WORKING PAPER NO: 635

Critical Realism and Mobility Research: A Perspective on Social Mobility and the Indian Information Technology (IT) Sector

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Year of Publication – February 2021

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Abstract:

Giving an overview of the extant research on social mobility, we claim that it is mired in the same "Individualism-Collectivism" dichotomy that plagues Social Sciences tackling the "Structure-Agency" conundrum. Critical Realism (CR) offers an archetype that allows us to go beyond this fault line and analyze social mobility as a transformational endeavor. We discuss this in the context of studying social mobility in the new Information Technology (IT) sector of India, where CR provides us with a solid bulwark for our ethnographies in two organizations in this sector. We show that mobility is enhanced in an arena of multiple and diverse structures when agents are able to go beyond the apparent (**empirical**) circumstances thrown up by structures in a flux and discern the **actual** forces at work. The intransient **real** encompassing these multiple structural possibilities offers them the flexibility to carve such a path.

Keywords: Social Mobility, Information-Technology, Ethnography, India

1. Introduction

Gatsby believed in the green light, the orgastic future that year by year recedes before us. It eluded us then, but that's no matter—tomorrow we will run faster, stretch out our arms farther... ... And then one fine morning—So we beat on, boats against the current, borne back ceaselessly into the past.

F. Scott Fitzgerald - *The Great Gatsby*

Extant research on social mobility is swinging wildly between Individualism and Collectivism. It harks back to the original faultline in social science research - that of Agency and Structure. Most studies on social mobility today primarily involve its measurement as a relative or absolute improvement in socio economic status of individuals within a society, either intergenerationally or intra-generationally (Narayan et al. 2018), reminding us of Roy Bhaskar's (1944-2014) pithy assertion that the malaise of social sciences today, is a preponderance of individualistic unit of analysis and the sway of empiricism defining its research methodology (Bhaskar 2010).

We believe that research on social mobility offers a unique opportunity for social scientists to go beyond the narrow boxes of individualism and collectivism. It is here that you find individuals, conscious of their roles in their wider social structures, wanting to go beyond them. Prescient economic and social problems of today, from unemployment to inequality to migration can be better understood within this rubric of social mobility. And yet, social sciences seem to be caught in their own bind of specializations - the original Structure-Agency divide, not to speak of their respective methodological diatribes. Critical Realism (CR) as an archetype paradigm firstly, allows us to look at the issue of social mobility primarily as social phenomenon where individuals aspire towards emancipatory change. In doing so, however, it distinguishes between reasons stemming from structural factors (*Gatsby's boats against the current*) and agentic strivings (*Gatsby's belief in the green light*), allowing for their independent variation. It refrains from fuzzy and banal generalizations of both being so intertwined, that they cannot be studied separately; thereby falling back on "either" or "both" (Archer 1996).

In the sections that follow, we will first take a lengthy tour of this extant literature primarily in the two social sciences – Economics and Sociology. We elaborate the differing methodological approaches, because the methodologies often give a clue to the ontologies of these studies, when they are not stated upfront. In section 3, we discuss how the CR enables a more fruitful understanding of this phenomenon. The later sections elaborate on our empirics and methodology. We justify our canvas – "organizations" – a place of study and a place of work, in the context of

the Information Technology (IT) sector of India. The choice of the Indian IT sector was deliberate. This sector, typifying the post 90s India, is a throwback on the Roaring 20's of Gatsby's US in terms of the churn that it is engendering. Our canvas of studying mobility in the IT related organizations, albeit narrow, offers us scope to study this phenomenon in-situ and deeply. Our ethnographies will be embedded in the CR depth stratification typology of the Empirical-Actual-Real. The last section concludes.

2. A review of the extant research on Social Mobility

In this section, we give a broad survey of the recent research on social mobility, classifying it as Individualistic or Collectivist and the reasons for doing so. We will also elaborate on the methods adopted in these works, clarifying our assertion that most of them are based on an empiricist ontology.

Most of the Economics literature around social mobility has been built on Becker and Tomes (1979) seminal model on intergenerational mobility. This model approaches social mobility through the dependence of a child's earnings on parental earnings. Such dependence according to them, is mediated by factors such as human and non-human capital investments of parents, individual 'endowments' determined by ascriptive characteristics such as ethnicity, family connections, and so on. Much of the literature in economics relies on empirically evaluating the relative influence of each of these indicators across different societies (Black and Devereux 2010; Solon 1999). In words of Solon (1999), 'the degree of intergenerational mobility depends on the importance that family decision-makers place on the children's future earnings, the return to human capital investment, the strength of the intergenerational transmission of endowments, and the relative magnitudes of the variances in market luck and endowment luck.' Mathematically, social mobility was captured as the opposite of the correlation between the parents' and child's earnings. Most mobility studies in Economics have taken the path of empirical verification of this work-horse theoretical model by accessing country-wide data-sets. A classic example is the 'Great Gatsby Curve' where intergenerational income elasticities are empirically estimated from available data across countries to show that 'more inequality is associated with less mobility across generations' (Corak 2013). Further studies have pursued parameters other than parental income that underlie intergenerational transmission of socio-economic status. While Chetty et al. (2014) consider taxable income, Asher et al. (2018), Azam and Bhatt (2015) consider education and

studies by Azam (2015), Iversen et al. (2016), Motiram and Singh (2012) consider occupation. These empirical studies span fairly varied geographies, depending on the availability of secondary data-sets that capture these socio-economic indicators at the level of multi-generational population cohorts. While most of the works we mentioned above correspond to intergenerational mobility, there are works that also deal with intra-generational mobility such as Fields et al. (2007). Absolute mobility is when there is an increase in income or education for all the individuals within or across generations. However, this doesn't necessarily imply a relative increase in socio economic status for which relative mobility measures are used (Narayan et al. 2018).

