

# Researching the ‘Future of Work’ in India

## Report on Methods Workshop

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Authored by **Aayush Rathi** and **Natallia Khaniejo**

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*On March 28, 2018, the Centre for Internet and Society (CIS) in collaboration with IIT Delhi organised a workshop (“Workshop”) to discuss the methodological approach for the Future of Work project being undertaken by CIS. The Workshop took place on March 28, 2018 at the Department of Management Studies, IIT Delhi. Participants at the Workshop represented a range of stakeholders involved in the conversation around the future of work—trade unions, academia, think tanks and the industry.*

## Pre-lunch session

### Setting out the context

Aayush Rathi from CIS laid out the roadmap for the project and culled out the focus areas and the scope of the research. It was pointed out that the scope of the project was to specifically look at the impact on jobs as opposed to a broader question about the impact of the nature of work itself and how qualitative as well as quantitative methodologies were intended to be utilised for the research. Ideas on the refinement of existing methodological approaches as well as on alternate approaches were emphasised as the primary intention behind the organisation of the Workshop.

Subsequently, Amber Sinha from CIS set out the narrative for the Workshop by laying out the context and the conversation around Industry 4.0. The conception of Industry 4.0, for the purposes of the research, was laid out as being the technical integration of cyber physical systems into production and logistics and the use of the ‘Internet of Things’ and services in industrial processes. Further, an overview of some of the narratives and literature pertaining to Industry 4.0 was brought out with a more detailed discussion of the oft-cited Frey-Osborne methodology. The methodology adopts an occupation-based approach to arrive at estimates of job displacement owing to automation brought about by Industry 4.0. It then classifies occupations in the United States of America with respect to the risk of being susceptible to automation. Amber further pointed out critiques of the Frey-Osborne methodology by citing an OECD paper that instead suggests conducting an analysis of the task content of individual jobs to forecast impact on labour more accurately. The criticism of the Frey-Osborne methodology is that it might have led to an overestimation of job automatibility, as occupations labelled as high-risk occupations often still contain a substantial share of tasks that are hard to automate.

### Skilling

The discussion commenced with a focus on the importance of and roadblocks to skilling and reskilling measures as an antidote to technological unemployment. One participant highlighted how ‘job loss’ due to advancements in technology is a misnomer and cited historical anecdotes to drive home the point. Further, onus was placed on the reform of processes within academic institutions to make students industry-ready.

A view was raised about the discord between ideating about skilling measures in theory and their practical implementation. It was highlighted that an important first

step towards approaching skilling was to standardise sector-specific skill sets. The role of Sector Skill Councils and the National Productivity Council in achieving such standardisation in addition to other measures pertaining to manpower adaptation and rationalisation vis-a-vis technology was brought to the fore. However, in terms of the onus of skilling being placed on the government or the academia or the industry, there were several contrasting viewpoints. While one participant was of the opinion that the education system is not effective in satiating the labour market skill requirements and it is market forces that best optimise skilling processes, another view was that the industry can only provide last-mile connectivity as there is only an extremely short-term commitment they can make with respect to educating workers. One participant suggested a middle path to ascribing onus for skilling programmes—low-skill training can be the domain of the government while the industry can take care of the high-skill training initiatives.

Additionally, concerns were raised about the efficacy of education dispensed in Industrial Training Institutes (ITIs). The primary concern raised by a participant was that the training pedagogy employed by ITIs is shallow in that it imbibes in potential workers the ability to perform certain tasks without really addressing the theoretical underpinnings, thus making them highly susceptible to the the vagaries of technological change.

## **Key Learnings**

The discussion helped in bringing forth narratives around the skilling challenge. While there was agreement about the criticality of skilling initiatives, there were various approaches suggested in achieving the intended objectives. Indeed, a crucial point was that there exists a crippling discord between the theoretical conception of these initiatives and their on-ground implementation. While the discord may be impossible to bridge entirely, initiatives need to be conceptualised whilst sufficiently allowing for these gaps.

## **Nature of workforce**

At various points during the session, participants flagged certain points about the dynamics of India's labour force in the context of focus groups for the purposes of the research. There were calls from various quarters with respect to looking at the unorganised sector which houses a disproportionately large section of India's workforce. It may be that the impact on the unorganised labour sector would not be akin to that anticipated on the organised sector. The lacunae in literature on the impact of technological unemployment on the unorganised sector was highlighted by several participants. However, what was also pointed out was that the absence of primary data on the unorganised sector may prove to be a serious impediment in achieving such a research goal.

