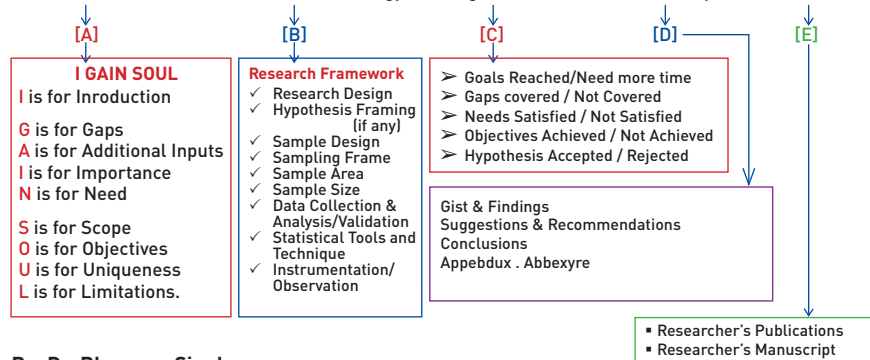
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Fig. 1: "CRISP" MODEL presented in RASHTRAPATI BHAVAN in 2017 for Innovation

in nature which covers the holistic approach of research presentation module/model particularly named as CRISP (i.e. five acronyms viz. Concrete Issues, Research Methodology, Insight Generation, Summary and Publications). Therefore to quantify the above module, the structured questionnaire was used to assess the researchers' perception towards CRISP module/model with the help of 23 items of scale which comprises of measures related to Attitudes [AT], Reflection [RF], Motivation [MO], Skill Development [SD] and Satisfaction [ST] reported in Questionnaire. Each item was asked by using five point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Prior to this, brain storming round was approached to decide the above scale items with the help of key members including professors and scholars.

The questionnaires were distributed among 50 (Fifty) Post Doct./ Ph.D/ PG enrolled scholars/ students in Central University of Himachal Pradesh from social sciences and sciences in order to measure the perception towards CRISP module/model. After evaluating the missing responses, only 44 (Forty Four) responses out of 50 were found to be suitable for preliminary analysis.

Analysis and Results

The study used descriptive statistics viz. percentage method, Chi-square test for dichotomous questions (non-metric data) followed by T-test for scaled data to measure the researchers' perception/experience towards CRISP module.

The sample profile of respondents (scholars/students); shown in Table-1 ranging from gender, age, Post Doct./ Ph.D./PG opted in sciences/social sciences; Post Doct./Ph.D/PG pursuing years, and Post Doct./Ph.D./PG. opted in language.

Table 1 shows the frequency and percentage of the total 44 respondents who participated in the study. The frequency column shows that 31 male and 13 female respondents were the part of study. The percent column shows that the male respondents accounts for 70.5 % of the total and female respondents accounts for 29.5%. Total 21 respondents (47.7%) belong to age group between 21-25 years, 17 respondents (38.6%) belong to age group between 26-30 years and 6 respondents (13.6%) belong to age group between 31-35 years. majority of the participants of study were Post Doct./ Ph.D/PG students from Social science background i.e. 77.3% and only 22.7% were from Science background. Among

Table 1: Gender, Age and Post Doct./PhD/PG Opted, Years of Pursuing and language

Gender			Age			Post Doct./PhD/PG Opt			Years of Pursuing			Language		
	Frq.	%tage		Frq.	%tage		Frq.	%tage					Frq.	%tage
Male	31	70.5	21-25	21	47.7	Science	10	22.7	1	13	29.5	English	44	100.0
Female	13	29.5	26-30	17	38.6	S Science	34	77.3	2	17	38.6	Total	44	100.0
Total	44	100.0	31-35	6	13.6	Total	44	100.0	3	4	9.1			
			Total	44	100.0				4	5	11.4			
									5	5	11.4			
									Total	44	100.0			

Table 2: Awareness towards Research/Thesis/Project (RTP) presentation-I

Need for a module of RTP			Know any RTP module			If yes specify the RTP module		
	Freq.	%tage		Freq.	%tage		Freq.	%tage
Yes	41	93.2	Yes	20	45.5	CRISP	20	45.5
No	3	6.8	No	24	54.5	Other	24	54.5
Total	44	100.0	Total	44	100.0	Total	44	100.0

Table 3 : Awareness towards Research/Thesis/Project (RTP) presentation-II

Whether CRISP provided informative material for RTP Presentation			Whether CRISP developed your RTP Presentation skills			Whether CRISP covered all aspects of research		
	Freq.	%tage		Freq.	%tage		Freq.	%tage
Respondents Not included	24	54.5	Respondents Not included	24	54.5	Respondents Not included	24	54.5
Yes	19	43.2	Yes	17	38.6	Yes	17	38.6
No	1	2.3	No	3	6.8	No	3	6.8
Total	44	100.0	Total	44	100.0	Total	44	100.0

these, 29.5% respondents are pursuing Post Doct./Ph.D/PG since one year, 38.6% are pursuing Post Doct./Ph.D/PG since two years, 9.1% are pursuing Post Doct./Ph.D/PG since three years, 11.4% are pursuing Post Doct./Ph.D/PG since four years and only 11.4% are in their fifth year of Post Doct./Ph.D/PG. It can be stated that majority of students are pursuing Post Doct./Ph.D/PG since two years. All the respondents have adopted English as a medium of instruction and presenting their Post Doct./ Ph.D/ PG.

Tables- 2 & 3 depict the descriptive statistics of researchers' awareness towards CRISP model based presentation in terms of Yes/ No type answers.

Table-2 illustrates that 93.2% of respondents feel that there should be any kind of module for RTP presentation whereas only 6.8% respondents do not feel that there should be any kind of module for RTP presentation. It was

found that 45.5% of respondents know about module for RTP presentation and 54.5% do not know about these kinds of modules. It was quite interesting to know that 45.5% of respondents know about CRISP model as a module for presentation and 54.5% do not know about any module, but after presentation of this CRISP module, now they are aware of such model of presentation.

The above data reveals that 54.5% of the respondents do not know about CRISP were excluded from the study. The rest of 45.5% of respondents who know about CRISP were considered for further interpretation. Among these respondents 43.2% said that CRISP provided them informative material for RTP Presentation where as 2.3% refused the statement. Total 38.6% of respondents said that CRISP developed their RTP Presentation skills and only 6.8% respondents said that CRISP has

not developed their RTP Presentation skills. The data reveals that 38.6% of respondents said that CRISP covered all aspects of research work in the said module and only 6.8% respondents said that CRISP has not covered all aspects of research work in the said module.

Table 4 shows that the results of chi square test for gender $\{x(1) = 1.350, p = 0.245\}$, age $\{x(2) = 3.107, p = 0.211\}$, Post Doct./Ph.D/PG opted $\{x(1) = 1.073, p = 0.585\}$ reveals that there is no statistically significant association between Gender, age, Post Doct./Ph.D/PG opted and a need for any kind of module for RTP presentation. This reveals that male and female, all age groups of students and students from different education equally prefers for any kind of module for RTP presentation.

The results of chi square test for genders $\{x(1) = 1.605, p = 0.205\}$, Age $\{x(2) = 0.797, p = 0.671\}$, Post Doct./Ph.D/PG opted $\{x(1) = 1.076, p = 0.584\}$

Table 4: Chi Square Test for Gender, Age, Post Doct./Ph.D/PG Opted

* Do you feel that there should be any kind of module for research presentation

		Value	df	Asymp. Sig. (2-sided)
Gender	Pearson Chi-Square	1.350a	1	0.245
Age	Pearson Chi-Square	3.107a	2	0.211
Phd./Post Doct. Opted	Pearson Chi-Square	1.073a	2	0.585
			Total	100.0

a.   2 cells (50.0%) have expected count less than 5. The minimum expected count is 0.71.
b.   Computed only for a 2x2 table

Table 5: Chi Test for Gender, Age, Post Doct./Ph.D/PG opted

* Do you know any model for making Research presentation

		Value	df	Asymp. Sig. (2-sided)
Gender	Pearson Chi-Square	1.605a	1	0.205
Age	Pearson Chi-Square	0.797a	2	0.671
Post Doct./Ph.D/PG Opted	Pearson Chi-Square	1.076a	2	0.584

2 cells (50.0%) have expected count less than 5. The minimum expected count is 0.71.
Computed only for a 2x2 table

are insignificant for knowledge of any module for RTP presentation. This reveals that male and female, all age groups of students and students from different education equally prefers respondents have equal Knowledge of any module for RTP presentation.

Overall Perception (which includes: AT: Attitude; RF: Reflection; MO: Motivation; SD: Skill Development and ST: Satisfaction) of Research Degree scholars (RDs)/Students towards CRISP model for RTP (Research/ Thesis/ Project) presentation.

Table 6: T test Perceptions Vs Gender & Post Doct./Ph.D/PG Opted

Independent Samples Test Between Perception of RDs/ Students towards CRISP model for RTP presentation and Gender and Post Doct./Ph.D/PG Opted		t test for equality of means for Gender			Result	t test for equality of means for Post Doct./Ph.D/PG Opted			
		t	df	Sig. 2 tailed		t	df	Sig. 2 tailed	Result
AT1	I am interested in the above model of research presentation in general.	-1.094	42	0.280	Insignificant	-0.650	41	0.519	Insignificant
AT2	I think that the above model in my discipline is important.	-0.969	42	0.338	Insignificant	-1.239	41	0.222	Insignificant
AT3	I think that basic research design should be enough in my Ph.D/PG course	0.613	42	0.543	Insignificant	0.847	41	0.402	Insignificant
AT4	I think that the application of above model should be essential in my Ph.D/PG	-0.787	42	0.436	Insignificant	-0.045	41	0.965	Insignificant
AT5	I would like to know more about the above model of research process	0.150	42	0.881	Insignificant	-0.939	41	0.353	Insignificant
AT6	Applying the above model is important for effective thesis presentation.	-1.650	42	0.106	Insignificant	-0.236	41	0.815	Insignificant
RF1	I have assimilated knowledge about 'CRISP' Model for RTP presentation.	-0.794	42	0.431	Insignificant	3.038	22.645	0.006	Significant
RF2	I have learned to pay attention to the way research is carried out.	1.496	42	0.142	Insignificant	-0.403	41	0.689	Insignificant
RF3	Attention has been paid to hidden issues of RTP.	0.933	42	0.356	Insignificant	0.160	41	0.874	Insignificant
RF4	There are opportunities to talk with researchers about presentation skills	-0.344	42	0.732	Insignificant	1.169	41	0.249	Insignificant

Independent Samples Test Between Perception of RDs/ Students towards CRISP model for RTP presentation and Gender and Post Doct./Ph.D/PG Opted									
		t test for equality of means for Gender			Result	t test for equality of means for Post Doct./Ph.D/PG Opted			
		t	df	Sig. 2 tailed		t	df	Sig. 2 tailed	Result
RF5	The five key aspects of thesis presentation should be essential part of the Ph.D/ PG/ Research methodology coursework/ curriculum.	0.669	42	0.507	Insignificant	0.115	41	0.909	Insignificant
MO1	I am inspired to learn more about the emerging issues of CRISP model	0.639	42	0.526	Insignificant	0.498	41	0.621	Insignificant
MO2	My understanding of related concepts in the domain has increased	-1.437	42	0.158	Insignificant	0.972	41	0.337	Insignificant
MO3	I have become enthusiastic about my research/thesis presentation	-0.211	42	0.834	Insignificant	-0.206	41	0.837	Insignificant
MO4	My interest in research/thesis/ presentation has increased	-0.985	42	0.330	Insignificant	-0.531	41	0.598	Insignificant
SD1	I have learned to develop my ideas and present them in my research work.	-.360	42	0.721	Insignificant	0.326	41	0.746	Insignificant
SD2	The above model has sharpened my research presentation skills.	-1.969	41	0.056	Insignificant	-0.145	40	0.885	Insignificant
SD3	The above model let me feel confident about tackling unfamiliar issues in my research work	-1.083	42	0.285	Insignificant	0.094	41	0.925	Insignificant
SD4	The above model helps me to develop a range of communication skills.	0.046	41	0.963	Insignificant	0.352	40	0.727	Insignificant
SD5	The above model has helped me to develop the ability to make presentation independently	-0.388	42	0.700	Insignificant	0.094	41	0.925	Insignificant
ST1	Overall, I am satisfied with the quality of learning experience of CRISP.	0.897	42	0.375	Insignificant	-0.763	41	0.450	Insignificant
ST2	Overall, I am satisfied with the contents of CRISP for presentation skills.	-0.059	42	0.953	Insignificant	-0.297	41	0.768	Insignificant
ST3	Overall, I am satisfied with the use of CRISP for RTP.	-0.063	42	0.950	Insignificant	0.446	41	0.658	Insignificant

The above table shows the values of T test for Perceptions Vs Gender & Post Doct./Ph.D/PG Opted. It can be illustrated that all male, female and students from different education have similar perception towards CRISP model except Post Doct./Ph.D/ PG Opted & RF1: I have assimilated knowledge about 'CRISP' Model for RTP presentation. Here the different levels of student's posses' different knowledge about CRISP. It can be interpreted that different education level of students differently understands about the CRISP model.