Thus, in economics, the aim primarily, has been to illustrate the extent of social mobility and the mechanisms underlying it through empirical evidence. The extensions have been around the following questions 1. What indicators other than income can be used to measure relative status positions (such as education, occupation)? 2. Whether the mobility under consideration is intergenerational or intra-generational? 3. What are the various components within social mobility (such as direction of movement, absolute versus relative, and so on)? and lastly 4. Various mathematical formulations available for measuring mobility (Fields 2019).

Given these questions, regression-based methodologies obtaining estimators of intergenerational correlations of these various socio-economic indices have been used to make predictions. These regression based strategies (Asher et al. 2018; Chetty et al. 2014; Corak 2013) treat income as a continuous variable. For discrete or categorical variables such as education levels or occupation categories, contingency table based strategies are adopted (Iversen et al. 2016; Motiram and Singh 2012). The aim is to arrive at law-like, predictive processes illustrating the extent of social mobility in society. Becker and Tomes (1986), for example, state that 'the point estimates for most of the studies indicate that a 10% increase in father's earnings (or income) raises son's earnings by less than 2%.' These rational choice based social mobility models within the economics literature rely on individual attributes, both ascriptive and non-ascriptive, to theorize the processes/mechanisms underlying mobility as well as explain the variation in mobility across societies. Among these indicators, while income and education are individualistic (at the level of parent and child); occupation as a socio-economic indicator straddles across individuals.

Occupation as a socio-economic indicator, in particular, is borrowed from the class analysis of post-marxist sociology. The class schema proposed by Erikson and Goldthorpe (2002) defined using 'employment status and occupation as indicator of employment relations' has motivated

several empirical works on social mobility around occupations. For example, Erikson and Goldthorpe (2002), define class locations such as short-term contract workers vis-à-vis salariat on the basis of their labour contract or service relationship to the employers or the employing organization. Class-structure which in Marxian conceptualization was constituted on the basis of an exploitative relationship, now accommodated non-exploitative class relations, constituting a multitude of occupational groupings that were differentially placed on the basis of such relations (Wright 2005). However, the focus within this literature is on clarifying the structure of social stratification and the maintenance or reproduction of classes based on empirical evidence. Individual or group attributes such as education, categories such as gender, caste, religion, geography are used as explanatory variables to explain the variation in the nature of class transitions.

In this newly burgeoning research on social mobility, today, we thus perceive a preponderance of the same Structure-Agency schism seen in the early social sciences, where both, academic and popular thinking about society swung between the crude polarity of atomistic individualism and undifferentiated collectivism.

In sociology, the seminal work relating to social mobility is Bourdieu's Distinction (Bourdieu 2013) and this requires some elaboration, because in a way, Bourdieu alludes to this schism of Structure and Agency. Bourdieu depicts social positions through occupational groups, which largely differ by cultural tastes of their members. He constructs a stratification structure based on a correspondence analysis utilizing data on individuals occupying different occupations and their corresponding lifestyle and cultural attributes. Each such position is bound up with systems of disposition ('habitus') that is tied up with a particular set of cultural tastes or capital. This habitus in turn, dictates the practices (or actions) of individuals occupying their respective class positions. Class or social positions, according to Bourdieu, are therefore intrinsically linked to an individualized process of habitus generating action, which continue to separate one class from another by distinct cultural tastes and practices of its members. Social groups according to Bourdieu, exhibit systematic differences of lifestyle and cultural taste, and therefore can be observed as differentiated class positions within the broader social space. These individual actions, affected by a misrecognition of historically contingent social relations tend to perpetuate the influence of a class position ad-infinitium, reproducing the observed patterns of social stratification with time. In defining the habitus of an individual defined primarily by the cultural capital that he

carries by virtue of belonging to a class, Bourdieu refers to both Structure and Agency; but his analysis is still overwhelmingly reproductionist, foreclosing agency over structure. Class as a more or less rigid structure having explicit attachment to a collectivity (that is occupations) still continues to persist in Bourdieusian depiction of social stratification.

Subsequent developments within CAMSIS (Cambridge Social Interaction and Stratification) tradition of stratification analysis have attempted to address these shortcomings and give way to agency, by treating 'class' as an 'individualized process' of hierarchical distinction (Bottero 2004). Classes according to this tradition, are loosely constituted groups within a social space that can be identified from the structure of substantive social relations (Bottero 2004; Lambert and Griffiths 2018). Differential association and homophily, both of which indicate formation of social connections on the basis of cultural similarities, tend to structure social interaction between individuals, which at an aggregated level can be mapped onto a social space in order to indicate a social or class positions. Within these studies, patterns of social interaction are used to determine the structure of stratification instead of explicitly searching for cultural differences among individuals or groups, more in the tradition of Actor Network Theory. In a similar vein, occupations have been chosen as suitable social entities for analyzing network patterns, as they are regarded as long-term indicators of an individual social position (Lambert and Griffiths 2018; Van Leeuwen and Maas 2010). Essentially, these studies formulate a structure of social stratification by constituting occupational groups as social positions within a social space and indicate the social distances between such occupations on the basis of volume of social interactions that exist between corresponding individuals positioned across them. The transitioning to 'socially distant' occupations across generations then become a marker of social mobility.