Additionally, the prevalence of own-account workers in the Indian labour landscape was also acknowledged. However, an important distinction was carved out in regard to the nature of own-account workers in the Indian context: own-account workers in India are primarily not employment generators. It was pointed out that the National Sample

Survey Office (NSSO) survey of unincorporated non-agricultural enterprises could be helpful, albeit in a limited fashion. The question of using wage as an indicator also was brought up and the utility of using data from the Annual Survey of Industries (ASI) for making assessments pointed at wage was stated.

## **Key Learnings**

The most telling idea that was expressed was about the lack of literature with regards to the unorganised sector of the Indian workforce and potential impact of automation on the sector. While such an exercise would be interesting to carry out, given the short time frame of the project coupled with the lack of data on the unorganised sector, it would not be possible for CIS to complete the exercise as a part of this project.

Also, it was pointed out how contextual narratives are important to understand data in respect of certain characteristics of the workforce. A case in point was the uniqueness of own-account workers in India, who do not conform to a traditional understanding of own-account workers as those being employment generators.

## **Task Function Data**

Building from the emphasis CIS laid on its intent to look at task function (as opposed to entire occupation) for the purposes of its research, conversation veered towards how a methodology could be developed to achieve such a research goal. The most glaring impediment with respect to capturing task function was the lack of data on task functions that the Indian workforce was engaged in. A possible route suggested was to use surveys to get estimates of average task functions, their composition and the related employment vectors. Detailed discussion on alternatives such as proxy datasets and other methodological approaches were brought forth in the second session of the Workshop.

One of the participants brought out how automation, in the manufacturing sector, is primarily consigned to a handful of tasks. It was suggested that a cluster-level analysis be undertaken to see how the tasks within the industries focussed upon are organised to be able to then understand how it may be reorganised. This would add the component of logistics related tasks to the assessment as well. It was opined that to understand the granular component of tasks, it is imperative to understand the industry conception of it. For instance, to understand the nature of welding, it is important to understand how the task of welding is organised in the industry (within cluster or outside of it). A great lack of knowledge delving into such granular aspects of the tasks was underlined and was portrayed at a possible starting point into the kind of inquiry CIS was looking at undertaking. In line with the above suggestion, it was also offered that looking at the tasks discretely itself might not suffice either, instead, there is a need to look at the growing need for high-tolerance systems integration processes.

## **Key Learnings**

The importance of task function data cannot be understated in arriving at more plausible projections about the impact of automation of. However, it also represents a significant data gap in the Indian context as well as in other developing economies.

Developing a robust methodology to fill the quantitative gap to a certain extent with a focus on utilising qualitative methods to develop such a methodology would be crucial to the project. A useful suggestion was to look at cluster-level task organisation to be able to map out how qualitative as well as quantitative approaches could be developed.

## **Additional perspectives**

Several participants placed emphasis on how crucial it was to look at technological unemployment from the perspective of gender as well as with a focus on marginalised communities. It was noted that female employment is restricted to certain occupations and even within those occupations, restricted to certain tasks. The impact of Industry 4.0 will need to be looked at the change in such classifications that might be brought about. Further, it was pointed out that the IT sector, which is one of the sectors CIS is focussing on, being a knowledge based industry, in the Indian context is further influenced by factors such as religion, caste and class. These variables would be necessary to be factored in in order to develop a contextual framework for the purposes of the research.

### **Key Learnings**

Placing emphasis on incorporating gender perspectives and taking into account marginalised communities was a very pertinent suggestion made by the participants. Incorporating these aspects in the literature survey and subsequently, the data collection exercise would be done by CIS while taking the project forward.

## **Culling out points from the roadmap**

The discussion also brought about concerns regarding the sectoral mapping of the research being undertaken. Participants raised questions regarding the sectors chosen and attempted to discuss alternatives on the basis of labour intensive industries as well as capital intensive industries. Some participants recommended that industries like textiles be considered in place of one of the two chosen sectors but a respondent mentioned that the scope of automation within the Indian garment sector had reached its zenith for the present and the further automation processes that were taking place were dispersed across geographical zones like Cambodia, Bangladesh, and Vietnam. A need to better articulate the methodology behind the sector-selection was also reiterated. Participants also brought up the requirement to clearly demarcate between the automotive and the automobile sectors as well as between IT and IT-es sectors and even within those the sub-sectors that will be looked at.

### **Key Learnings**

There is a need to better outline the approach to narrowing down the sectoral choices CIS has made for its analysis. Moreover, better delineation within the sector itself would be required to be able to better focus the intended analysis.