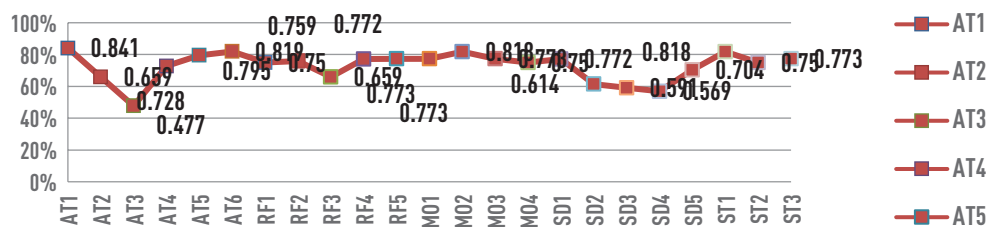## Overall Perception Score between 4-5 (Agree-Strongly Agree)

Fig. 2 : Perception Score for Agree to Strongly Agree responses

Fig. 2 reveals that students' overall perception towards **CRISP** model is satisfactory as majority of responses are in between 4-5 on the Likert scale i.e. agree to strongly agree.

Conclusion

The research findings for Chi-square test between gender, age and Ph.D. opted and need for any Research presentation model states that all the male-females, different age groups and Ph.D. researchers of Social Sciences & Sciences equally shown preference for a structured model to help in making their presentation. Prior to the CRISP model, all the researchers involved in answering the questionnaire were unaware of any such model and they all appreciated the fact that now a uniform presentation model is available for them to present their work.

The results of T-Test for Ph.D. opted Vs Perception statements, illustrates that there is no significant difference between Social Sciences and Sciences Ph.D. researchers with regard to the presentation style as proposed in CRISP model.

The experts from sciences like Physics, Environment etc., when consulted about CRISP model said that some more effort is needed for its implementation in science streams, especially with regard to the Research methodology section of the model. This is due to the very varied methodologies adopted in various science disciplines which are completely in variance with the social sciences methodology.

The findings conclude that the researchers/students strongly recommend the CRISP model for making presentations, because it will bring uniformity and clarity for the stakeholders and researchers alike. The respondent's perception scores interpret and recommend CRISP model for making research presentation. The model could be further tested by researchers other than those at the universities, such as the corporate and government sectors.

Acknowledgement

I would like to acknowledge the long discussions with Prof. (Dr) O.S.K.S. Sastri and his efforts to involve his research students to implement the CRISP model for making their research presentations. These efforts have tremendously improved the various aspects of the model. I would also like to thank Prof. (Dr) Deepak Pant who has included the CRISP model as part of innovations at Rashtrpati bhavan. This has provided both motivation and inspiration to take this effort forward with zeal. I would like to appreciate the support given by my Post Doct. Student Dr. Sachin Kumar and research scholars Dr. Devendra Nasa, Dr. Rishi Kant, Mr. Deepak Jaiswal and Mr. Kamlesh Kumar for constantly engaging in following this model since last 5 years in the development of CRISP model. I will also extend my thanks to the teachers and students of Dept. of Marketing & Supply Chain Management (M&SCM) and teachers & students from other departments of our School of Business and Management Studies (SBMS) in adopting and supporting the model of CRISP.

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ANNEXURE: Final CRISP Model (2 Pages)
ANNEXURE: Final CRISP Model Slide wise for presentation of RTP.

Slide 1

Slide 5

Slide 9

Slide 2

Slide 6

Slide 10

Slide 3	Slide 7	Slide 11

Slide 4	Slide 8	Slide 12

ANNEXURE: Final CRISP Model Slide wise for presentation of RTP.

Slide 13	Slide 14	Slide 15

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Importance of Bussiness Intelligence in Digital Marketing

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In the era of digital age, various social media and many search engine optimization are the foundation for the marketing strategies for businesses. There is an exponential growth in the amount of data and the businesses which are moving towards Business Intelligence for smart decision making. With the help of Business Intelligence we can easily figure out which social media is giving there efficient work for the particular business and receiving highest attention in few days, weeks or month. This paper gives insight knowledge of the various tools which are used for business intelligence in digital marketing.

Introduction

BI is a technology-driven process of collecting data from various sources, analyzing them and then present them into a decision making format. In this new generation of Business Intelligence there are large number of tools that allows large volume of data to be quickly analyzed and then being converted into comprehensive and actionable reports.

The term business intelligence is referred to technologies, applications and practices for the collection, integration, analysis and presentation of business information. The main aim of BI is to support better business decision making. These are data-driven Decision Support System. BI is sometimes used for interchangeably with briefing books, reports and query tools and executive information systems. Some of the common function of BI includes OLAP, data mining, process mining, complex event processing, text mining, predictive analysis and prescriptive analysis.

Business Intelligence for Customers

BI gives a business a complete sketch of their customers. Many advance BI tools nowadays provide insights into customer behavior that makes marketing to them very effective.

Social Media Data Analytics try to make a record of various products about customers dislike, likes, and comments from various social networking sites, online shopping site and then they compare to the competitors and find out whether their engagement efforts were successful or not. Various monitoring tools are also available to monitor the feedback, reviews of the product. These tools select certain parameters and then do the analysis. There is also a web analytics tool that is used to determine the percentage of traffic on the website due to which it becomes easy for the businesses to determine which keywords on the website generate more traffic and where customer bounce rate is highest and lowest.

Decision making was not an easy task before digital marketing came into existence. The new BI tools extract and configure the data from many online sources, this help them to find out which tactics to adopt in order to gain most attraction of their products.

Real Time Analysis

The data which are stored digital gets outdated easily so real time analysis is considered to be best analysis as it will improve the cost and marketing performance. Real time analysis allows companies to respond to their customers and offer support in real-time to meet customers expectation of getting their needs addressed quickly. Further this will also help the marketers to use real time data to develop a content that appeals

Fig.1 : BI

to their brand audience. Real time analysis will be considered very helpful in the fast moving industries like beauty, lifestyle and fashion.

II. Business Intelligence Tools

Before starting any business the strategy of the business must be defined. It might be possible that the person or industry uses the most expensive tools and it is not suited for that particular purpose. Once the strategy is defined it will lead to a successful business. There are 15 different kind of tools of BI which will be very helpful in laying out the strategy these have some advantages and as well as disadvantages:

1. ClearSlide

- It is considered as one of the excellent software which is helpful in both marketing, sales and also to the customer service teams.
- It also boost the sales representative productivity, accuracy forecast and optimize the sales content to achieve greater impact.
- Its main aim is to ensure successful interaction with the customers.
- It has a feature called "My ClearSlide" which improves the sales content, analytics.
- It also helps in promotion via providing greater visibility, marketing, service manager's and one to one next-step actions.

2. InsightSquared

- It is known for the sales analytic which deals for high growth companies.
- Its features and functions serve the need of business executives and sales leaders.

3. BIME

- It was developed by Zendesk.
- It is known for the data visualization and business software tool.
- It enables easy creation of data sets, dashboards, reports.
- It has one of the special features that it can be integrated as software tools to handle special types of data.
- It is compatible with Google Analytics and AdWords.
- It also works best with the Salesforce, Redshift and BigQuery in datawarehouse query, analysis

andas well as visualization.

4. DBxtra

- It is business intelligence reporting and dashboard software.
- Its main aim is to generate reports and dashboards within a less time from all the database connections, reports, queries and end-user input parameters.
- Its performance is better in the business performance monitoring, business change impact visualization, and quick view of key performance indicators.

5. Convertable

- It is mainly web-based free lead tracking tool having real time analytics, contact forms and lead management function.
- With the help of this tool users can quickly create forms that can be used as a kind of blogs, websites, forums or emails in order to gather data from various resources.
- It can also generate and analyze data in the real time and capable of linking PPP, social media and many marketing campaigns.

6. Market Smart360

- It is a unique marketing intelligence software tool that is useful for business purpose.
- It does overall survey on many company websites, social networking sites to come up with a score that can help in marketing.

7. Compete

- It's a software that is created for data-driven marketers in order to find a solution for obtaining and using digital insights to drive the business to be on the top of the marketing and competition.
- It is has the capability of keeping a track of consumer behavior, identifying market strategies that will be beneficial for the opportunity.
- It mainly focuses on online marketing that can be either through websites or web pages.

8. HubSpot Marketting

- It is kind of business intelligence software that is designed to be

an all-in-one inbound marketing application.
- It provide complete details of the traffic generation, lead conversion and fast ROI.
- Having support of HubSpot CRM and Sales, it provides more efficient operations and greater marketing impact.

9. Optimizely

- It main function is to provide one of the easiest and most powerful solutions for transforming customer's experience.
- It help the marketers and sales professionals in creating engagement and better interfaces which result in higher conversions and increased revenues.

10. Sisense

- It is considered to be one of the best review platforms and was awarded for 2016 from FinancesOnline for its outstanding contribution.
- It provides effective solution complex data which are very helpful for the startups and small companies.

11. Clear Analytics

- It deals with MS-Excel based solution where a minimal training is required.
- A basic/ normal knowledge of Excel will them rapidly to work on this.
- It generates, analyze and visualize company's data and information.

12. Style Intelligence

- It is BI software for dashboards, visual analysis, data mashups and reporting.
- It delivers maximum self-service that is both end-user and IT-friendlier than other BI solutions.

13. WebFOCUS

- It provides facility to both customers and partners giving them access to analytic apps and tools from any browser or mobile device.
- Pentaho
- It addresses the barriers that block any organization's ability to get value from all the data.

14. Rapid Insight

- It is known as a leading business

intelligence provider and automated predictive analytics software.

- It mainly focuses on the ease of the use and efficiency and enables users to turn their raw data into actionable information.

III. Conclusion

This paper gives insight knowledge about the various tools which can be used for the business intelligence in digital marketing. This will be helpful for the business person in order to know which tool will be beneficial for them in order to make their business successful.