To summarize, through this lengthy introduction to the extant literature on social mobility, we wish to highlight the following trends:

- The analysis centers around the binaries of (a) individuals or (b) collectives such as occupations, gender, ethnicity, caste (in case of India) as the unit of study. In the more recent analysis, there have made attempts to 'accommodate' the two approaches by defining collectives through tracing networks among individuals.
- The method has been overwhelmingly positivist with strategies to arrive at 'law-like' predictions about intergenerational or intragenerational mobility, the variables – income,

education and occupations often being determined by the availability of large, secondary, macro data-sets.

- A society is defined as being socially mobile when intergenerational or intragenerational mobility coefficients or correlations between mobility parameters appear statistically significant, and socially stagnant when they don't, thus reinforcing Bhaskar's notion of epistemic fallacy - reducing the theory of being (ontology) to the theory of knowledge (epistemology).

3. Critical Realism and Social Mobility

In section 2 we pointed to the typology of research programs being carried out under the aegis of Social Mobility studies and their lacunae from the perspective of Critical Realism. In section 3, we elaborate on how Critical Realism as a lens provides us with the theoretical wherewithal to address these lacunae. We elucidate on how we use it to carve out a research study that enables us to come to grips with this complex phenomenon of social mobility. In the theoretical tool-kit, two concepts in Critical Realism, according to us, are crucial to comprehending social mobility - (i) CR's transformational and relational model of society (ii) CR's analytical dualism of structure and agency.

3.1. Critical Realism's transformational and relational model of society

Critical Realism, for us, is a meta-lens that argues for an understanding of the relationship between social structure and agency that is based on a *transformational* and a *relational* conception of social activity, eschewing both individualism (voluntarism) and collectivism (reification) (Bhaskar, 2010). We believe that even to initiate a rudimentary understanding of social mobility, we need to first see the social world as being subject to the possibility of transformation. This social world consists of social structures, rules, resources and means that pre-exists and predates individuals, but is reproduced and transformed (at times unintentionally) by the everyday actions of individuals. Society is therefore an ensemble of such structures, practices, relationships, which individuals do not create anew, but enter into, and in doing so transform or reproduce them. It is also relational, insofar as individuals are also a product of the what they do and/or what has been done to them in the particular social relations into which they were born and which they live. In fact, Critical Realism views all social phenomena as expressions of enduring and persistent

relationships - between the husband and wife, parent and child in a family, employer and employee in an organization, clergy and laity in religion. In doing so, individuals may want to move away and transition from an unneeded, unwanted relation to a needed, wanted and empowering relation - which, precisely is how we wish to approach the issue of social mobility.

3.2. Critical Realism's analytical dualism of structure and agency

In trying to understand social mobility as an attempt at transforming structures through individual actions, Critical Realism (CR) enables us to look at society, distinctly from both (i) collectivist perspective: as being pre-existing, transcendental and causally necessary condition for agency and (ii) individualistic perspective: as existing and persisting only because of individual agency. But while accentuating that "both" matter, CR does not lose sight of the fact that the two are independent and can be analyzed independently, unlike several of the more recent social theories that see the two - structure and agency as so mutually constitutive and conjoint, that it is impossible to analyze them dualistically (Archer, 1996). The trap of eliding structure with agency to understand their joint (and often inseparable) impact on social mobility is avoided here. Allowing for the independent variation of structure and agency in their interface enables a far richer and intensive exploration of social mobility. It gives space to recognize a key asymmetry, which is critical for us to understand not only why and how social mobility occurs, but why it occurs more in particular contexts (at some particular points of time) and not so in others (Brock et al. 2016). This asymmetry has to do with the pre-existence of structures for agents living in it; of agents always acting in a world of structural constraints and possibilities they did not create. But these structures can and are being continually reproduced or transformed as an outcome of intentional human agency.

CR thus provides us a framework for looking at both structure and agency independently, in understanding social mobility. There is an explicit recognition of the plurality of structures (Sewell Jr 1992) that could be independent, relatively enduring and may be hierarchically ranked in terms of their explanatory importance. Human action is characterized by intentionality and in their conscious human activity, they unconsciously reproduce or occasionally transform social structures. Mobility, for us, is one such instance where human intentionality to *'move up the social ladder'* takes place in this ensemble of structures that can be both enabling and coercive, which are reproduced or transformed while attaining this goal.

CR prods us to find explanations for social mobility in this nexus of structure and agency, where individuals act in a position-practise system, relationally defining mediating or dual points connecting social structure and human agency. CR talks of these mediating points such as positions in the family, or economic or political systems (Archer et al. 2013). We choose a smaller and a less intimate canvas and identify such points as positions in formal organizations where an individual today spends a large part of his waking hours (either studying or working). In identifying the 'organization' as our site in tracing mobility in this structure-agency mediation, we are indebted to Charles Tilly (1929-2008) and build on his work on *Durable Inequality* (Tilly 1998).

3.2.1. Organizations as field sites of social mobility

Explicating the mechanisms underlying durable inequality, Tilly (1998) argues that unless the organizational forms are altered for the better, they continue to incorporate internal categorical distinctions that consistently match the external categorical inequalities (gender, caste, ethnicity, or even class for that matter) for the purpose of their stability and efficient maintenance. According to him, so long as organizations emulate and match external categorical distinctions and continue to adapt themselves to the practices that sustain categorical boundaries, it is hard to realize any change in the overall structure of social inequality (Wright 2000), and therefore any improvement in the overall social mobility within any society. Organizations are therefore the crucial sites for studying reproduction of social inequalities - or social mobility - and their underlying mechanisms.