## Post-lunch session

The second session called ‘What is the State of Data’ attempted to focus on the methodological issues involved in streamlining and mapping the research that needs to be conducted. The aim was to receive feedback on the methodological roadmap proposed as well as the specific mode of research that would need to be undertaken—qualitative/quantitative. It was also hoped that the second session would generate specific suggestions on how the scope could be narrowed and limited in a meaningful way. The first session drew attention to several key themes such as the issues of skilling/re-skilling, the dynamics of the Indian labourforce and the organisation of tasks. The second session continued with those deliberations with the aim of delineating specific learnings/changes that might need to be incorporated into the research. Some key concerns that emerged concerned the scope of the project, the outputs that would be created, the methods that would be used for data generation, time constraints, the selection of data sources to be consulted etc. Questions regarding the datasets that would need to be generated and how that information would have to be gathered were also raised. This section of the report will attempt to examine and collate the themes discussed and the takeaways gathered.

### Method/Scope/Outputs

There were several concerns that emerged during the discussion regarding the scope of the project. Participants stated that the scope of the project might be too large and that it would need to be adapted/defined if the project was to be completed within the timeline. Another suggestion that emerged was that if the time frame was limited, it would be useful to place an upper limit on the number of companies that could be incorporated into the initial survey. The reason underlying the suggestion was that if the data sources were not limited in a methodical fashion, it would become difficult to analyze it in a meaningful manner and the study would boil down to several systems of data without the requisite insights.

One participant raised a question regarding the outputs that the research aspired to produce, the stakeholders it was aimed towards and the intended result of the report. They were informed that the research currently aimed to produce two case studies, one policy agenda, and most importantly a methodological document on the learnings achieved in an emerging economy like India. It was also suggested that the need for research around this space was tied to concerns like unavailability of data, disorganized datasets and other such challenges. It was further pointed out that while global conversations around Industry 4.0 were already taking place, it was necessary to understand the specific implications that these changes would bring about within the Indian context and the divergent methodologies that would need to be created to analyze the same. The discussion also brought out the fact that while fear around automation and job loss was widespread, it was rarely about specific aspects or concerns that needed to be mitigated. It was recommended that the Future of Work

project identify and examine those blind spots in order to point out specific instances of concern with regard to Industry 4.0 and how those challenges could be addressed.

## **Key Learnings**

It was recommended that the scope of the research be defined in a more stratified way in order to maximize the impact of the intended outputs. It was also recommended that the fieldwork be limited on the basis of specific questions/aspects that were being examined. The participants also suggested undertaking an examination of the interlinkages within the process chain that Industry 4.0 brought about and how those could be mitigated.

## **Industry 4.0 and the labour market**

Participants from the labour sector pointed out that it would be useful to get concrete information regarding changes taking place on the ground and how those could be negotiated. The discussion also brought out the need for a clear vertical as well as horizontal mapping of the landscape in order to determine the shifting paradigms and varying power balances that Industry 4.0 would bring about. Given the spread of Industry 4.0, participants discussed the need to assess the ways in which automation was creating certain problematic relations that were essentially alienating the workforce from their social lives. An example cited by a participant was the Skill India Mission, that was building a floating labour force which could be mobilized on demand by the Industrial belt. While such processes were aimed at increasing efficiency and reducing expenses within the sector, they came at the cost of social stability as the workers were effectively denied any kind of job security or permanent employment.

Linked to this concept of the worker's life was the question of the worker's productivity cycle. The first session brought about the need for re-skilling in the economy particularly in terms of building a workforce that could adapt to the changes taking place in a constructive and efficient manner. The second session examined the ground realities surrounding such re-skilling initiatives and the difficulties involved in ensuring the same took place in a seamless manner. A participant brought out this challenge by referencing how Industry 4.0 was also necessarily employing non-standard methods of employment which effectively left workers in the lurch. This led to a discussion regarding how broader questions of skill and adaptability aside, there were various contextual challenges that would need to be mitigated at different levels of the process chain. Various workers across the vertical hierarchical chain would have to adapt to Industry 4.0 in different ways if they were to retain jobs.

Participants also alluded to the trend of migrant workers that was emerging in the aftermath of non-traditional employment models. The discussion brought out the fact that not a lot of research was being conducted on the issue of migrant workers and the specific challenges they went through. Furthermore, it was also suggested that the lack of a social tethering mechanism harboured the dangers of creating a migrant workforce that subsisted by working for minimal sustenance. On the basis of these discussions, it was recommended that the Future of Work project attempt to map the labour landscape around specific vectors. Some of the questions that were

recommended were—which set of workers would be impacted, what the intensity and nature of the impact would be, what the professional and social quality of that impact would be and how these changes would affect future workers. This would help determine the corrective measures that would need to be undertaken to control the harmful effects of Industry 4.0.