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Fourth Coming Issues: November : Big Date Analytics

December : Heritage Computing

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Internet of Things in Business Intelligence

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I. Introduction

The Internet of Things is the network of physical objects insert with electronics, software, sensors and also network connectivity, which allows these objects to collect and interchange the data. The main thought of IOT is to connecting things to internet and using that connection to provide some kind of useful monitoring or to control of those things. These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices. IoT creates an intelligent and invisible network fabrics that can be sensed, controlled .Creating opportunities for more direct amalgamation between the physical world and computer based systems and it use to improve efficiency , accuracy and economic benefit. It is used for connect with things; search for things, control things and to manage things etc. But still there are some challenges of IoT[1]. It includes Big data, complexity and also giving connection to many devices or things in everyday life. IoT comes out in a positive way for Business Intelligence. It had helped to process the information and to take more tactical decision. The best thing is that it helped to handle Real time Big data. Therefore helping for Business Analytics are predictive and prescriptive Analytics for handling huge volume of data.

IoT plays a vital role in technologies as follows-

i) **Communication and cooperation-** objects have the aptness to connect with the internet sources.
ii) **Addressability -** Within in it objects can be located and addressed.
iii) **Identification -** Objects are uniquely recognizable .
iv) **Sensing -** Objects collect information regarding their surroundings using sensors.

II. Applications of Internet of Things (IoT)

i. **Monitoring surroundings -** In this sensors are used to help in environmental protection by monitoring the air, water quality , atmospheric and soil conditions.
ii. **Smart City –** Smart city covers traffic management, water distribution, security, waste management and reduces noise pollution.
iii. **Agriculture -** Monitoring soli moisture, controlled irrigation also increasing machinery efficiency.

III. Advantages

i. Keep track of overall business procedure
ii. Upgrade the client experience.
iii. Time and Money saver.
iv. Enhance worker productivity.
v. Integrate and Adapt business models.
vi. Make higher business decisions.
vii. Generate additional revenue.

IV. Smarter IoT

IoT devices, or any of the many things in the internet of things, are nonstandard computing devices that connect wirelessly to a network and have the ability to transmit data. Embedded with technology, these devices can communicate and interact over the internet, and they can be remotely monitored and controlled[2]. Network World predicts not solely can cloud storage increase to carry the information ,web speeds can improve exponentially. These upgrades can set the stage for subsequent wave of good devices. Businesses ought to be able to maximize these changes. It is exactly the information that these devices square measure capturing that may impact business growth trends within the future. All the businesses operated using IoT can change their client and promotion services.

For example:
i. Data is combined to buckets and BI helps to keep track on latest trends going in the market by knowing different customers behaviour.
ii. Through IoT Businesses are provided with powerful analytics tools & helps them to maintain large data(BIG DATA) from real world
iii. Marketers ought to conjointly profit of GPS location devices to trace wherever customers look, so partner with retailers to supply deals at those brick and mortar locations.

V. Need of IoT in Business Intelligence

i. Affordable hardware
ii. Availability of supporting tools.
iii. Ubiquitous & cheap mobility.
iv. Mass market awareness.
v. Smaller, more powerful hardware
vi. Sales and strategic planning see IoT as the most treasures today.
vii. Important to industries
viii. It focuses on four different areas i.e. location intelligence, memory analysis, computational devices, operational system.
ix. It can handle big data implementation.
x. Also helps in Data warehouse optimization.
xi. IoT is used as ideal for advanced analytical techniques.
xii. BI apps uses ODBC & JDBC.

VI. Architecture of BI

Business Intelligence[3] is a way to organize data , information in the form to represent information for data analytics. It plays an important role during business decisions.It includes both structure and unstructured type of data. It turns the raw data into similar type of data reuired for business.It
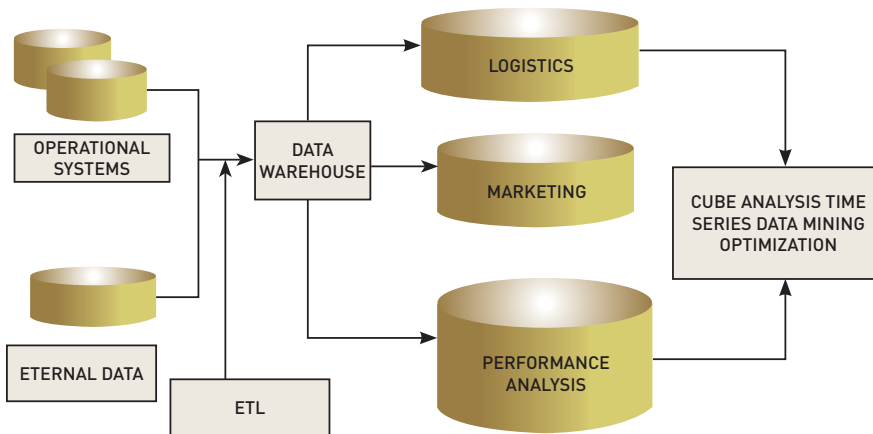
Fig. 1

stores data into virtual database & uses BI tools to organize the data .

VII. Mathematical Modeling

i) BI environment provides information and knowledge to the decision maker from data, using appropriate mathematical models.

ii) This type of analysis tends to promote a scientific and rational management of companies:
   a) Identify the objectives of the analysis and performance indicators,
   b) Develop mathematical models that relate the control variables[6] with the parameters and metrics.
   c) Analyze the performance effects of changes in control variables.

VIII. BI Analysis

i) The analysis of BI[4] are devoted to different types of organizations with complex structures.

ii) If we restrict our attention to enterprises, we can place the BI methodologies into three departments:
   i) Sales and marketing,
   ii) Logistics and production
   iii) Management control and performance Measurement.

IX. Emerging Trends to Transform Business:

i) Data literacy will gain company-wide societal priority.
ii) Hybrid multi cloud will emerge to connect the dots.
iii) Data gets edgy**.**
iv) Big data, data discover & data science will converge.
v) Analytics become more immersive.

X. Future of IoT in BI

i . Digital twin

A improved technology in the world of IoT[5], which helps organization bridge the difference between the digital and physical.

ii . Block-Chain

It plays an important role in improving security, easy transactions and creating efficiency in supply chain.

iii. Security

IoT is based in multilayered approach, starting from design to entire product lifecycle. It follows all the best practices.

iv. SaaS:

Software as as service(SaaS), is a next viable option to quickly create and prove out a variety of IoT apps at lower investment and also increase flexibility .

v. Cognitive Computing:

It increases the amount of data to improve learning environment, hence has ability to combined data from different stream which can identify patterns. They are implicitly programmed and keep pace with the complexity of IoT.

XII. Conclusion

Business Intelligence will improve more in coming future and will produce a lot amount of data than expected and will work with large dataset which requires to store data efficiently and also to implement analytics in more improved manner. IoT will improve the usage of data and make it more familiar to use. Technologies will keep emerging this innovation.and will lead to more secure data .

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Internal *or* External

Which Database Could Contribute More to Business Intelligence?

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Database is vital especially in terms of business intelligence owing to its ability to provide quantitative and qualitative analysis of any business organization, provided the database is unbiased in any kind. That such significant database is functionally classified in to internal and external database, which together contribute to the holistic data analysis of an organization. The question arises out of here is that, which is more efficient and how does they affect the business intelligence. Let us have an understanding about the nature of these two databases.

What is Internal and External Database?

Literally the word internal and external implies the conceptual meaning out of it. The internal database comprises of information that exists within the organization. Generally the sources of internal data is relied on the documents that contain information about the inventory records, accountancy management sheets like statements of profit and loss, sales figures involvement and more importantly they cover all the structural data that involves in the business intelligence.

External data deals about various surveys that are taken outside the organization through a source that is present externally. Particularly in this external data, more of field work is employed and the feedbacks play a vital role in structuring the database. In an organization, the purchasing order from an agent, reports and records from the customer care department could be some of the best examples of Business Intelligence.


Fig 1: Internal Vs External

Why this conflict between Internal and External?

This controversial databases, though are unique in their own contribution to the overall development of any business firm, their preference decides the success and failure of a particular business. Definitely at one point in time, any organization is going to face an ethical or professional dilemma, at that time the vital pillar for a business roof is decision making. Yes, the databases are necessary to make a vice decision. Thus the competitiveness of the internal and external databases becomes more crucial.

360° view of the business through – closed loop approach

The theme of holistic business approach can be benefited through the suggestions of external database. An excellent example for this feature could be the analysis and decision made in a business that directly deals with the consumer products like cosmetics, food and beverages and etc. Initially the organization plans a structure for the business and after some point in time if it does not correlate with the expectation of the consumers, the entire effort goes in vain. It is like a closed loop approach, where the feedback is given to the input to alter the required output. The tools that are used as feedback is the external database sources. Particularly more of individual organizations efficiency

becomes negligible when compared to the mass of customers.
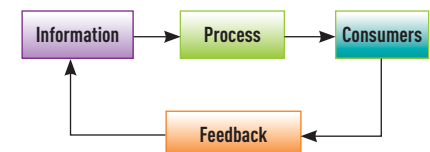
Fig 2: Closed Loop Approach of business

E- Governance's Choice

In this era of fourth industrial revolution, most of the governances became smart by employing more of information technology. In such technology, databases do play a significant role. Most preferably, any such organization is keen interested to use the external databases collected through the agents. The best example could be the arrival of rating systems followed in many taxi services. Only after they rate the journey in stars or points, they may able to proceed further. This is what many organizations focus on their development through the external databases.

Test and Learn Technique

Many successful business firms, besides the suggestions externally, they try to create their own way of uniqueness that ever exists in the society. Especially in business intelligence they are very vital. Only that such quality of parallel decision making process by their own creates revolution in many business

firms. The best example to be cited could be the Samsung- from a noodle producing cottage industry to one of the leading top MNC's in the globe. So, our understanding should be, internal databases like workers efficiency, companies co-partnerships, human resource management should also be considered, tested, and learned for the internal or unique development to withstand in the society for long time.
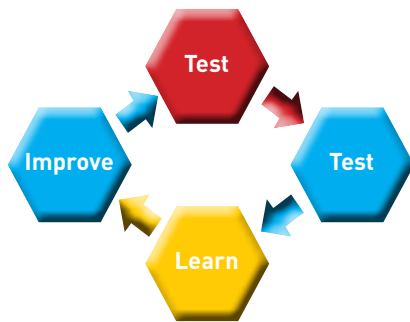

Fig. 3 : Test and Learn process

Databases in Decision Making

Both the internal and external data plays a major role in the decision making process, which is inevitable in business intelligence. There are four major steps in decision making process, they are information access, data collection, collaboration and interpretation. When a data is gathered from warehouse, irrespective of its nature it has to follow the above mentioned steps to become an action. Unfortunately, when the same conflict that internal or external comes here, by considering the companies perspective, internal contributes little higher than the external because the internal data which is generated within their own organization is more flexible depending upon the output that is expected in the organizations perspective, but again in such case the consumers perspective is a big question mark.
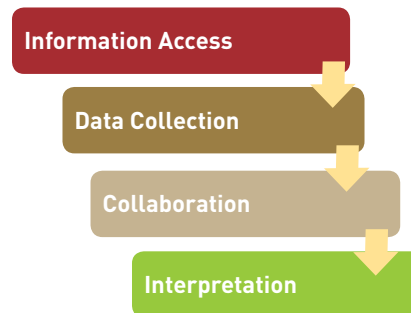

Fig. 4 : Steps in decision making process

Solution for Selection

Throughout the article we have seen the boon and ban of the internal and external databases by considering its contributions in a diversified manner. When a debate comes that, which is more necessary? It is the organizations wise decision to conclude by considering the nature of the business firm they are in. If an internal database owes success to one firm of business, the same cannot be expected in another. Thus, more than linear and static transformation, a dynamic and parallel form of decision making tells the organization whether it should opt more internally or externally. Applying Charles Darwin's theory of Survival of the fittest *"It is not the strongest nor the most intelligent, but the one who is most responsive to change survives"* in the business intelligence helps to select the required database that gets the organization to the top of the mountain.