Taking cue from this, we aim for identifying social mobility mechanisms in organizations where there are multiple overlapping structures. This goes beyond the formalistic career trajectories that are mapped out by the Human Resources (HR) departments in these organizations. We study these structures as cultural (ideational, being carried out by agents) or institutional (material, made available by the institutions) which are being reinforced or transformed through a variety of agentic practices. Work within each of the organizations is under the influence of these structures which govern processes, practices, and lastly the possibilities available for actors to respond to a multiplicity of such structures. Organizations are also constituted by work roles or social positions that are bound up with certain kind of agentic skills and patterns of interaction between entities embedded within the organization's work processes and practices. Structures can change with time either driven by the cumulative action of agents within organizations or from other structures beyond the social world of work - political structures, for example. Agentic

orientations, consist of habitual components associated with prior social, cultural and categorical backgrounds of individuals, prospective and practical evaluative components within the present structural context (Emirbayer and Mische 1998). Which of the agentic orientations are triggered by different individuals or groups within the organization and how that leads to different mobility patterns will shed light into the mechanisms underlying social mobility within organizations.

By explicitly focusing on the persistence of structures that influence the world of work within and across organizations, Tilly provides explanations for the mechanisms that underlie durable categorical inequalities. Picking up on Tilly's work, we pay attention not just to the persistence of structures, but their transformation. In particular, the mechanisms that challenge persistence of extant organizational structures can explain patterns of social mobility within organizations, complementing Tilly's propositions. We believe that it is important to study social mobility and the mechanisms underlying it, at a meso-level by deep diving into patterns of work trajectories of individuals or groups within organizations around any particular occupation. The context of our study and the choice of our organizations is given in section 4.

4. Empirical context and methodology

The setting of our investigation is the enormous flux in urban India, post 1990s, where evidence points to the newly burgeoning Information Technology (IT) sector providing rich evidence for accounts of social mobility for a generation of young throughout the country. We situate our empirical studies in the city of Bengaluru, a hotbed for IT firms, and hone down on two such organizations that will give us the material to explore the "structure-agency nexus" in understanding the pathways of social mobility of this generation aspiring to upwardly mobile careers in the dynamic Indian IT sector.

Existing literature on social mobility in the IT sector in India talks about whether occupations within the IT sector can accommodate people from diverse social groups, classes, geographies or gender (Upadhya 2007; Upadhya and Vasavi 2012). Engineering Colleges and established IT organizations are two prominent organizations in this landscape. Private engineering colleges in India constitute a major chunk of education hubs meant for getting an engineering degree in the country. Established IT organizations situated in urban centres such as Bengaluru recruit engineers from these private engineering colleges. In our study, we attempt to explore the mechanisms underlying social mobility within two such organizations around IT

occupations - (i) a private Engineering College on the outskirts of Bengaluru, and (ii) Informational Technology enabled Services (ITeS) multinational organization in Bengaluru.

CR also provides us with a solid bulwark for our methodology: ethnographies aimed at getting work-processes back into the study of organizations. CR identifies social reality to be not only intransitive (existing independently of humans) but stratified. The stratification is in the form of mechanisms: the events they generate and the subset of events that are actually experienced - the domains of the Real, the Actual and the Empirical (Archer et al. 2013). Social change can be understood only by identifying structures that generate events or discourses that engender that change. These structures are irreducible to these events or discourses. They are not spontaneously apparent or observable patterns of events and can only be gleaned through practical and theoretical work. CR is based on the ontology that social systems, unlike natural sciences, are inherently open and context-specific (in terms of time, space and history). Because of this, it postulates that social system theory choice and theory development should aim at being explanatory and non-predictive, eschewing positivist and instrumental goals of prediction and control. This explanation lies in elucidating the patterned and stratified around the Real (the whole of reality - structure and agency), the Actual (the events that occur or do not occur) and the Empirical (those events we see), which could only be done through an immersive and recursive ethnographic approach.

We trace social mobility through the differences in agentic orientations of individuals or groups embedded in the structural context of these organizations. In order to identify the structural context as well as the agentic orientations of individuals or groups, we chose discourses, narratives and experiences of actors in relation to observable day to day work processes and work practices within these organizations, as our empirical objects of inquiry. Our findings based on this line of reasoning suggest that multiple and intersecting structures allow for flexible interpretation of resources associated with them, and this is a necessary condition for mobility of individuals within an organization.

Before illustrating these findings in a greater detail in the subsequent sections, we briefly introduce the empirical context as constituted by two settings, 1. Private Engineering College and 2. Multinational IT organization. We also describe the manner in which we carried out our ethnographies and explicate the methodology that we adopted to clarify the structural context as well as the agentic orientations of individuals or groups within each of these ethnographic sites.

4.1. Private Engineering College

Our first site was a private engineering college situated in the semi-urban outskirts of Bengaluru. Established in the 1980s this college admits students for a four-year engineering degree, through a standard admission route that facilitate a diverse student pool coming from varying socio-economic backgrounds, geographies and specializations within their prior education. It attracts students from the rural areas, from north Indian states as well as many students from the city of Bengaluru and a good number of female students as day scholars from nearby villages and small towns. Depending upon their ranks in the common entrance tests and other criteria, students are admitted to various Engineering Departments in the college.

