

# Predicting the Work Opportunities with Proposed Model : HR FUTURE of WORK 2030

Shravni Satish Kumar

Symbiosis Institute of Computer Studies and Research  
Symbiosis International (Deemed University),  
Atur Centre, Gokhale Cross Road, Model Colony,  
Pune-411016, Maharashtra State, INDIA

Anuja Bokhare

Symbiosis Institute of Computer Studies and Research  
Symbiosis International (Deemed University),  
Atur Centre, Gokhale Cross Road, Model Colony,  
Pune-411016, Maharashtra State, INDIA

Stephen Adeoye

Symbiosis Institute of Computer Studies and Research  
Symbiosis International (Deemed University),  
Atur Centre, Gokhale Cross Road, Model Colony,  
Pune-411016, Maharashtra State, INDIA

Anjali Navgire

Symbiosis Institute of Computer Studies and Research  
Symbiosis International (Deemed University),  
Atur Centre, Gokhale Cross Road, Model Colony,  
Pune-411016, Maharashtra State, INDIA

**Abstract:-** The present study deals with the futuristic Work Opportunities and Skills of 2030. The upcoming future roles that will be applicable in 2030 and the Skills in the IT and technology industry to achieve have to be researched and collected. The study reveals and enlightens on the future Opportunities and skills to understand the future needs and requirements. HR Future of Work 2030 has been developed using PLEZMO Application. In this study the attempt is to develop an app which can be used to understand the upcoming TREND analysis for the HR FIRMS, PARTNERS and FUTURE training organizations to prepare in advance to meet these futuristic demands. Post results have demonstrated that the trend matches with the research.

**Keywords:-** Future Opportunities; Skill Requirement; Trend Analysis;

## I. INTRODUCTION

PLEZMO Application is used to develop this Future of Work 2030. The journey starts with visual block programming techniques to design screens, develop source code generate graphs and finally develop web applications. PLEZMO framework utilizes underlying like Python, JavaScript and HTML as its application logic layer. This layer interacts with Cloud Data layer to store and retrieve required values.

The Web Application HR (Human Resources) Future of Work 2030 aims to start with user's current position- "What they do?" and determine their age group and probes in future choices on Roles, Skills and Professions by asking the User choices to find "What do you want to do in future?" to determine which Technologies, Skills and professions will be relevant and in 2030.

Initially, user expected to select the appropriate Roles & Skills applicable in the respective screens. User age is also collected to understand which profession he or she would be interested. The inputs are collected stored in cloud and

represented in various Graphical Formats. The Project will be developed using PLEZMO application. This is a Web Application which can be run on internet using devices like Laptop, Mobile. Once the application is developed and ".apk" , Android Package (APK) is the executable package file format used by the Android operating system, can be generated as an executable which can be deployed in different instruments like Android Mobile.

Rest of the paper is organized as follows, Section I contains the introduction, Section II highlights the motivation for the study. Section III contain the literature review about related work done in the field of HR systems. Section IV contain the methodology and architecture of the proposed model, section V describes results and discussion. Section VI concludes research work.

## II. MOTIVATION

Developing applications from scratch can be daunting and but PLEZMO is a user friendly application, enables user to develop application (small ones) and allows user to create applications with screens, accept inputs and display them. HR FUTURE of WORK 2030 will help to evaluate what are the future skills applicable in the Information and Technology Industry, its relevance in future and how HR can pro-actively plan this business need by preparing themselves in advance by knowing the choices.

This prediction approach allows the HR team to predict trend of particular technology, skill and profession that is critical for the future. Once the correct priority is determined it can be used the Academy, Training and Development programs at Learning institutes, colleges accordingly in advance to prepare for the required skills and professions ahead of the future.

### III. RELATED WORK

Prediction models can be defined in various ways, collection of data from large section of users and representation of the same in Multiple Graphical formats to understand the trends and patterns upcoming. HR Teams from Recruitment and Training, Learning and Development teams can utilize this application to predict the course that they need to focus and develop in future and train them to be employable.