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Business Intelligence on Cloud (BIC) - Merits, Challenges and Solutions

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Business Intelligence (BI) today is encountering resource crux situation because of expansion of data warehouses and Online Analytical Processing (OLAP) available on self-hosted environments. The BI helps government and other administrating organizations for processing the data, both internal and external into the desired business information. This information aids in taking decisions at all level of competencies. Today cloud computing is also playing a highly beneficial role in organisations. Cloud computing offers a modular approach to provide business intelligence solution and improving the customer response that provides great benefit to an organisation. By combining the features of both business intelligence and cloud referred to as BIC, proves to be more advantages for fast growing business solutions, even in the situation when the economy is turning down. Cloud computing has initiated a new hope for future prospects of BI. Today almost all organisations are spending both time and money on BIC to know about their current scenarios, competition, consumer behaviour, market trends, etc. However, how this business intelligence will be implemented on the Cloud and what are the benefits, what are the risks involved, the possible solutions are important considerations. This article provides the merits, challenges and various solutions available to business organizations by employing BIC and their effects on productivity, efficiency and the cost.

Introduction

The combination of business intelligence and cloud computing (BIC) is a perfect match to deliver the precise information to right people in right amount of time. The application of BIC makes business data more available than ever before as the data can be accessed by multiple devices through a web browser, using internet, thereby reducing the need of any application to access the data to nil. The business data that is accessible can be KPI's, KRA's, business analytics, dashboards etc. Now question is, where to store this data, for which today organizations are moving towards cloud based tools like online storage, file collaboration and helpdesk software [1]. This basically implies the accessibility of cloud technology meeting the BI technology. Now first we will discuss what BI is followed by what is cloud. Then we will elaborate on their combination that is BIC.

Organizations today are generating a huge and staggering amount of data. Business intelligence refers to technologies which models the consumer resources into a data that can be transformed into useful information. This information is then converted into business solutions. BI tools help organizations to first collect data from different sources and then organize the collected data into a single source. This single source of data then permits organizations to take much more informed decisions [2][3]. These decisions can be various business domains such as (i) consumer buying trends, (ii) effectiveness of marketing campaigns, (iii) staff performance and retention, (iv) market trends including changes and demands, etc. It also helps in predicting forthcoming business actions to improve the productivity and efficiency of their business. A Business Intelligence Model, as shown in figure.1 shows the various phases of Business intelligence: (i) Infrastructure, (ii) Application, (iii) Governance, and (iv) Methodology.

The huge amount of data that is generated not only needs to be stored but also needs to be accessed by various stakeholders of an organization, viz. consumers, vendors, business owners, etc. Moreover, with recent advancement in communication technologies, it is mandatory to provide the access to this data from anywhere and anytime. The solution to this is cloud. The potential of cloud is overwhelming because of several benefits like easy deployment, less cost, simple to use. Nowadays Cloud applications have equivalent amount of computing power and features as compared to on-premise applications. The main benefits of using cloud technologies are to deliver seamless service to consumers in terms of the reduced response time. Cloud based services are normally provided by subscription licensing, thereby implying that organizations pay a charge to use the services that contains the cost
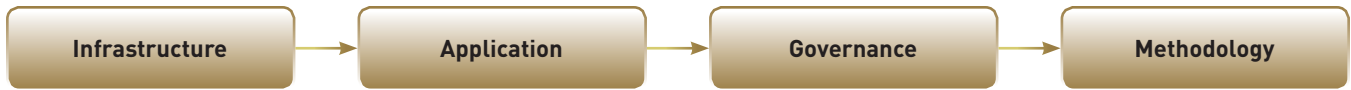
| Infrastructure | → | Application | → | Governance | → | Methodology |

Fig. 1 : Phases of business intelligence model

for accommodating, maintaining, supporting and updating. Cloud-based hosting allows organizations to save costs on all the above [4][5]. However, it may be noted that in the long term costs that include the costs for perpetual licensing and subscription generally merge. Business intelligence when combined with cloud technologies provides better response time by effectively handling and distributing the cloud resources to its consumers, vendors and other stake holders with accomplished goals of response time. It also provides more accountability amongst many more advantages as discussed in merit of BIC.

BIC systems generally helps organizations to record, collect, store, analyse , store and interpret data from a different type of sources in order to make better decision for business. Analysing data from a variety of sources using BIC systems provides a great insight on your consumers, clients, markets, operations, sales, and much more.

Merits of BIC

BIC offers many benefits to cloud and business users especially in the area of cost reduction and infrastructure management. The figure 2 illustrates the merits of BIC. Both cloud technologies and business intelligence go parallel in their corporate approaches and use pay-as-you-use or pay-as-you-go model. Moreover the management of infrastructure including its up gradation, depreciation, maintenance are added advantages to business organizations. It also helps in prediction analysis taking advantages of both of cloud and business intelligence tools. BIC has a very big advantage as compared to traditional BI solutions that are hosted offsite, say on vendor's servers in the term that users can access the system remotely through a web browser/Mobile phone vis the Internet [6]. BIC systems can also integrate with other tools of an organization viz, customer relationship management and enterprise resource
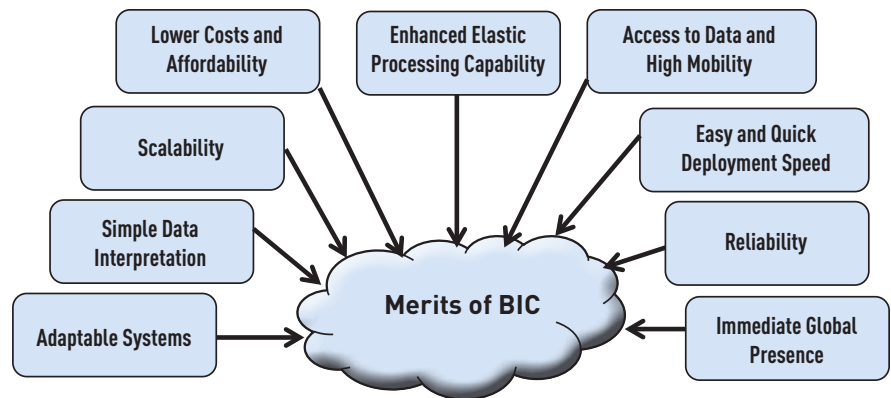

Figure 2: Merits of business intelligence on cloud (BIC)

planning tools.

1. Adaptable Systems

BIC systems nowadays automate everything from data unearthing, data analytics to data reporting. The data-on-demand is seamlessly integrated and analysed much differently from traditional BI systems. BIC systems can be used to immediately adapt to new data sources, augment reports, update dashboards, and streamline business processes.

2. Simple Data Interpretation

BIC systems have suites of offering to provide thorough analytics of data. They include visual analytics highlighting various diagrams, different types of charts, intelligent decision trees, tables showing business intelligence analysis. These systems help in interpreting data interpretation much simpler, allowing for greater business insights on various verticals of the organizations.

3. Lower Costs and Affordability

As BIC uses cloud technologies for its implementation, the capex for deployment of infrastructure, for servers and storage is totally eliminated. The related costs with the infrastructure maintenance and upgradation are essentially eliminated. The total cost of ownership, hence is much lower because and infrastructure and implementation costs are low. The elasticity of the cloud model allows

organizations to pay only for the features that they are using.

4. Enhanced Elastic Processing Capability

Processing Capability denotes how fast a system can do all operations. As the volume of data increases to unprecedented levels and more organizations are looking for BIC solutions to have increased processing capability that can handle terabytes of data. BIC permits users to use increased processing power as and when needed, as these systems can immediately change processing activities levels up or down depending on the task. As task sizes are variable, this adaptability in processing power is attractive for many organizations. An organization only pays for whatever processing power it uses.

5. Access to Data and High Mobility

BIC systems can be accessed from anywhere, any time from any web browser or any mobile device. BIC permits organizations to always be linked to real-time data for efficient communications, sophisticated collaborations and much more informed decisions. As the users, consumers, vendors and other stakeholders can access their records, various reports, project contracts and requirements, request for proposals, from any mobile device through the day and night, it enhances productivity tremendously.

6. Easy and Quick Deployment Speed

BIC systems are very simple and fast to deploy. As no additional hardware or software are needed for these systems. BIC systems are generally pre-configured, thereby deployment time is minimal. Cloud services are provisioned almost immediately enabling one to build powerful BIC systems. Even adding new users and projects to the BIC systems is very easy, and this complete process does not require complex IT infrastructures and support.

7. Reliability

BIC systems are also disaster free as they utilize multiple redundant sites for storage of data which in turn makes it reliable towards disaster recovery opportunities. In case a server go down, a reliable back up is provided. Organisations feel safe that an substitute server is still up and running, making sure that their data is always freely available to them for use.

8. Immediate Global Presence

With BIC systems, organizations do not require a single physical place for storing the data. Organisations can store data in data centers available around the globe. The ability to reach out to consumers all over the world instantly makes ones presence global and also opens up new avenues of revenue.

9. Scalability

BIC systems can instantly be reconfigured to accommodate for the change in the number of users in an organization depending upon the business requirements.

Challenges of BIC

Despite the various benefits of using BIC systems, there are many challenges associated with them. The following is a discussion on some of the major challenges a BIC system presents.

1. Data Security

Nowadays security of data is one of the greatest risks. As BI is highly data intensive, organizations are sceptical of sharing their data for storage with external parties and also sending the data on the web. Moreover data owner not know the exact location of data storage and not able to control the data

storage, the organizations do not feel safe as their data may be leaked to their competitors or may be misused. There are also chances of compromising with the data which is otherwise confidential or the data may be completely lost [8]. There may be situations where data of two or multiple organizations may be mixed up or is accessed by unauthorised users. BIC systems however are providing a range of security solutions including security patches, encryption of data, segregation of data, exploratory support for network segmentation, compliance to regulations etc.

2. Data Breach and its Subsequent Recovery

Whenever data is hosted on a cloud rather than on-premises the data is in control of someone else. Once the data is breached, the recovery is very tough as one is dependent on another party. In most cases, the user is also not aware not only of the actual location of the data but also where the data is processed; it really becomes a great challenge to get back your lost data [8]. A range of other issues like you do not get your own data when you need it as you are dependent on another party to provide you with the same. Moreover data center and network problems may worsen the availability of data.

3. Likely Compromise on Data Integration

Integration of data is essential BI competences. As discussed above using cloud may lead to compromised data or metadata. This data needs to be exported to other applications so that it can be reused or integrated with other applications the organizations are using. In BIC systems, since the data is available with the third party (cloud provider), there are chances that this data is incompatible with the rest of the IT system available in the organization [7]. The conventional on-premises BI systems pose no such problem of data integration.

4. Enumerating Costs

For BIC systems, doing a cost-benefit analysis is quite difficult. It may have short term savings, but comes out to be expensive in long run. The return on Investments in BIC systems are still

not measured comprehensively [7].

5. Regulatory Environment

As BIC systems may use cross-border data storage and also provide global access, the laws regarding privacy and security of data are an absolute requirement. Some authorised frameworks, like, Protect IP Act, Stop Online Piracy Act are debatable and can also affect BIC systems [8]. All the stakeholders must understand the government's regulatory framework and act accordingly. Presently, there is a lack of standards across different stakeholders. As the BIC industry grows, newer standards and regulations will be created and strengthen the industry in the process.