Our engagement with the college had been for 16 weeks in total, where one of us worked as a part-time tutor in Data Analytics for students from the ECE (Electronics and Communication Engineering) department. With the support and collaboration in field from one of the alumni from this college, we gained access to this engineering college and were able to also carry out our ethnographic observations much beyond our tutoring sessions. Our observations were constituted mostly by informal discourses, narratives and experiences, of students and faculty. Being a part-time tutor conducting tutorial sessions on topics that the students wanted, allowed the researcher to freely discuss career aspirations and engineering experiences with the students on various occasions within the premises of this college. During our 16-weeks of study we were able to closely understand the aspirations of about 14 student groups from the ECE department, mostly in their third- and fourth-years. The field notes at the end of our ethnography work ran into over 37 single-spaced pages in Microsoft Word amounting to about 36800 words. Over the academic term, we interacted in detail with 9 faculty and administrative staff and 14 student groups in over 30 occasions. Note that the essence of our impromptu conversations with stakeholders we regularly interacted with, as well as unstructured interviews of some of these and other stakeholders constituted a major chunk of our field notes.

4.2. Multinational IT Organization

The second organizational site was an established multinational IT services organization based in Bengaluru, India. We hereupon call this organization as ITSO. Like many established IT organizations in India, this organization is one of the leading IT and BPM (Business Process Management) service-providers for its clients situated across the globe since the past 25-30 years.

This organization is known for its standard work processes around development, delivery and maintenance of such traditional software and BPM solutions. Within this organization, however, our study associates itself specifically with a team, which over the past 5 years has gathered members to enable the organization to provide integrated Artificial Intelligence (AI) and software services to its clients. We hereupon call this team as the AI team. One of the researchers joined as an intern and worked in this AI team on a running AI project for four months, and therefore was able to experience the situated work practices on a daily basis. Joining the organization formally as an intern helped the researcher gain experience about work practices and processes from the project and develop sustained relationship with the team members through periodic interactions. Regular status-reports had to be presented to a wider team and this last task helped researchers validate their findings by periodically taking feedback and thus triangulating their findings from various members in the organization.

There are two main components to our data. First, a major portion of our ethnographic data is from the research intern's internalized experience of working in an AI based project. In addition to providing us a situated understanding of the work practices and roles in executing a typical AI project, this experience also gave us a direction to look into the extant literature on the nature of work in other technologies that constitute traditional software development. Second, informal and impromptu conversations and unstructured interviews, both on and off the worksite, allowed the research intern to develop sustained relationship with members within this team, many of whom had enormous prior experience of working in IT sector, often spanning multiple IT companies. More than the formal project meetings and presentations, these informal discussions around breakfast, lunch and coffee, allowed the research intern to reflect and write about the situated work experiences of the team members in a great detail every day in the field notes. Our field notes ran into over 100 single-spaced pages in Microsoft word that amounted to over 75000 words. Over 4 months, we had occasions for around 50 unstructured interviews and conversations with over 30 personnel in this organization. Note that the essence of our informal conversations with stakeholders we regularly interacted with as well as unstructured interviews of some of these constituted a major chunk of our field notes. The team to which the researcher was attached as an intern consisted of over 30 members, occupying roles in technical software engineering and business and data analysis. Similar to the Engineering college, in order to identify the structural context as well as the agentic orientations of individuals, we chose discourses, narratives and

experiences of actors in relation to observable processes and practices within the AI team, as our empirical objects of inquiry for studying patterns and mechanisms of social mobility in this organization. We restricted ourselves to the boundaries of the organization and abstained from phenomenological 'life-histories', as these hermeneutic methods would call for interaction beyond the organizational life of these agents.

In both the studies, our research methodology was motivated by the works of Barley and Kunda (2001) who propose the use of ethnography in organizations towards 'bringing work back into organizations'. According to them, adopting ethnography at work place that can yield rich descriptions of work-life within an organization, allowing researchers to systematically investigate concrete activities constituting work practices and processes within an organization. Another motivation driving our multi-organizational studies was 'global ethnography' (Burawoy et al. 2000; Gille and Riain 2002). Global ethnography can be characterized as a 'historically grounded, theoretically driven, macro ethnography' (Burawoy et al. 2000). In the context of our studies, this methodology not only pushes us to inquire only about the work practices and processes in-situ, but also motivates us to constantly relate it with the extant historical and theoretical underpinnings of the work that is being carried out within an organization. We find it important to locate the participant observations and internalized work experiences of the researcher not just within the Engineering College or ITSO's context alone, but also in a historical context driven by extant literature and theories about the IT organizations in general (Upadhya 2008). And hence our objective was to get a macro level understanding of the changes happening within Indian IT services industry and the social mobility mechanisms within it (which is the etic) by looking through the lens of this one organization (which is the emic). The etic perspectives were the responsibility of the research team as a whole, which were discussed bi-weekly and helped buttress the emic ethnography field notes that were shared between them daily. This constant to and fro between the etic and emic also made for an easy segue into the CR depth stratification of the Empirical-Actual-Real, as we explain in detail, below.

5. Social mobility in organizations

In this section we illustrate the summary our ethnographies in the two organizations we introduced above, as case studies depicting social mobility in organizations.