[1] In today's world Competencies are designed to bring the Forward-Looking views, like Trends, Point of Views, Predictions etc. HR Competencies have also grown vastly in focusing on key areas like Skills required for the Taskforce, Soft or hard Skills and prepare well in advance for the future. Multiple competencies are emphasized in various HR roles, that are emphasizing the value of developing a new HR competencies model that is both Industry Domain and specific to HR Roles. HR team forms the key role in resourcing such varied future skills required to meet the business and industry demand. [2] Traditional myth is the workforce as they grow along with richer experience and old, they become less productive, resistance to change and less innovative. Human capital theory has brought a twist to this view, this study articulates that the ability to develop innovation-related behaviours (IRB) matures along with age and tenure, defeating the old perception that workforce performance declines over age. Evidences of the study recommends that experienced and old workers also engage in innovative activities no less than the young workforce. This is new trend whereby in Start-ups also its recommended to look at experienced resource in the pool to engage all inclusively in the engagement. Also, workers reaching their pinnacle of age and experience did not perform poorly on these studies they were also contributors. To notify, exclusion of old workers from innovation activities is not beneficial as they will lose the old workforce valuable experience and matured outlook.

[3] IoT is an advancing technology that focuses on various aspects which are specially related to Real Time Integration of Objects or Things, Parking Spaces Availability which can be from heterogeneous devices and network but finally let users know how many spaces are available by taking data and sharing it in a meaningful information way. Allowed with intelligence and Continuous availability and precise Decision Making and ultimate user experience IoT as a future technology is key for HR to build resources with these knowledge and skills to implement them.

Till now the knowledge we know about Artificial intelligence has been that it is human intelligence in a computer, but when you see it with advanced technology this meaning does not seem primitive any more. It has been successful in the industrial and commercial Methodology fields. AI is now used in manufacturing, consumer products, finance and management [4]. The purpose of ROBOTICS has led to many such automation fields in the manufacturing, factories etc. to repeat using these large Robots. This Technology has brought significant change in Costs, Efficiency and Quality behaviour. This is definitely a

technology to thrive in future [5]. The Impact of HR in the future is phenomenal from a futuristic perspective, as HR organizations can enable the technologies to be focused by their Learning Departments and Institutes and Skills required to generate the employable workforce. The projections of India are highest considering the growth potential [6].

Augmented reality (AR) enables information accessible to people with ease of technology – to combine the perception experience into reality by using the relevant digital content developed by intelligent software. Today AR is being used in many fields not only IT but real estates, education, Tourism etc. AR allows the users to produce data about the actual world for great user experience. Virtual reality (VR) is meant to provide 3-D virtual representations of objects inspired by the world. Virtual 360-degree tours are allowed unexplored sites and unique places like Museums, Parks, Archipelago etc. Metropolitan Museum of Art in New York, which gives a delightful experience of virtual tour of famous paintings [7]. Data science is the profession of the future, it clearly focusses on the Interpretation of Data to reflect the business from various perspectives and models which can business to intelligently review and make efficient business decisions which were not possible before. The primary is to connect data with process and analyze them and developing deep mines (dives of knowledge/understanding) between primitive model-based process analysis and more scientific data-driven techniques like Machine Learning and Data Mining [8]. Design thinking addresses the Problem-Solving process along with its new innovative ways. The purpose is deeper than the normal problem solving. The Primary focus is to adapt Design-Thinking approach to solve a problem find solutions and include the next step of including people and innovative ways to implement them and reach the ultimate objective.

Some of Practical Design Thinking tools addressed are:

- Ethnographic Analysis and interviewing techniques,
- Customer Journey - mapping process and
- Job-to-be-done analysis.

Design Thinking has always encouraged members to analyze the problem more elaborately and align it with the opportunity [9]. [10] Creative and Critical thinking skills are abilities have different constructs as they demand different outcome in human behaviors. The beneficial tool for development of creative and critical thinking behaviors:

Problem Based Learning - This approach creates environments which includes student-driven approach in which students learn about a subject by working in groups to solve an open-ended problem of the real world. [11] With great advantages and huge potential in 3D printing technology, great economic benefits (1/3 or original costs) and significant social benefits. This 3D technology works on the Additive Manufacturing whereby each layer of the object is created which can be sliced. This is opposite to traditional method of subtractive techniques whereby we take a big block and then cut them to bring them into shape. It's been now extensively used in in different applications like in medical, Prosthetics, architectural scale models in aerospace or biotechnology. This is a FUTURE Profession - 3D printing

expected to transform lives with myriad of opportunities in critical fields.