IV. BIC Solutions

The cloud provides software as a service (SaaS) for business intelligence technology. The tool is sold by number of vendors shown in figure 3. The services of SaaS are based on pay as you move service. It is different and cost effective in comparison of traditional software. SaaS allow on demand service for business user without having to install, maintain and operate them on same organisation [9].

The services as following describes various company that gives advantage to business user for making business plans and reports with analytics queries without having to install the software.

1. AnswerRocket

It provides the solution for data visualizations used by different organisation for the result of complex analysis in form of graphs and charts. It is a search engine-based tool provides a solution for a speech-to-text feature.

2. Birst

It provides web-based business intelligence solution that connects information's from different teams and collaborate to form business decision.

3. Board Management Intelligence Toolkit

The toolkit combines the functionalities of business intelligence and CPM. The CPM includes planning, forecasting and budgeted related activities, while BI includes adhoc query, reporting, dashboarding and multidimensional analysis of data. It

is used to improve the decision and productivity with lower cost. Board does not require any programming skills for building an application of BI and CPM.

4. Chartio

It is a tool to provide a solution for BIC to manage all the business operation of day to day activity, it provide business tool for team and data analyst.

5. Clear Analytics

The tool provides excel based solution. In this any employee can easily learn, if they have a basic knowledge of excel, so minimal training is required. It helps to automate, generate, visualizes and analyse the key data of the company.

6. ClicData

ClicData is a drag and drop tool, used to create the dashboard and reports. This tool is specially designed for small and medium scale business.

7. Cognos Analytics

Cognos Analytics provide the solutions for large scale and medium sized business. They combine the real data with the historical data for analysis, by which user make proactive decision with efficiency for real time business.

8. Corporater

It provides a cloud-based business solution for large scale and medium seized organisation. It is used to plan a business and find out the outcome for same.

9. Domo

The tool gives business solution that combines all the data of organisation includes database, spread sheets, social media etc. It is a powerful tool to visualize the data and provide a one customized solution for organisation.

10. Gooddata

GoodData tool offer an open analytic platform for information technology and security for business user. This platform combine the data of any size either it is organisation or in a cloud, and gives an analytical solution, which is secure and manageable for IT.

11. Halo

Halo is business intelligence solution that helps the organisation for planning and forecast the inventory in end to end supply chain management

Figure 3: Company's provide business intelligence on cloud (BIS)

(SCM).

12. Sisense

This tool used to combine the data from many different resources into single unit of data. It gives the solution to rearrange the data into a defined format. User may use this data set and build an analytic using number of filters. It includes the functionalities of scoreboard, dashboard, extract transform, load, and data warehousing.

13. SpagoBI

SpagoBI can used to find out the inefficiencies of your business process and suggest for making quick decision and constant support for real time monitoring.

14. Stratum

It is a tool by Silvon provide strong business intelligence solution, it is designed in a way such that it meet all the business professionals needs that are working for distribution and manufacturing companies.

15. Style Intelligence

A tool by inet-soft to provide business intelligence solution for graphical analytics, dashboard and develop report. It is tools that collect the information in real time. These data sources include OLAP servers, relational databases, ERP apps Web services, and spread sheets.

16. Targit

It is ready to use tool that able you to make report and create business intelligent dashboard and its analysis. It

helps for making decision, and increase operational awareness, and improves performance in overall organisation.

17. Vismatica

It is a powerful data solution for medium and small scale industries provided by IronRock. It creates a powerful collection of data for conducting data analysis. It helps for sharing documents and web applications design.

18. Yellowfin BI

It is a single business intelligence platform to provide solution for different companies having different sizes. It is suitable for advertising, accounting, and agriculture.

19. JReport

JReport is very suitable tool for product managers. It provide embedded BI that help developers and user to customized the report into business application

20. Looker

Lookers provide business solutions to analyse and capture a data from different sources and make decision of data accordingly. It helps the company to make better decision using real time data access. Looker tool has ability to handle any size of data and analyses it. It provides a solution to analyse the customer value, supply chain, customer behaviour and estimate the distribution process. The tools have many advantages in term of e-commerce, finance, healthcare, education and number of different technology used for

business decision.

21. Microsoft BI platform

It includes integration reporting, analysis and master data services and other client applications used for analysis of data. The analysis and reporting services of Microsoft BI is installed in standalone servers.

22. Nexla

Nexla is a hybrid BIC tool that helps business for integration, automation and to monitor the data flow in the organisation.

Conclusion

The combination of cloud computing and business intelligence offer many technical advantages in terms of flexibility, reliability, scalability and cost effective solution for various enterprises. BIC offers various services to the business user with resource constraint. BIC reduce time and provide resources to the authentic user in term of infrastructure, software and platform as a service. These services can be provided by number of service providers depending upon business requirement. The article discussed the business intelligence model along with cloud for providing better solutions for the users. The article includes common risk associated with BIC and describes various advantages and solutions for business user.

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Business Intelligence and Network Analytics: Research Directions

▶ **P. Aruna**

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Business intelligence and Network Analytics are the two nascent frameworks in the domain of computing. The objective of this article is to discuss the need for Business Intelligence in the Network Analytics and its role in the domain of future computing. This article limits the discussion of Business Intelligence and Network Analytics research activities into six broad research directions: Link Analytics, Opinion Analytics, Mood Analytics, Community Detection, Influence Propagation and Social Recommendation. Discussing a detailed review about these research activities is beyond the scope this article; hence a brief overview and research direction is given in the following sections.

Business Intelligence

According to Forrester Research, business intelligence is *"a set of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information used to enable more effective strategic, tactical, and operational insights and decision-making"*[1].

Network Analytics

The term Network Analytics is used to gather network information such as network traffic, nodes relationship, routing information and other network related data in a particular network, along with these network information it uses predictive algorithms to predict and discover network related issues. Network analytics is emerging research area.

Both the said business intelligence and the network analytics needs data to observe valuable insights in the given environment, hence the techniques and tools deployed in Business intelligence can be used in Network Analytics to reduce the issues and burden of the analysts. Some of the notable topics in the network analytics research are Link Analytics, Opinion Analytics, Mood Analytics, Community Detection, Influence Propagation and Social Recommendation.

a) Link Analytics

Link analytics refers to info analysis technique that's deployed and disbursed in network theory that evaluates the connections or relationships between the nodes in an exceedingly specific or given network. the connection are often established between the nodes within the network, transactions between the devices, pupils, and organizations. Link analysis is truly a form of {data|of information} discovery that may be accustomed visualize data and permit call manufacturers for higher analysis, notably within the context of links within the surroundings. the foremost necessary analysis direction of Link analysis is sometimes used in resource optimisation, security analysis, intelligence in predicting link, computer program optimisation, in market research and additionally in medical analysis.

b) Opinion Analytics

Opinion Analytics is also called as Sentiment analytics. It is expressed in comments, reviews, online news, etc. and these play a vital role in today's business decision making. In e-commerce websites, opinion analytics gives buyers or other general public an overview of the product quality and delivery of the product. For instance, buyers tend to buy a product that has more star ratings in the respective onsite purchase websites. The most notable research directions in opinion analytics are to identify the fake opinions, spammers and coincidence in opinions.

c) Mood Analytics

The customer or client or user satisfaction along with their behavior is important part in decision making process of any organization. To determine user satisfaction and behavior, it is important to trace moods and the way individuals to react to varied environments, temperature, products, lights, sound, etc. The most important research direction in mood analytics is to determine the association between buyers and sellers mood states in a particular environment. The user either buyer or seller mood analytics can be carried out using different states such as Happy, Angry, San, Normal, Anxious, shocked, surprised and others. Mechanisms to measure such states are another important research challenge in Mood Analytics.

d) Community Detection

Community detection is one of the most important research domains. The network in community detection is represented by means of graph theory. Graph partition or graph sub homomorphism is used to obtain user communities in the network. User communities may be formed due to friendship, family relationships or adoption of similar products or patterns. These relationship forms dense network. Classification of these dense networks to uncover common preference is critical due to the enormous connectivity and measures to perform these is one of the important research direction in community detection.

e) Influence Propagation and Social Recommendation

Nowadays Online social networks such as Flickr, Twitter, Foursquare, Facebook and others gears-up for disseminating or propagating the information worldwide. While disseminating information, user influence and recommendation is getting important in the information posted. One of the most important

research problem in influence propagation is the measures to classify influence users content posting and less influence users content posting.

Conclusions

From the above discussion, it can be understood that business intelligence can be used as an effective tool in measuring and improving network analytics, also from various analytics it can be observed that there is much investigation and tools are needed to convergence various analytics.

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About the Author

Dr. P. Aruna, Assistant Professor in the Department of Software Engineering, Periyar Maniammai Institute of Science and Technology, Thanjavur, Tamilnadu, India. Her area of research interest is Mobile Adhoc Network. She has presented several papers in National and International Conferences. She is also having good number of reputed journal publications.

► CSI CALENDAR 2018-19 ►►►►

Date	Event Details & Contact Information
DECEMBER 14-16, 2008	**CSI 53rd Annual Convention Cum Exhibition 2018** **Venue :** Hotel Inder Residency, Udaipur **Hosted by :** CSI Udaipur Chapter, csiudr2018@gmail.com
FEBRUARY 25-28, 2019	**Second International Conference on Advanced Computational and Communication Paradigms (ICACCP-2019)** International Symposium on Computer Vision and Machine Intelligence in Medical Image Analysis (ISCMM) http://symposium.icaccpa.in/ Venue: Sikkim Manipal Institute of Technology **Convener :** Prof. Debanjan Konar, Sikkim Manipal Inst. of Technology, Sikkim, India **Co-Convener :** Prof. Chinmoy Kar, Sikkim Manipal Institute of Technology, Sikkim, India
MARCH 01-02, 2019	**2019 International Conference on Data Science and Communication (IconDSC)** in technical association with IEEE-Bangalore Section, IEEE-ComSoc, Bangalore Section and CSI Division IV, Communication. Submission Deadline: 10 November'18, https://christuniversity.in/icondsc/ Contact : Dr. Samiksha Shukla, 9880462311 samiksha.shukla@christuniversity.in
13-15, 2019	**INDIACom-2019 (IEEE Conference ID: 46181 | SCOPUS Indexed)** 13th INDIACom; 2019 6th IEEE International Conference on "Computing for Sustainable Global Development" Contact : Prof. M. N. Hoda, General Chair, INDIACom-2019, Director, Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM) E-mails: conference@bvicam.ac.in, indiacom2019@gmail.com Tel.: 011-25275055 TeleFax: 011-25255056, Mobile : 09212022066

CSI Lakshmangarh Chapter Inaugural Ceremony

(September 15, 2018)

Dr. Anand Sharma
Secretary, CSI Lakshmangarh Chapter

On Engineers' Day (September 15, 2018), CSI Lakshmangarh Chapter was inaugurated at School of Engineering and Technology, Mody University of Science and Technology, Lakshmangarh. It was a day filled with events, starting with the Shri Vishwakarma Pooja and Poster Presentation on the theme "Technological Advancement-Indian Scenario".

At this occasion, apart from the office bearer Prof. V.K. Jain, Dean-SET & Chairman, Dr. Amit Sanghi, Professor, MEC-Bikaner & Vice-Chairman, Dr. A. Senthil, Assoc. Prof. & Treasurer, Dr. Anand Sharma Asst. Prof. & Honorary Secretary, other distinguished guests Prof. M.N. Hoda (BVICAM, New Delhi), Prof. Prasenjit Sen (JNU, New Delhi), Dr. Jamil Akhtar (CEERI, Pilani) were present. The event was organized in SSTS Auditorium and witnessed by around 350 people which includes CSI members, students members, faculty and students.