5.1. Mobility in an Engineering College

Like every other engineering college in India, the formal structure of this organization was constituted by departments defined by different engineering streams such as Computer Science, Information Systems, Electronics and Communication, Mechanical, Civil Engineering and so on. In addition to the physical boundaries separating them, these departmental divisions are also made salient through their distinct curriculum, faculty specializations, professional memberships, accreditation requirements, and lastly their associated placement opportunities.

While the formal structure binds the students and faculty to the routines and practices corresponding to their respective departments, the placement statistics however provide a strong empirical evidence to the presence of another structure that predominantly drives students in the direction of getting them ready for placement into IT jobs. As the placement statistics of the past 5 years of this college indicate, an overwhelming proportion of recruiters and an equally disproportionate majority of students were in the IT sector. For the academic year 2018-19, out of 22 placed students from Mechanical Department, 19 were placed into the IT sector and out of 49 students from ECE Department 45 of them were placed into IT. Procuring a job in the IT sector as a means for upward social mobility for its predominantly semi-urban students became a necessary fact of contention for this college. It helped that the sector too needed foot soldiers to keep pace with its blistering pace of growth and the IT companies were the 'bulk' recruiters in almost all Engineering Colleges of India.

Given that the IT firms were the key recruiters, we see engineering colleges, including this one, religiously promoting, 1) practices that include periodical training sessions for making students ready for placements into IT called 'Human Resources (HR) classes'; that trained students in English speaking and soft skills - de rigueur for jobs in the IT industry 2) conducting placement drives in order to facilitate recruiters from IT companies to select students on-campus and having dedicated days for placement and recruitment related processes and 3) conducting programming workshops and other tutoring sessions to make the students more IT placement-ready. Infact our tutorials in Data Analytics were seen by the College as a part of such attempts. An important change in the organizational structure of the college is the addition of 'HR department' for this purpose, that conducted the HR classes and which was in charge of the placement rituals that is typical of on-campus placement drives, focused towards one dominant set of recruiters - those from the IT sector.

During our ethnography, however, several students both in our tutorial sessions and outside, wanted to frantically discuss with us something they called their "mini-projects". These, it turned out were voluntary projects carried out by students from their III year onwards, beyond their usual academic course work. From our interaction with third year students from the ECE department, we noticed that many students wanted the college to organize technical workshops to help them work on these programming projects. Many were desperately networking with their fellow students to include those who are good at programming in their teams. Only a select few were equipped in terms of forming teams voluntarily, very early on in their third year, by approaching the faculty and getting things to move in relation to project implementation. We realized that these projects had over the years, morphed into signaling devices in their resumes for job interviews with the IT companies (a) showcasing their skills at group-work and coding and (b) garnering them talking points in their interviews with IT companies, beyond their academic accomplishments.

Insofar as prior social particularities that enabled individuals or groups to aspire for a future in the IT industry, these amount to the categorical matching that Tilly talks about. However, we find that these categories are not necessarily gender or ethnic identities (entry criteria to these organizations foreclose such possibilities), but more connected to individual's prior education, prior social networks and whether one is from a predominantly rural or urban background as indicated by their medium of communication. Actors have scope for actualizing structures that are otherwise not actualized by organization itself and the 'Mini-projects' was one such alternative that was entirely an innovation of the students within the Engineering college.

Actors have multiple avenues from the organizational structure for carrying out these projects. The avenue which different actors take, reflect the extent to which an individual is capable of distancing him/herself from the default structures stipulated by the organization. Not all student groups readily take up such mini-projects as it demands time and self-management from the students' side. Student groups that are self-motivated when it comes to taking up 'mini-projects' do come with prior programming even before joining the college. Such groups by default garner attention from the faculty as well, who offer relaxations in terms of relieving them from attending 'HR classes' or reducing their laboratory work loads.

For us mini projects are important because that is the only component which recruiters keep asking questions about in the interview. In my technical round, almost for the entire duration, they asked me to tell in detail about our mini-project.

We noticed that those groups who showcased their capacity to execute mini-projects were in a position to distance themselves from the structural pressures of IT placements. That they characterized mini-projects in terms of something that enriches their practical skills in their 'core' academics, vis-à-vis treating them as boxes awaiting to be ticked in their resume, reflects such a distance experience.

Then there were those students we saw in their III year, struggling to find teammates who would help them with the implementation of ideas for their mini projects. We also found many other groups who had given up the idea of implementing projects on their own, and instead say that they would take the help of some programming tutors and programming workshops. These workshops allow a last moment completion of some generic mini-projects related to programming that could help students for placements. Students who relied on such avenues, we observed, also put a greater importance to the standard mobility pathways stipulated by the college, the 'HR classes' and 'technical workshops'. It was also not surprising to see these students give an inordinate emphasis on the placement rituals - like the formal dress codes during interviews.

To look at this from the lens of CR's depth stratification, the **empirical** consisted of all the practices, resources, material and ideational efforts that this college was putting in, to guarantee the placements of the majority of its students in the IT sector. All agents - faculty, students and the college administration were bought into it. The marquees on college campus listing such placement statistics of their ex-students in the IT sector, the HR department, the mandatory HR classes, the programming workshops, the placement rituals were all a part of this. However, the students had managed to figure out a more 'workable' pathway and that was their 'mini-projects'. This in other words, was the **actual** pathway to social mobility via a job in the IT sector. Here agents' innate structures or habitus in terms of their past education, programming skills mattered. But what mattered more was their ability to 'imaginatively distance' (Emirbayer and Mische 1998) from the standard organizational structures that they palpably saw around them. Their ability to motivate themselves to find ideas for such mini-projects, learn the requisite coding, and work beyond class hours on such projects. And in doing so, they were also able to latch on to the formal, academic structure of the college of taking help from their faculty and gaining core expertise and showcase

their ability in their own Engineering branches, instead of blindly vying for an IT job. Thus, we come to the **Real** that principally, has everything classified under the dual and intersecting structures of this college: the ensemble of structures - one, the academic oriented, and the other, placement oriented.