[12] To build human habitat in Mars, we need to build durable living structures. This is possible only with local resources which would well suit the unique conditions prevailing in Martian surface. Researchers say Plaster of Paris or water would be the most appropriate binders as it binds by freezing. Intention is to create water from ice or alternatively water condensation out of the atmosphere, which are strategies used similarly to Earth. The architecture and design of how they should be built is an interesting phenomenon which has now let humans explore the Future Profession - Construction Specialist on MARS. [13] One of important aspects Smart City proposals started with building them in efficient manner. Now the thought has moved into enabling a future networked infrastructure of the Smart City to the local people. One of the key developments is to use our Smart Mobile devices as not only Network components but also act as powerful and programmable sensors like microphone, camera, accelerometer, Analytics etc to create a network of sensor-enabled smart-phones would form networked-infrastructure of the future. This paper represents the Technology perspective of the Smart-city architecture using Smart Phone devices to expose the Open emerging research challenges.

[14] While Autonomous Car Designers have already created prototypes and many Car Manufacturers have made this as their priority. These Car Designers are now delving into a deeper analysis on the implementation aspects - what's it impacts on society - with social and economic implications. More so, additional stakeholders are involved now like lawmakers, governments, consumers etc. Multifaceted AI - Sensing, detection and perception and actuation techniques would be required to make it a smooth drive and clear policy guidelines in case of mishap. [15] Data scientists, provide a deeper understanding of the conventional data to allow their business to make better decisions. Data scientist make discoveries while analysing and breaking the data models into logical intelligent units. Their expertise is to explore the various Data Models in the world around them. To convert just the data into a legible data model and created data models to present a business view of data to make efficient business decisions. Data Scientists are enabling decision makers to fundamentally move from adhoc models to more scientific model which comprises of data models and analysis techniques. [16] In 2030, there are still three main activity areas that a Chief Human Resource Officer must take care of:

- People and Talent Management.
- Organization Design & Change.
- Management and Leadership.

Which demonstrates that HR Strategic functions need to focus on futuristic profession and skills.

It is being observed, the HR Model to be specific and general but this is merely a concept and no such model actually exists. Current research does help to identify the future technologies, Skills and professions relevant which has been utilized as parameters in the relevant screens. The application created will help the HR and Learning and Development Departments to plan in advance on the technologies to be trained and Skills to be adopted to become employable. Currently there is no such application which can be utilized as a standard for reference.

#### IV. METHODOLOGY

This section describes an approach to solve the problem of HR Future of work 2030.

One of the current problems in the Information and technology Industry is that we are unable to get people with the trending skills in the market. The situation leads to shortage of such skilled personnel in the latest technology fields due to which such roles are being offered elsewhere in the globe where you aware the growth of 3D technologies, Robotics across the world and we are still growing in lower pace.

The purpose of our project HR – FUTURE of WORK 2030 is to address the Strategic intent of the business requirements 3-5 years to view the technological areas and skills that will give “First Mover Advantage” for the HR Management and Learning and Development teams to develop these niche skills in advance to address the shortage of skilled resources and making the right resource and skills available in the market. Most importantly this will also lead the Institutions and Colleges to modify their syllabus to the trending futuristic outlook and make the college students future ready and them employment ready.

In order to address this problem, current study is conducted about the Domains, Technologies and futuristic skills that people should be aware and upgrade their knowledge to become ready for the future.

In order to resolve this problem, the proposed Product Overview (Web Application HR Future of Work 2030) is detailed below:

##### **i. Product Overview:**

WEB APPLICATION has been developed using PLEZMO application.