Prof. V.K. Jain has given the inaugural keynote and announced the CSI Lakshmangarh Chapter Committee. He also stressed upon the importance and role of this chapter for organizing professional activities. This chapter will cover Sikar, Jhunjhunu, Churu , Bikaner and Jaisalmer districts. The chapter will play a major role in achieving the objective of the CSI. The CSI Lakshmangarh chapter has direct links with the members. For the benefit and knowledge enhancement of members the chapter will organize technical meetings, poster presentation/exhibitions, seminars, workshops and conferences. The chapter will also host regional, divisional, national and international events along with the various reputed sponsoring agencies.

Prof. Prasenjit Sen and Dr. Jamil Akhtar explained the technological advancement in last 50 years in ICT.

Prof. M.N. Hoda explained that how CSI is playing a key role in IT Policy framework and encouraging the professionals by way of organizing conventions and various awards.

After that Inaugural Ceremony, a workshop on Machine Learning and Deep Learning was organized in which around 200 students participated. The faculty members and student have been given the insights of Machine Learning and Deep learning. At the end of day, a CSI promotion event / membership drive was organized by CSI Student Branch, School of Engineering and Technology, in which the prizes were distributed and the students were motivated to be a member of CSI.

In the poster presentation competition Tanvi Aggarwal and Kruti Mehta won the first prize of cash INR 1000/-. They presented a poster on "Nuclear Fission and Fusion". Second position was bagged by two posters, titled "Synergies, Synchronize, Surpass" & "E-Commerce" and awarded cash prize of INR 500/-, whereas the third position was again offered to two posters, titled "Communication Technologies" & "Artificial Intelligence" and was given cash prize of INR 300/-.

Finally, Dr. Anand Sharma, Secretary, CSI Lakshmangarh Chapter has proposed the vote of thanks.

Standards, Global Practices and Latest Trends in Research Paper Publications

Prof. A K Nayak

A Technical Talk on "**Standards, Global Practices and Latest Trends in Research Paper Publications**" by Dr. Harry Blom, Vice President, Computer Science, Mathematics and Publishing Development, Springer Nature, New York (USA) was organized on 26-09-2018 by The Institution of Electronics and Telecommunication Engineers (IETE) in collaboration with IEEE Delhi Section, ISTE Delhi Section, CSI Div-II, IV and CSI Delhi Chapter at Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi. During the technical talk, Dr. Blom discussed about latest trends in Scholarly Publications & Publishing with Springer Nature, Growth in Scientific Production and influence on Peer Review, Growth in Open Science and the use of ORCID & Mendeley in preparation of good research work.

After the talk, dignitaries on the DIAS, which included Ms. Suvira Srivastav, Associate Director, Springer Nature, Prof. M N Hoda, Director, BVICAM, New Delhi, Prof. Subrata Mukhopadhyay, IEEE Delhi Section, Prof. N K Gupta, ISTE, Delhi Section and Dr. Vinay Kumar, CSI, Delhi Chapter released the Title cover of "IETE-Springer Publication Series". Prof. M N Hoda, Chairman, TPPC, IETE, New Delhi, briefed the members about the IETE activities and the collaborative publication series entitled IETE-Springer Publication Series. Ms. Suvira Srivastav discussed about opportunities to publish good quality work in IETE-Springer Publication Series. The programme was attended by more than 70 participants.

CSI Student Chapter Inaugural + Digital Security Training Workshop in association with CSI Noida Chapter & IT Dept., Noida Inst. of Engg. and Tech., Greater Noida, UP on 8th September 2018

Dr. R. C. Tripathi
Noida Chapter Chairman, Computer Society of India

The IT Dept. of NIET Greater Noida, UP in association with CSI Noida Chapter has organised CSI Chapter inaugration on 8th September 2018. Eminent Personalities like Mr. Tanmoy Chakrabarty (VP & Global Head, TCS) was the chief guest of the Inauguration, Prof. (Dr.) R.C. Tripathi and Mr. Anuj Aggarwal were the guest of honor of the workshop. The Inaugration was followed by a workshop on "Digital Security", the speaker for the workshop was Mr. Shashikanth Reddy (Technical officer, www.sflc.in) .

The event started at 10:00 am with the Saraswati Vandana and lamp lightening ceremony. Dr. Somesh Kumar, Professor and Head IT, NIET Gr. Noida gave introduction of workshop and also about the importance of Digital Security.

After that Mr. Tanmoy Chakrabarty, (VP & Global Head, TCS), Prof. (Dr.) R.C. Tripathi (Chairman CSI Noida Chapter) also address the gathering and motivated everyone to innovate, keep learning and stay curious during study. Mr. Anuj Aggarwal gave lecture about cyber security and cyber crime.

At 12:30pm inaugural of dedicated CSI room was done by Prof. (Dr.) R.C.Tripathi (Chairman CSI Noida Chapter) and other guests. After the lunch the hands on training workshop was started by Mr. Shashikanth Reddy (Technical Officer @ SFLC). The session was very interactive and students learned the basics of digital security and how to protect themselves from cyber crimes. Rest is evident from the photographs.

Mr. Anuj Aggarwal and Dr. R C Tripathi (Chairman CSI Noida Chapter) answering the cyber security queries of the students after the inaugural of CSI Students Chapter office at NIET Greater Noida UP.

Mr. Tanmoy Chakraborty (VP & Global Head, TCS) addressing the audience of thw workshop at NIET Greater Noida

Dr. R C Tripathi (Chairman CSI Noida Chapter), Mr. Anuj Aggarwal, Mr. Tanmoy Chakraborty (VP & Global Head, TCS), HoD EC and Dr. Somesh Rajput HoD IT NIET Engg. College Greater Noida sharing the dias in the workshop at. NIET Greater Noida UP.

Dr. R C Tripathi (Chairman CSI Noida Chapter) addressing the students and answering the cyber security queries at the inaugural of CSI Students Chapter office at NIET Greater Noida UP.

पधारो
म्हारे देश जी

**COMPUTING IS NOT ABOUT COMPUTER ANYMORE.
IT IS ABOUT LIVING IN DIGITAL AGE.**

53RD ANNUAL CONVENTION CUM EXHIBITION 2018

14 - 16 DECEMBER, 2018   **Hotel Inder Residency, Udaipur**
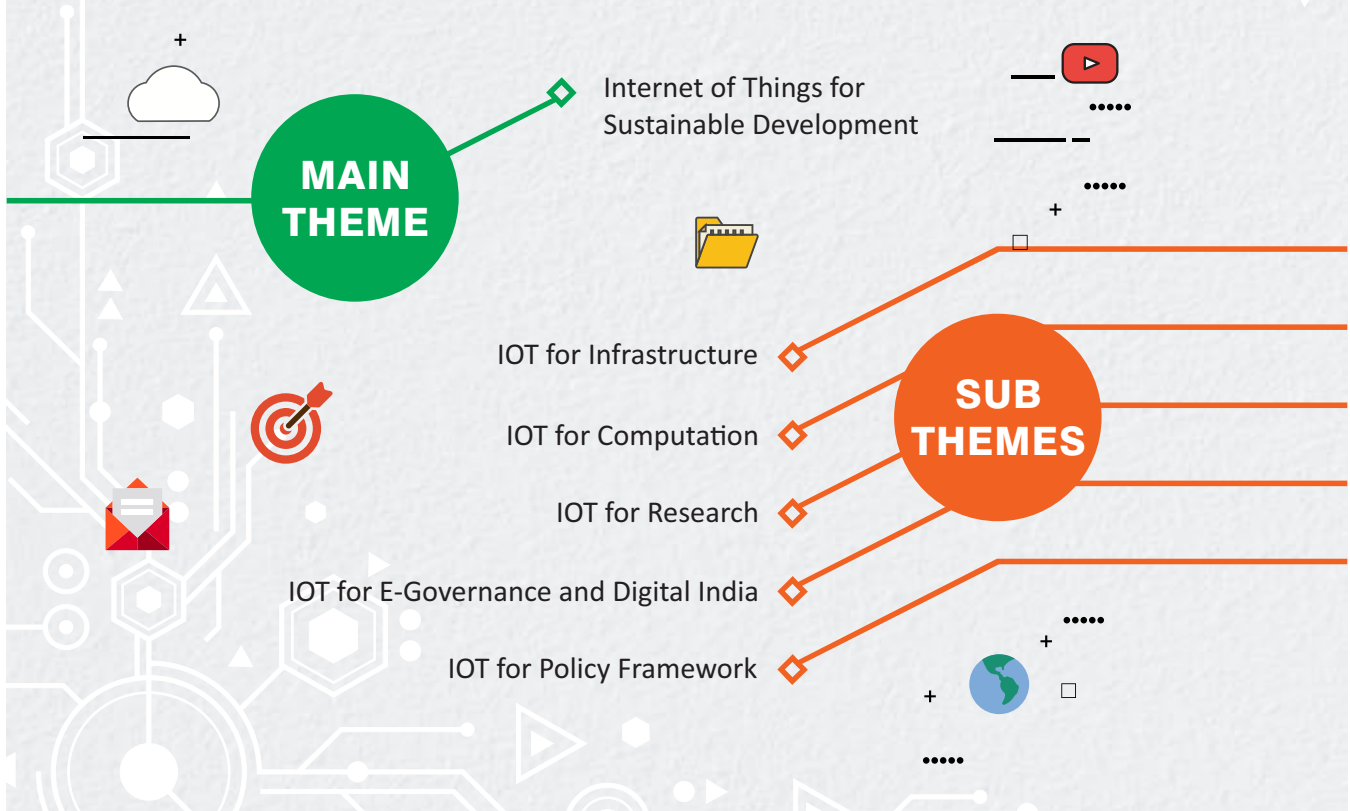
HOSTED BY   CSI Udaipur Chapter

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About

53rd Annual Convention of Computer Society of India (CSI 2018) will be held at Udaipur, India during 14th December 2018 to 16th December 2018. The CSI Annual Conventions are held in different cities across India. The CSI Annual Conventions, usually attracting 2000 plus participants have been held since 1965. Apart from technical sessions, tutorials, panel discussions, Exhibitions, various functions for awards are main features of the convention. This will be first ever CSI Annual Convention Hosted by CSI Udaipur Chapter. The theme of the CSI 2018 is "IOT for Sustainable Development". It will cover all aspects of digital significance from governance to providing basic amenities to the citizens. This convention will provide a platform to the participants to share their views and ideas on latest technological developments in an inter- and intra-disciplinary perspective.

Convention Objective and Theme

The Internet of Things (IOT) is emerging as a powerful enabler in many application domains, such as water and energy management, environmental monitoring, health, smart cities, smart industry and supply chain management. The IoT has the potential to address some of the most acute human, economic and environmental needs. It can also directly contribute to achieving the targets in the Sustainable Development Goals (SDGs). Accordingly, the emerging IoT paradigm has the potential to create an efficient, effective and secure ecosystem taking advantage of connected devices for managing the major global challenges faced by this, and future generations. Moving time is now from - IOT - IOE (Internet of Everything)

MAIN THEME — Internet of Things for Sustainable Development

SUB THEMES

- IOT for Infrastructure
- IOT for Computation
- IOT for Research
- IOT for E-Governance and Digital India
- IOT for Policy Framework

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Conference

PREAMBLE

The proposed International Thematic Conference under CSI 2018 will be held at Udaipur, India during 14 - 16 December 2018. It will target state-of-the-art as well as emerging topics pertaining to IOT and other theme areas and effective strategies for its implementation for Engineering and Managerial Applications. The objective of these parallel International thematic conferences is to provide an opportunity for the Researchers, Academicians, Industry persons and students to interact and exchange ideas, experience and expertise in the current trend and strategies for Information and Communication Technologies. Besides this, participants will also be enlightened about vast avenues, current and emerging technological developments in the field of IOT and Related themes in this era of Sustainable development and its applications, will be thoroughly explored and discussed.