It is the recognition of the duality and interconnectedness of these structures by agents and their ability to work through them is what determines their success at social mobility; here getting a job in the IT sector. The given structural context of taking HR classes, attending programming workshops and internalizing the placement ritual was what was mandated by the Placement Structure of this College. Those students who worked within its constraints also were hard-pressed by the constraints put by the Academic structure - their everyday coursework, classes, exams and grades. On the other hand, those students who took the 'mini-projects' route diligently, gave less importance to HR classes and placement rituals and were less constrained by it. More importantly, they were able to 'imaginatively' weave in the Academic structure into their mini-project plans and have the support from their faculty. So for us, Emirbayer and Mische's 'imaginative distancing' is the ability of agents not to be mired in the empirical (that which is apparent), but to go beyond it (the actual) and even beyond that, have the reflexivity to intuitively see it as a part of a larger, intransitive and the less apparent Real.

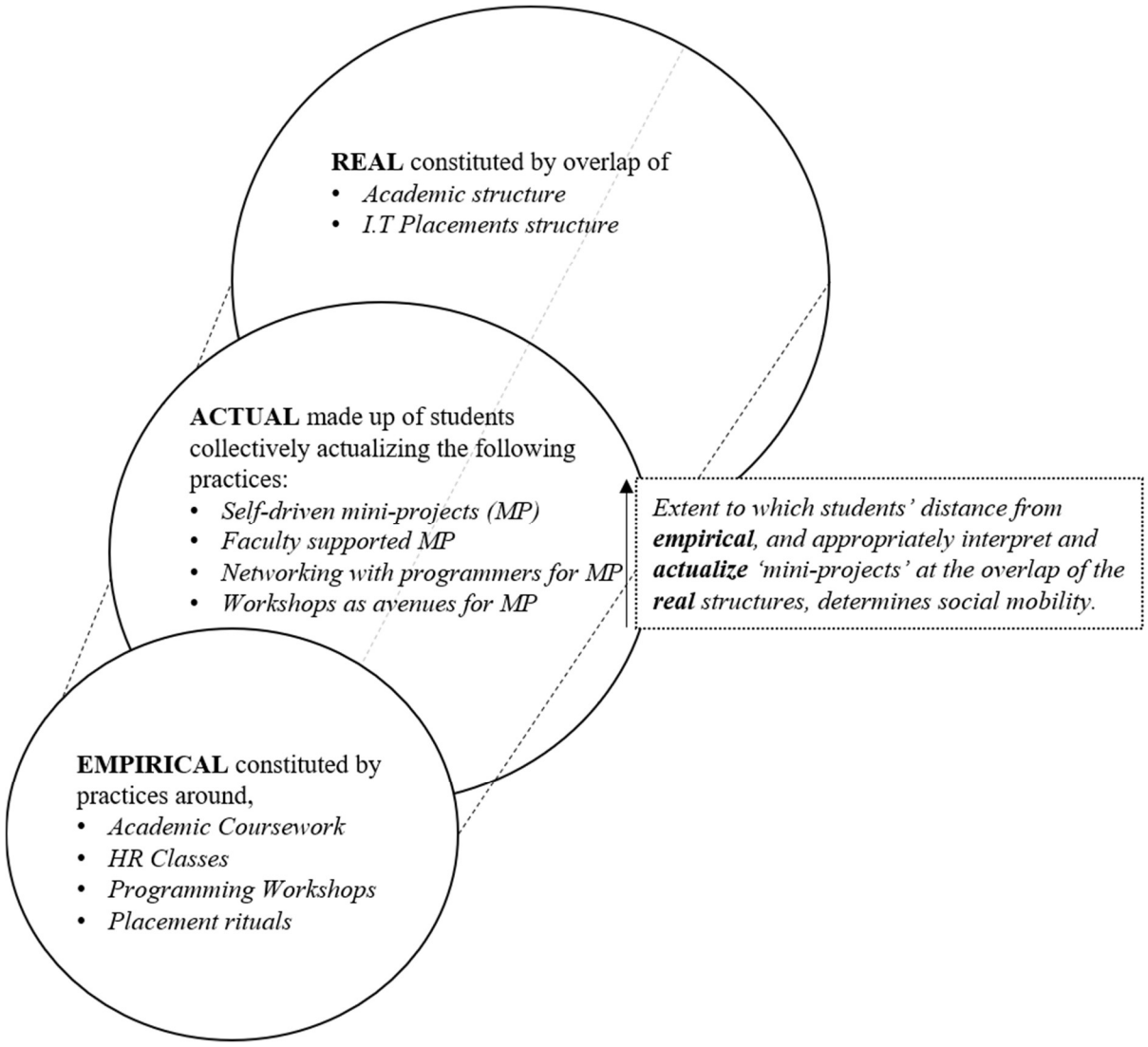


Figure 1: Depth Stratification (Structure of Engineering College)

5.2. Mobility in an IT Organization

Very similar to the engineering college, we found that even within an established IT organization, the prospects for mobility open up through multiple and intersecting structures. A recent occurrence in the Indian IT industry is that Indian IT organizations that have built a name around providing software (SW) solutions are now finding it imperative to garner expertise on emerging technologies such as Artificial Intelligence (AI) and Cloud computing. With increasing digitization and an overall increase in the availability of data, their clients are seeking digital

transformation driven growth and sensing an urgent need to modernize their legacy systems. Small and medium businesses are increasingly realizing the advantages of offshoring not only their non-core business processes but also turning to some new service offerings such as AI to add value to their core business processes. However, despite the need to venture into solutions around these emerging technologies, Indian IT industry still carries along with it its extant structure, best suited for clients seeking quality software and services.