##### *A. Web Application Architecture*

Fig 1 describe the web architecture of proposed application

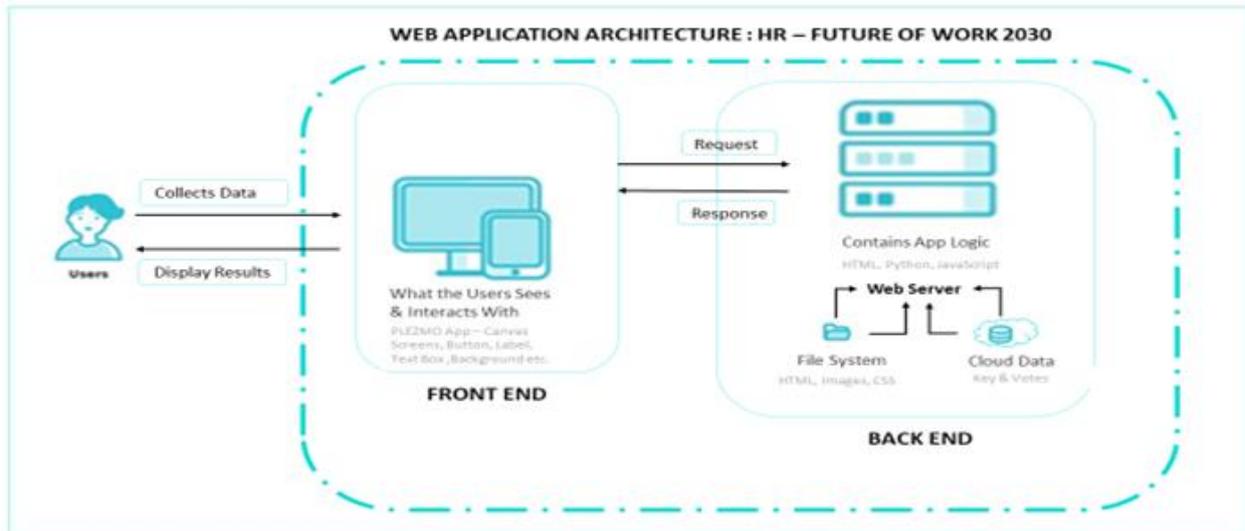


Fig. 1. Web Application Architecture.

**B. Application Process Flow**

The web application process flow has been depicted in the steps in order to understand the execution of the workflow.

- This application will accept User inputs via the GUI
- On Start the User, selects the Current Profession roles (Six Roles) as to explain “What do you do today?”
- Age of the User is accepted, which is further classified into 4 Age bands in the source code - < 20 years, 21 – 35 Years, 36 – 55 Years, > 55 years.
- User selects the 3 futuristic areas as follows -
- Technologies - Seven Future Technologies have been identified based on the research which will be applicable in 3-5 years. User selects the options respectively.
- Skills - Seven Future Skills have been identified based on the research which will be applicable in 3-5 years. User selects the options respectively.
- Professions - Four Future Professions have been identified based on the research which will be applicable in 3-5 years. User selects the options respectively.

- Once the user has submitted the options, using the program logic application evaluate the various work force options-roles and the skills selected required for the future and the data accepted by the user. The data collected will be stored as Cloud Data via the internet.
- Once the Graph option is selected this cloud data will be retrieved based on the user selections done earlier for the respective Skills etc. they had selected.
- The Cloud Data stores all the Votes for respective Roles, Professions Current and Future and Skills and is retrieved as Keys to represent the various Graphs.

Data Integrity is maintained to measure the Data Entered by the User and stored in Cloud Data and same is resulted in the Graph. (Same Values as Data Verification).

The underlying PLEZMO application generates code in Python, HTML and CSS. Fig 2 describes the flow of the application process.