OBJECTIVES

- The conference is anticipated to attract a large number of high quality submissions and stimulate the cutting-edge research discussions among many academic pioneering researchers, scientists, industrial engineers, students from all around the world and provide a forum to researcher.
- Propose new technologies, share their experiences and discuss future solutions for design infrastructure for IOT and related themes.
- Provide common platform for academic pioneering researchers, scientists, engineers and students to share their views and achievements.
- Enrich technocrats and academicians by presenting their innovative and constructive ideas.
- Focus on innovative issues at international level by bringing together the experts from different countries.

1 International Thematic Conference on Big Data Analytics and Data Mining [Data CSI 2018]

2 International Thematic Conference on Cyber Security and Smart Computing [CYBER CSI 2018]

3 International Thematic Conference on IOT and Engineering Applications [IOT CSI 2018]

4 International Thematic Conference on E-governance and Digital Initiatives [Egov CSI 2018]

Exhibition

Digital Sustainable Development Leadership Summit & Digital Bharat Exhibition 2018 Co-Located with 53rd National Convention of CSI

The Digital Sustainable Development Summit calls to action policy makers and industry leaders from around the nation and world to define modernization road maps across key sectors in light of the sustainable development goals set for today's digital society and global economy.

The Sustainable Development Leadership Summit is a unique opportunity to reach a global audience of sustainability influencers and showcase your commitment to our shared vision. Join us as we let the world know that business leaders are taking action for a more sustainable and Digital future and inspiring many others to act.

The Digital Bharat Exhibition aims to bring together stakeholders including academia, industry, government, to showcase digital connectivity enhancements and make governance Systems. The Exhibition will showcase the developments being made over the nation in different sectors after the launch of the Digital India Mission by Government of India led by the Hon'ble Prime Minister Shri Narendra Modi.

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Topics to be debated on and show cased in form of Models and Reports

- New Frontiers of Digitization (Big Data; artificial intelligence; predictive models; automatic processing, trading and control; ubiquitous connectivity)
- Digital Identity of the Consumer (Profiling audiences and users; social media; consumerization; universal customisation; analytical tools; new business models)
- Next Generation Mobile Applications (online security and authentication, mServices, mCommerce, advanced contactless solutions, developments in near field communications)
- Banking and Transactions (cashless society, finance transparency, secure identification in payments, mobile money, trust models, innovative auto ID programs for payments and entitlement)
- Government Planning (Population statistics; National registration and databases, government-issued IDs; secure identity authentication; cross-border migration)
- Citizen-centric Services (digital inclusion and secure credentialing for eGovernment, healthcare, education, labor social relief and financial inclusion programs; postal services)
- Border Control and Transportation Security (facilitating trade and travel, global migration, hub security, eGates, passenger control, baggage screening, immigration/visitor monitoring, shipping and cargo security)
- Urban Security and Efficiency (smart buildings, industrial and corporate security, stadium and infrastructure security, monitoring and controlling public areas, video surveillance, urban mobility, ticketing and fare collection)
- IOT and Asset Tracking (unique identification and traceability, object-to-object communications, industrial automation, smart supply chains, inventory management, maintenance, real-time location systems)
- Product Security and Anti-Counterfeiting (transparency and accountability, fighting illicit trade, endeavors to protect authenticity from secure documents to pharmaceuticals and luxury goods, securing ID documents)
- Advanced Technologies (cards, biometrics, data collection, RFID, RTLS, NFC)
- Hot Vertical Markets (energy & resources; travel & transport, healthcare &pharma, banking & finance, postal & supply chains, retail & distribution)
- Sustainable Development Roadmaps (Public and private sector initiatives; Strengthening regulations; Design for sustainability; The ROI of sustainable development)

MORE THAN 20+ SPEAKERS	5 THEME SESSIONS	250+ PARTICIPANTS

WHY ATTEND Join us and you will

- **Network with leaders from business, finance and government**
- **Make connections with those at the forefront of the sustainability effort**
- **Join the global effort to create an inclusive and environmentally sustainable marketplace**
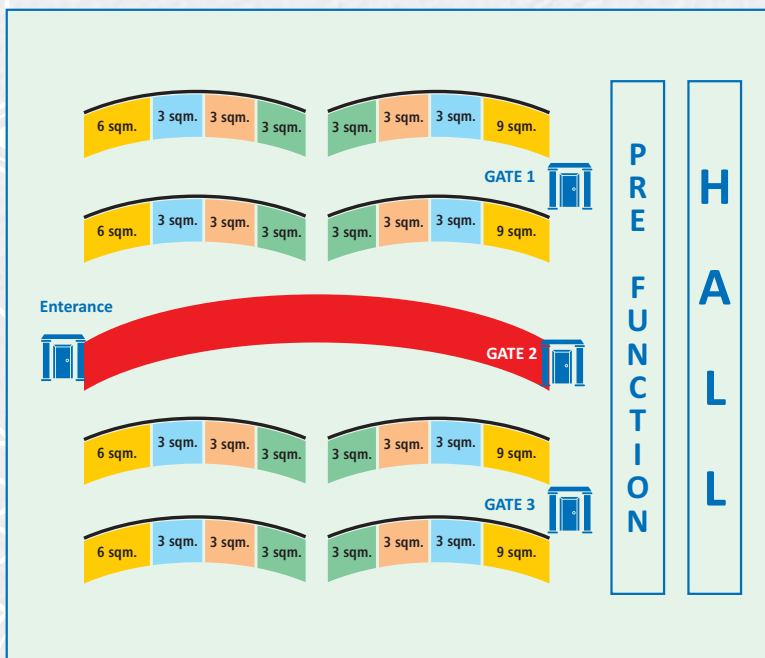- **Shape the evolving dialogue on sustainability and share ideas**

WHO SHOULD ATTEND

- **Policy makers, regulators & nodal agencies**
- **Cyber Security Companies/PSUs/BPO/ITes**
- **Telecom service providers**
- **Media and Entertainment companies**
- **Content providers**
- **Digital and Internet Service providers**
- **Passive and Active Infrastructure players being the backbone of the industry**
- **Equipment manufacturers and suppliers**
- **Energy Consultants**
- **Operation & maintenance engineers**
- **Technology suppliers & users**
- **R & D institutions**

- **Banks & financial institutions**
- **IT Security Professionals**
- **Police & Paramilitary Forces**
- **Central/State Government Officials**
- **Banks and Financial Institutions**
- **Human Resources Professionals**
- **e-Commerce & Online Trade Companies**
- **Hospitals/IT Software Companies**
- **Consultants & Experts/Railways/ Educational Institutes/Stock Exchanges & Broking**
- **Firms/Surveillance Software**
- **Machine learning**

- **AI for Everybody**
- **Future Smart Phone Applications**
- **Dueling Neural Networks**
- **Robotics**
- **Cutting-edge research**
- **Social Media and Online Privacy**
- **Image Processing and Visualization Software Learning: SPSS/MatLab/ NS3/VEKA/SAS etc...**
- **Any other**

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53RD ANNUAL CONVENTION CUM EXHIBITION 2018

Sponsorship Categories

Category (Sponsorship)	Amount	Logo on the Main Backdrop	Speaker Opportunity in the Inaugural Session of the Conference	Speaker Opportunity in the Technical Session of the Conference	Corporate Literature in DelegateKit	Logo on the delegate kit of the conference	Corporate Movie duringteabreaks	Table Space near the Registration Area of the conference	Stall	Advertisement in Knowledge Paper & Souvenir	Delegate Pass for 3 days
Platinum Partner	10,00,000	✓	✓		✓	✓	✓	✓	✓	✓	7
Diamond Partner	7,50,000	✓		✓	✓	✓	✓		✓	✓	6
Gold Partner	5,00,000	✓		✓	✓	✓			✓	✓	5
Silver Partner	3,00,000	✓		✓	✓			✓		✓	4
Delegate Kit Partner	2,00,000	✓			✓	✓		✓		✓	3
Dinner Partner	1,50,000	✓			✓					✓	2
Lunch Partner	1,00,000	✓			✓					✓	2
Hi Tea Partner	50,000	✓								✓	1

EXHIBITION OPPORTUNITIES STALL CHARGES

3 sqm.	₹ 25,000
6 sqm.	₹ 40,000
9 sqm.	₹ 65,000

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WHY EXHIBIT ?

With a footfall near to 3000 delegates the Exhibition provides an opportunity for participating companies to showcase their latest products, innovations and solutions in the exhibition. It would also provide a forum to explore mutually beneficial business opportunities and build partnerships and alliances, help make connectivity, meet industry leaders, professionals and also offer tailored and one step solution to the prospective investors.

Advertisement in the Souvenir (SMRITI)

The Souvenir will be circulated to all participants, sponsors, relevant Industries and other Central & State Government, Agencies and Ministries. More than 1000 copies will be distributed. Apart from this, a soft copy of the Souvenir will be sent to more than 2 lac members of CSI .

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6th International Conference on Innovations in Computer Science & Engineering (ICICSE-2018)

6th International Conference on Innovations in Computer Science & Engineering (ICICSE-2018) was held on 17th & 18th August at GNI campus, Ibrahimpatnam, Hyderabad in collaboration with **Computer Society of India, DRDO and Springer LNNS series publication.**

The inaugural function was presided by **Chief Guest** Lt.Col.Khairol Amali Bin Ahmed, Dean of the Engineering Faculty, Malaysia. The following were guests of honour: Dr.P.S.Grover, Campus Director, KIIT Group of Colleges. Dr. K. Suchender, Scientist 'G', Director, DSTARS, DRDL, Dr. C. Krishna Mohan, Dept. of CSE, IIT Hyderabad, Mr. K.M.Raidu, Director Informatics India Ltd., Past Chairman, CSI, Hyderabad. Others who participated in the inaugural function were Dr. Ramalinga Reddy, Principal, GNITC, Dr D D Sarma , Sr. Fellow, CSI and Life Time Achievement Awardee, CSI and Dr Richi Syal , Associate Director, GNI. The Chief Guest:Lt.Col.Khairol Amali Bin Ahmed congratulated GNI for initiating a prestigious conference. Dr H S Saini narrtated a sequence of events that culminated in organizing ICICSE-2018.

The focus of ICICSE-2018 was to provide an opportunity for all the professional and aspiring researchers, scientists, academicians and Engineers to exchange their innovative ideas and new research findings in the field of Computer Science & Engineering and Information Technology.

The statistics of paper contributions to ICICSE-2018: No.of papers received 322. Out of these, the no. of papers accepted in Springer LNNS are 71.

No. of papers accepted in JICSE journal 20, No. of papers published JIIT 9, No. of papers published in ISBN indexed proceedings 38.

The papers were reviewed through a series of three level review followed by review of Senior Academicians, Industry professionals and Professors from premier Institutions and Universities and lastly by the paramount publisher who has given a Valid ISBN no. to the proceeding for validation of the papers.

As a part of the **conference, a CURTAIN RAISER pre-conference tutorials were organized** for the benefit of the students, research scholars and faculties.

Day	Topics	Speaker
03/08/2018	Tutorial 1: Big Data Analytics and Case study	Dr. G. Narsimha, Professor in Dept of CSE, JNTUH, Sulthanpur
03/08/2018	Tutorial 2: Artificial Intelligence	Mr. A. Daranivasan,
04/08/2018	Tutorial 3: Applications of Neural Networks in Data Science & Machine Learning	Prof. G. Ranjith Kumar HOD-CSE, IIIT-Basara
04/08/2018	Tutorial 4: Network Programming	Mr. Pankaj Andure, CEO, Sunsoft Technologies, Bangalore

About 600 students, faculties, technocrats attending from not only GNI but also from various other Institutions of from both Telanga and A.P participated in these workshops. The conference had 4 technical sessions per day, one for Springer and one for special sessions.