## **Key Learnings**

The discussion led to the emergence of several salient points of research. Given that Industry 4.0 would affect different sectors in different ways, it was recommended that the research being conducted be segmented accordingly for efficiency. Several participants pointed to the fact that understanding how labour relations would be determined in the new landscape would be dependent on the vertical as well as horizontal shifts taking place in the process cycle. Key concerns that emerged were: the question of migrant workers and the creation of a floating labour force, the imminent need for specific data and a thorough mapping of the chosen sectors.

## **Cycles of employment and social responsibility**

The second session also focused on the social aspect of the production cycle and how workers were often left dispossessed in the absence of a structured and secure work environment. A participant pointed out that the rise of the ‘gig economy’ has effectively led to firm flexibility and job multiplicity. While these aspects of the shifting work landscape might improve efficiency and lead to cost benefits, social protection does not seem to fit into the spectrum at all. Participants debated the role of labour organizations and governments in providing social support mechanisms and attempted to understand how this challenge could be negotiated. One suggestion that emerged was that social protection firms could step in to reduce the burden on the unprotected worker. In this regard, it was recommended that the study (and the findings it generated) would help determine exactly what points in the labour cycle were at risk, and how they could be mitigated through social protection schemes.

Another major theme that emerged during the discussion was the question of the productivity cycle. A participant pointed out that the worker’s life cycle—in terms of employability—was undergoing a drastic change due to the shifting industry landscape. The discussion brought out how the productivity cycle was reducing significantly and how the amount of time that the industry was willing to retain its workforce (before scouting for more malleable younger entrants) was also reducing substantially. One of the participants also alluded to the fact that currently industries tend to retain their workers for a mere 10-15 years as opposed to the 20-40 year work cycles that used to exist. Another participant further elaborated on the point by suggesting that in some cases the life cycle of the average employee in the IT sector had reduced to 7 years. While attempting to understand the causes underlying the reduction of the productivity cycle, suggestions emerged regarding the flexibility of employees in adapting to new technologies. This was one of the key reasons identified for the IT sector in particular as the rapid transformation of the tools of the trade demanded from the worker an acute ability to adapt to constantly adapt to newer technologies/surroundings. While debating this necessary skill flexibility, participants



pointed out that it was an unfair ask as it involved not just the assimilation of new skills but also the unlearning of old ones.

While attempting to negotiate the instability of the industry, one of the participants also recommended that in the absence of enforceable mechanisms ensuring employer responsibility, governments and social protection organizations would need to focus on how the productive phase of the worker could be used to create investments for the unproductive cycles. While it was pointed out that the assumption that workers did not contribute to social existence in unproductive cycles was a flawed paradigm, negotiating the space of industrialization and market failure was nonetheless becoming extremely essential. Participants further alluded to the fact that adaptability was a two way system, and aside from the workers, the industry/society would also have to incorporate means to reduce worker insecurities into their guidelines. An efficient workforce was not necessarily productive and vice versa. Furthermore, participants also pointed out that these problems are not unique to the current situation. The replacement of human labour and the failure of markets has been an ongoing process for a while now. Admittedly, the scale has changed drastically, it is nonetheless necessary to determine mechanisms of social adaptability and negotiate responses to the emergent crisis.

## **Key Learnings**

The discussion highlighted the changing parameters of the labour landscape in terms of productivity cycles and social rehabilitation. Participants recommended that the project attempt to identify and define specific points of contention/contrast between productive and social life cycles. Such points of vulnerability could then be taken to government and labour organizations who could step in, mitigate the gap, and protect the worker in a systematic manner.

## **Methodological input**

After an analysis of these broad themes, the participants were requested for specific methodological inputs. The discussion brought out several critical inputs. Firstly, it was recommended that a certain amount of time be put into devising a clear strategy and roadmap regarding how the research should be shaped. The first session witnessed the discussion of key methods like cluster mapping and vertical/horizontal chain analysis that could be assimilated into the current method. The second session provided further inputs regarding the stakeholders to be approached, the methods to be used and the ways in which the data could be consolidated in meaningful ways. One of the key recommendations was to attempt a pilot fieldwork exercise in order to assess what data could be gathered and by what means before the next workshop.