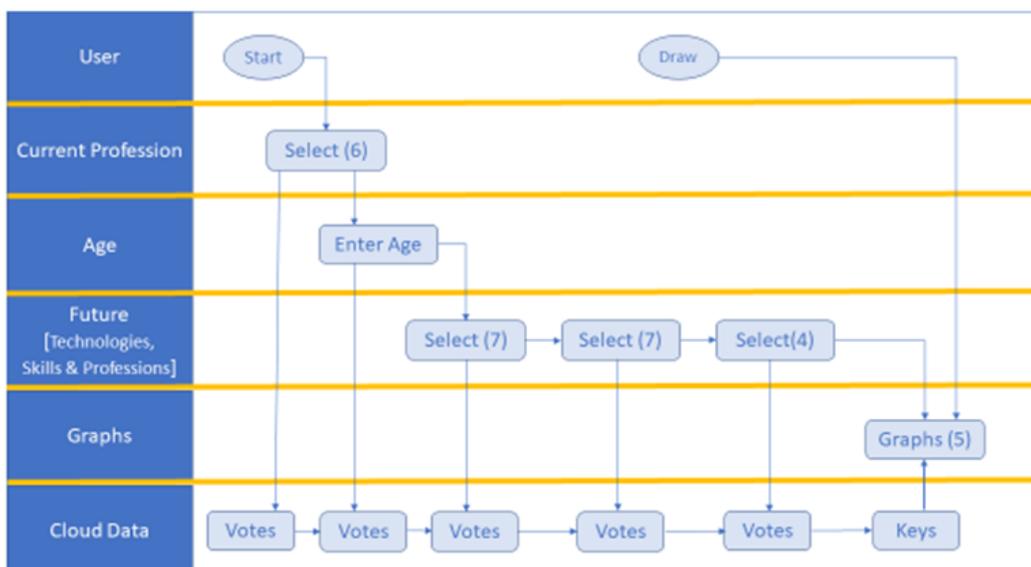


Fig. 2. Process Workflow of Application

## V. RESULTS AND INTERRETATIONS

The application results are depicted in the below table. The Baseline Data Refers to values in the Black Box testing, System Level Testing, Integration System Testing.

### Process:

- The “.apk” file was shared with students and colleagues to download “.apk” file and run in their Android Phones.
- 12 Samples results are analysed
- The Data distributed of the (controlled samples) 12 are shown below in various Skills, Professions and technologies.

Table1 shows results from generated through application. The overall results from Table 1 shows which are the category post analysis the Best Skills, Professions and Technologies and the Current Profession who took this Survey and the Age Group.

- Students have been the Highest Survey Samples with Maximum Votes of 7 shown in Fig. 3.
- Age group 21-35 with Maximum Votes of 5 Fig. 4.
- Internet of Things is the future technology winner with Maximum Votes of 5 Fig. 5.
- Smart city architect is the future professions winner with Maximum Votes of 4 Fig. 6.
- Design thinking is the future skills winner with Maximum Votes of 5 Fig. 7.

Table 1. Application Results.

S.No	Module	Key	24 Apr 2021 Votes	Votes Casted
1	Current Professions	Student	20	7
2		Job	22	1
3		Software engineer	2	1
4		Home maker	14	1
5		Doctor_teacher_lawyer-Archtect	13	1
6		Business	13	1
7	Age	Age band 1 (20<)	14	4
8		Age band 2 (21-35)	26	4
9		Age band 3 (36-55)	17	2
10		Age band 4 (>55)	9	2
11	Future technologies	AR_VR	8	1
12		Robotics	7	1
13		3D_printing	9	2
14		IOT	12	5
15		AI	11	0
16		Data science	2	1
17		All of the Above	6	2
18	Future Professions	Smart city architect	16	3
19		Data scientist	14	3
20		Construction Specialist on Mars	8	2
21		Automated Car Designer	12	3
22		All of the Above	6	1
23	Future Skills	Design thinking	10	5
24		Critical Thinking	6	3
25		Coding	5	2
26		Communication skills	5	0
27		Creativity	4	2
28		Problem solving	2	0
29		None of the Above	7	0

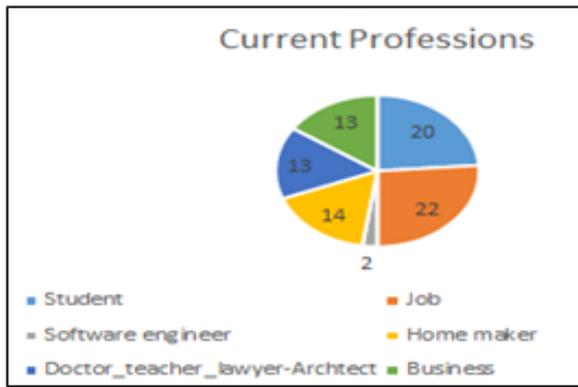


Fig. 3. Students have been the Highest Survey Samples with Maximum Votes of 7.