The details are as under:

Session/Day	Chair Person
Session –I /Day-I	Dr. K M Sharavana Raju Prof. in Dept. of CSE, College of Computer Science & Information Systems, Jazan University, Jazan, Saudi Arabia.
Session –II /Day-I	Dr. Anitha Thangasamy Associate Professor, Dept of CSE, Wollega University, Nekemte, Ethiopia.
Session –I /Day-II	Dr. S. Krishna Mohan Rao Professor, Principal, GIFT, Bhubaneswar, Odessa
Session –II /Day-II	Dr. P. Natrajan Associate Professor, SCOPE, VITU, Vellore, Tamil Nadu

The Conference proceedings, Springer LNNS Souvenir ICICSE-2017, JICSE Volume 7(2), JICSE Volume 8(1), JIIT Volume 2(1), were released during the inaugural function by the various dignitaries sharing the dias.

The participants from various educational institutions such as the National Institute of Technology- Durgapur, West Bengal, National Institute of Technology Odisha, IIIT ALLAHABAD, University of Dehlhi, University of Calcutta, Pune college of Engineering etc., presented their research papers on **17th and 18th August 2018**. Research papers from USA, UK, UAE, Singapore, Oman, Pakistan and many other countries were submitted which have been published in GNI's journals, JICSE (Journal of Innovations in Computer Science & Engineering)

ICICSE-2018 was concluded by a **Valedictory Function** with distribution of best paper awards, presentation and participation certificates and vote of thanks to all the organizing committee members, CSI and DRDO, participants and management by the Associate Director, Co-Chair ICICSE-2018, Guru Nanak Institutions Technical Campus.

From L– R: Dr. Ramalinga Reddy, Mr. K.M Raidu, Dr. D. D. Sarma, Dr C Krishna Mohan, Lt.Col.Khairol Amali Bin Ahmed, Dr H.S.Saini, Dr.P.S Grover, Dr. Dr. K. Suchender, Dr. Rishi Syal.

VKSU, ARA

One Day State Level Seminar on "Internet of Things & Cyber Security" organized by Dept. of Computer Science on 15th September 2018 at VKSU, Ara.

Seminar was inaugurated and presided by Honb'le Vice Chancellor Dr. Nanad Kishore Sah of V.K.S.U, Ara as Chief Guest, Dr. A. K. Nayak vice chairman CSI, as guest of Honour.

Mr. Shailesh Shrivastava, Head Digital Research Centre & Sr. Technical Director, NIC, Bihar has presented keynote address.

Dr. A. K. Singh, Director, Dept. of Computer Science, VKSU, Ara was the convener of seminar. Mr. Shams Raza, Member National NC, CSI, and Dean of science, HOD's, Professors of various department including CCDC were among the dignitaries and speakers present on the dais.

Approx 200 students of MCA,BCA from different colleges and PG dept. VKSU, along with 30 faculty members from different colleges, VKSU, and IGNOU Computer programme attended and presented papers.

Seminar was concluded by vote of thanks by Dr. A. K. Singh.

Call for Paper for CSI Journal of Computing

(e-ISSN: 2277-7091)

Original Research Papers are invited for the CSI Journal of Computing, published on line quarterly (e-ISSN: 2277- 7091) by the Computer Society of India (CSI). The Journal of Computing, offers good visibility of online research content on computer science theory, Languages & Systems, Databases, Internet Computing, Software Engineering and Applications. The journal also covers all aspects of Computational intelligence, Communications and Analytics in computer science and engineering. Journal of Computing intended for publication of truly original papers of interest to a wide audience in Computer Science, Information Technology and boundary areas between these and other fields.

The articles must be written using APA style in two columns format. The article should be typed, double-spaced on standard-sized (8.5" x 11") with 1" margins on all sides using 12 pt. Times New Roman font and 8-12 pages in length. The standard international policy regarding similarity with existing articles will be followed prior to publication of articles. The paper is to be sent to **Prof. (Dr.) J. K. Mandal**, Editor-in-Chief, CSI Journal of Computing (**csi.journal@csi-india.org**).

Prof. A K Nayak
Publisher

REGION-I
Manav Rachna International University - Faculty of Computer Applications, Faridabad

14-9-2018 to 15-9-2018 - FDP on Machine Learning using Python

REGION-V
PBR Visvodaya Institute of Technology & Science, Kavali

11-9-2018 & 12-9-2018 – Workshop on Cyber security and Ethical Hacking by Mr. Sai Satish

REGION-V
Sasi Institute of Technology & Engineering, Tadepalligudem

27-7-2018 - Mr Babu handling workshop on Automation Testing Tools

14-9-2018 & 15-9-2018 - Workshop on Virtual Reality & Internet of Things

REGION-V
New Horizon College of Engineering, Bangalore

31-8-2018 – Dr. Prakash, Past Chairman CSI Bangalore Chapter inaugurated Student Branch

REGION-VI
Tatyasaheb Kore Institute of Engg. & Tech., Warananagar

25-8-2018 - LINUX Day Celebrations

REGION-VII
Mount Zion College of Engineering & Technology, Pudukkottai

27-7-2018 – CSI Student Branch Inauguration & IT Quiz

30-7-2018 – Web Designing Contest

REGION-VII	
Saranathan College of Engineering, Trichy	**IFET College of Engineering, Villupuram**
30-8-2018 – Mr. H R Mohan, Fellow & Past President inaugurated the CSI Student Branch & conducted ICT Quiz	18-8-2018 - Internal Symposium
Velammal Engineering College, Chennai	
24-8-2018 – Student Branch Inauguration	30-8-2018 – Coding Contest
KPR Institute of Engineering and Technology, Coimbatore	
18-8-2018 - Seminar on Technological Challenges and Future Prospects of IoT	8-9-2018 – Mr Jagadeesh briefing on SPRING framework during Seminar on Web Development: A head start with SPRING

REGION-VII

A V C College of Engineering, Mayiladuthurai

2-7-2018 to 6-7-2018 - Certificate Course on Advanced Concepts in JAVA

14-7-2018 - Guest Lecture Angular and .NET

SRM Valliammai Engineering College, Kattankulathur

20-6-2018 & 21-6-2018 - FDP on Digital Principles and System Design

25-6-2018 – Motivational Talk by Ms Vaishnavi Vignesh Raja

Rajalakshmi Engineering College, Chennai

Priyadarshini Engineering College, Vaniyambadi

19-6-2018 - WORKSHOP on Object Oriented Programming with Graphics

4-7-2018 - Workshop on Role of Big Data in Singapore Financial and Banking Sector

IFET College of Engineering, Villupuram

20-6-2018 - Workshop on Network Analysis using Python Programming

7-7-2018 – Student Branch Inauguration and Guest Lecture on Building a successful career

ICACCP' 19
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Second International Conference on Advanced Computational and Communication Paradigms

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Keynote Speakers:
- Prof. (Dr.) Hisao Ishibuchi, Southern University of Science and Technology, China
- Dr. Valentina Salapura, Thomas J. Watson IBM Research Center, USA
- Prof. (Dr.) Dipankar Dasgupta, The University of Memphis, USA
- Prof. (Dr.) Ujjwal Maulik, Jadavpur University, Kolkata, India

Invited Speakers
- Prof. (Dr.) Rajib Mall, Indian Institute of Technology, Kharagpur, India
- Prof. (Dr.) Mihaela M. Albu, Politehnica University of Bucharest, Romania
- Prof. (Dr.) Debotosh Bhattacharjee, Jadavpur University, Kolkata, India

Tutorial
- Dr. Hamada Naoki, Fujitsu Laboratories Ltd., Japan

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http://symposium.icaccpa.in/

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Call for Papers

Second International Conference on Advanced Computational and Communication Paradigms (ICACCP'19) will be held at Sikkim Manipal Institute of Technology (SMIT) during 25-28 February 2019. Organized by the Department of Computer Science and Engineering, SMIT, the conference is technically collaborated with CSI. National Head Quarter, India and co-sponsored by IEEE Kolkata Section, India, IEEE Computational Intelligence Society, Kolkata Chapter and IEEE Communication Society, Kolkata Chapter. All accepted and presented papers will be submitted to IEEE Xplore (Digital Library) for publication in the proceedings (IEEE Conference Record# 45516). It will cover areas of research and development in advanced computation, communication and cyber security. The event will feature the following Tracks:

Topics of the Conference (not limited to):

General Tracks
1. Advanced Computational Paradigms
2. Networking and Data Communications
3. Cyber Security and Data Forensics
4. Signal Processing and Communication Engineering
5. Computer Vision and Image Processing
6. Computational Intelligence
7. Adaptive Computation and Machine Learning
8. Industrial Applications
9. Electrical and Electronics Devices and Power Systems

Special Tracks
1. Computational Neuroscience, Cognition, Bio-Medical Engineering and Biotechnology
2. Human Computer Interaction, Mechatronics and Robotics
3. Next Generation Computing and Communications
4. Internet of Things (IoT) and Blockchain
5. Big-Data Analytics and Social Networking
6. Material Science and Nano Technology
7. Graph, Geometric Algorithms and Applications
8. Geophysical Remote Sensing and Geographical Information System
9. Machine Learning Paradigms for Text Analysis and Bio-Signal Processing

Paper Submission Guidelines:

Papers to be within 06 pages, Double column IEEE format must be submitted through EDAS submission portal. Paper Submission Link: https://edas.info/N25217

Each Tracks has its own submission link.

Important Dates

Submission Deadline: **25th October 2018**
Acceptance Notification: **5th December 2018**
Early Bird Registration: **15th December 2018**
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Submission: **31st December 2018**

Conference Date: 25-28 February 2019

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Paper Submission Deadline: 31st October, 2018 [No Further Extension]
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Announcement and Call for Papers

INDIACom-2019 is aimed to invite original research papers in the field of, primarily, Computer Science and Information Technology and, generally, all interdisciplinary streams of Engineering Sciences, having central focus on sustainable computing applications, which may be of use in enhancing the quality of human life and contribute effectively to realize the nations' vision of sustainable inclusive development using Computing. **INDIACom-2019** will be an amalgamation of four different Tracks organized parallel to each other, in addition to the 05th International Workshop on Information Engineering and Management (IWIEM-20197) and few theme based Special Sessions, as listed below:-

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Authors from across different parts of the world are invited to submit their papers. Authors should submit their papers online at **http://www.bvicam.ac.in/indiacom/loginReqSubmitPaper.asp**. New authors should first sign up and create an account on **http://www.bvicam.ac.in/indiacom/addMember.asp** to log in and submit paper. Only electronic submissions will be considered. Paper submission, as E-Mail attachment, will not be considered.

Important Dates

Submission of Full Length Paper	31st October, 2018	Paper Acceptance Notification	15th January, 2019
Submission of Camera Ready Copy (CRC) of the Paper	29th January, 2019	Registration Deadline (for inclusion of Paper in the Proceedings)	29th January, 2019

Accepted Papers will be published in **IEEE Xplore**, which is indexed with world's leading **Abstracting & Indexing (A&I)** databases, including **ISI, SCOPUS, DBLP, EI-Compendex, INSPEC, Google Scholar,** etc. Further details are available at **www.bvicam.ac.in/indiacom**. All correspondences, related to INDIACom-2019, must be addressed to:

Prof. M. N. Hoda

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