In terms of the methodological approach, a mixed methods model was recommended with the intent of gathering statistical as well as analytical data that would help map the sector in an organized manner and elucidate key points of change. The recommendations received regarding qualitative data mapping included questions such as—how the organisation of production is changing, what are key impact points, and what are the shifting trends/paradigms. Participants suggested that such a

preliminary analysis would help map the organizational space in a more meaningful manner. It was further noted that a pilot exercise would help provide initial data regarding the correlation between the changes being noted on the ground and how they were related to the restructuring of work taking place.

One key process recommended was an examination of vertical clusters as well as horizontal integration which hasn't been mapped properly thus far. Participants pointed out that while there is horizontal integration taking place globally, the specifics are unknown and understanding that in a more detailed manner is essential. Participants further recommended looking at social costs of market progress. A participant suggested delineating specific questions that could be asked in terms of how many times workers might have changed their jobs, whether or not they were a part of trade unions and what were their initial and subsequent expectations from the job.

## **Key Learnings**

This section of the Workshop focused on specific inputs and outputs that could be incorporated into the project and delivered in a timely fashion. Given the broad scope and vast expanse of the industries chosen, it was recommended that the research be limited in terms of the sources to be approached and the datasets that would be collected. Participants recommended that the project attempt to map out an organized methodology that integrated qualitative and quantitative methods in order to elucidate learnings regarding the worker's social and productive life. Another key suggestion that emerged was the undertaking of a pilot fieldwork attempt before the next workshop in order to understand the viability of the research being undertaken and the accessibility of the sources being approached.

## **Focal points of research**

In order to proceed with data collection in a structured manner, participants recommended focused points of the production chain that would need to be approached. There were several recommendations regarding the stakeholders that ought to be considered for data collection. Some participants recommended talking to at least three key hierarchical points in the production chain namely—IT heads, Key Contractors, and Logistics heads. The participants recommended that data collected from these three stakeholders would enable researchers to understand how systems integration was currently taking place, and what the industry was attempting to achieve. Another participant proposed that it would also be helpful to expand the vectors of the sections being interviewed for a more holistic mapping.

A major point of discussion that emerged was that different stakeholders at different levels of the employment ladder would have different views regarding the changes that were taking place. One participant recommended the segregation of the data sources into people with long term data (future trends) and people with short term data (immediate employment statistics). They further suggested that the IT sector, specifically, was divided into people executing projects and others preparing the company for future changes by scanning the industry at a global level. The research

inputs, if calibrated carefully, would be able to provide insights into the current environments as well as future trends. The participant stated that people at the executive level like CTOs, managers, and innovation leaders would all be able to provide dedicated long term data regarding what future trends could be expected. While people at the HR and recruitment level would be able to provide insights into the current labour environment and the skills necessary to ensure employability.

The participant elaborated on this further by recommending specific interviews for specific inputs. They suggested that interviewing Talent Acquisition heads would provide insights into understanding what current hiring requirements were and what challenges those would entail for the labour force. At the next step, HR, Resource Management, and General Management would all be able to provide insights into the process of hiring/recruitment itself and any emergent trends that might exist. The next step in the employment ladder, the training/learning department would need to be approached as they would be able to shed light on the process of skilling, and reskilling hired/potential employees. This level would be privy to both current as well as future requirements and might be able to evaluate current and future trends that could be expected. The final step that the participant recommended, was to interview Project Managers who would be in a unique position to explain the distribution of the workforce according the requirements of specific projects as well as the trends that could be forecasted on the basis of current projects.

## **Key Learnings**

The discussion brought out the paucity of time and resources and the necessity of conducting the research in a stratified manner. Participants provided various inputs regarding the broad hierarchies that would need to be kept in mind in order to gain a holistic picture of the vertical employment chain in the sector. Participants further recommended the need to map specific data sources to specific inputs in order to gain an understanding of both current and future trends.

## **Conclusion**

The overall aim of the Future of Work project is to map the chosen sectors, trace the ways in which they are affected by Industry 4.0 and initiate conversation around the gaps in labour policy, labour laws, the kind of changes which will be coming etc. The architecture of the Apprentices Act, 1961 and the overhauling of labour laws being undertaken will facilitate skilled but unprotected work. Given the lack of research being undertaken in this sector it has become essential to map the terrain in a structured manner and develop a methodological apparatus that can be used in the Indian context. It has also become necessary to examine how these shifting paradigms and the emergence of Industry 4.0 will interact with processes such as Skill India, Make in India etc. and what the social and economic impact of such interactions would be.