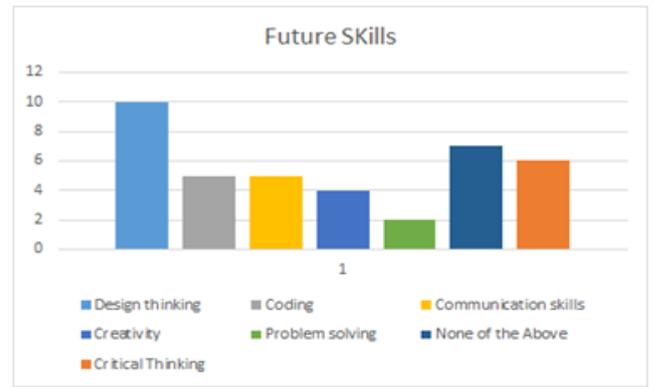


Fig 7. Design thinking is the future skills winner with Maximum Votes of 5.

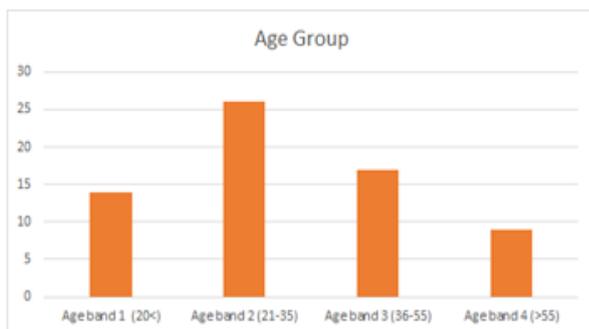


Fig. 4. Age group 21-35 with Maximum Votes of 5.

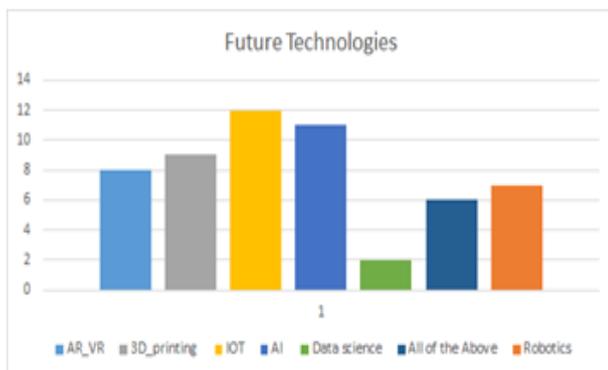


Fig. 5. Internet of Things is the future technology winner with Maximum Votes of 5.

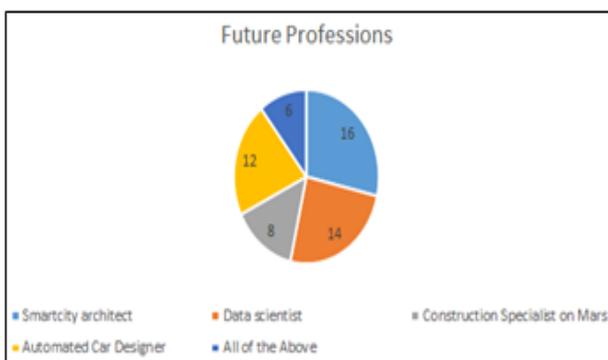


Fig 6. Smart city architect is the future professions winner with Maximum Votes of 4.

## VI. CONCLUSION

The purpose of this Web Application software is to allow HR Firms, Training Partners and Talent Firms to predict the Professions and skills that will become applicable in Future 2030. All the data inputs are stored in Cloud Data and retrieved for the Graphical Demonstration using Pie, Bar, Doughnut graph styles.

The Future Professions, Skills and Technologies were researched during the study. The Roles of future have been categorized and based in this application would analyse if the results are trending towards the future skills and how respondents have been in consensus with the approach or not. From the results samples analysis, the following TRENDS are determined:

1. Most of the samples are **Students**, Growing Section of Society.
2. **Internet of Things** is One of the MOST PREFERRED Future Technology.
3. **Smart City Architects** is one of the Most Sorted Professions.
4. From Skills perspective, **Design Thinking** has scored the highest as most preferred skills.

The results clearly demonstrate that the FUTURE SKILLS, TECHNOLOGIES and PROFESSIONS are highly relevant as future prospects and HR team must progress with their strategy to implement plans and next step actions on how to:

- Source these FUTURE Training Subjects from Relevant Institutes.
- Training Institutes that specialize in Design Thinking, IoT or Smart City Architects.
- Align Organization Business Objectives and HR Competency Plan.
- Would allow HR to draft plan for the Organization on these future demand for the business line accordingly.

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