At ITSO too, we see an intertwining of these dual structures - those afforded by the newer technology of Artificial Intelligence (AI) and the traditional technology of Software (SW) development. A majority of the AI projects that come to the AI team at ITSO are the result of existing clients requesting for an integration of AI into the previously delivered custom software or automating a portion of their outsourced business processes to reduce costs.

The two structures – SW and AI, though inter-related, involve different agentic skills and capabilities. The SW structure revolves around organizational goals of customer centricity and delivering timely and quality services to the clients. Indian IT organizations over the past three decades have actualized these traditional software structures into organizational structures as standardized work roles, practices and processes across the IT industry (Arora et al. 2001; Jalote and Natarajan 2019). However, with the growing importance of data and designing of business solutions around data, the structure in the context of developing AI solutions is characteristically different from that of traditional software. Constant back and forth between the client and the team, iterating of solutions within the work flow and more importantly, the experimental nature of the work makes uncertainty of the solutions a part and parcel of AI projects. AI solutions also tend to be more 'integrative' and involve less modularization and standardization, common to standardized SW projects. The new 'data-scientists' are expected to be creative in their ability to see patterns in the data, be at the forefront of the new developments within the fields of AI - powered by machine learning (ML) - and cloud computing, and also quickly ramp-up domain knowledge underpinning a business (Davenport and Patil 2012). The AI projects also call for greater inter-personal skills since they involve greater interaction with not only the clients, but different domain-specialists. However, these AI solutions still have to be integrated and deployed on SW platforms and the cloud, which does not make job of traditional SW structure obsolete. The extant Software (SW) structure of IT companies affords a formal and long established career pathway to such engineers now into cloud computing. It is with respect to the newer Artificial

Intelligence (AI) structure that the industry has to reckon with, which is creating a churn. This is primarily because the current structural context of the Indian IT industry still expects individuals to predominantly focus on goals and timelines of project-execution in the extant SW mode. While the AI structure veers around new roles like that of the data scientists, the organisational structure is still actualised by managerial roles within traditional SW development such as team leads, business analysts and project managers.

The recent structural changes are thus altering the ideas around career mobility within industry, quite rapidly. Even for experienced software professionals, jobs within data science are becoming aspirational as they say that they feel some sort of career stagnation within traditional software and want to get trained and shift to data science projects that are now highly remunerative in the industry. For new recruits, teams working in data-science are the first option and highly sought after. For example, in the project team we worked with, which was the only team that specialized in data science in addition to traditional SW, only the toppers among the new recruits for the company were selected. We observed that members from other SW teams connected to this team, conveyed in their narratives, an interest in getting further training and shifting to this team eventually. Working with this team thus helped us gain an understanding about mobility prospects within the industry.

From our four-month long ethnography in the organization with this project team, using the perspective of CR's depth stratification, we see that the **empirical** consists of the in-situ work practices and work roles of the IT personnel in their designated projects. In our team, the project involved implementing AI solutions for their clients. The work roles we encountered were not very different from those in other projects of this organization. There were two data engineers, a business analyst, a project manager, a data scientist, under a team lead who had over 15 years of work experience across IT service-based organizations. Their work roles, qualifications and work descriptions are given in Table 1 below:

Work Roles	Qualifications	Work Description
Team Lead	PhD / senior SW Engineer	• Interact with clients to understand their business use-cases to develop prototype solutions. • Devise the overall plan/strategy of AI solution development. • Pitch the team's capability to the clients.
Business analysts and Project Managers	MBAs / senior SW Engineers	
Data Scientists	PhDs in diverse domains /Master's in data sciences	• Innovation and patents development. • Build Models relying on off-the-shelf data sets from previous projects or open source data sets. • Sign-off on the customization and reuse strategies followed by data engineers, overseen by the business analyst and project managers.
Data Engineers and Software Engineers	Bachelor's in engineering	• Entry level work roles within an AI team. • Reuse existing tool kits for processing raw data from clients. • Reuse models devised by data scientists, upon receiving full data from the clients.

Table 1: Work Roles and Descriptions (AI Project Team in an IT Organization)

Given this scenario, we find that AI projects involve the traditional SW kind of work-structures, where components from existing solution stack are tweaked to fit to the current project. Latching onto client deadlines and pressures, business analysts and project managers also enforce this strategy since it also fits well into the standard work processes associated with traditional software service delivery. Every AI solution is either integrated into an existing custom software or wrapped around with a software user interface for enhancing the ease-of-usage for the clients. Thus, even with AI solution development, the nature of work expected from software engineers and data engineers in this organization is more or less similar and does not involve much beyond software programming over platforms such as python.

The **actual**, beyond the day to day work processes, involves an amalgamation of structures defining both SW and AI work-roles and work processes. Unfortunately, the amalgamation that is aimed for, is not easy – because of the differing agentic orientations across different members as

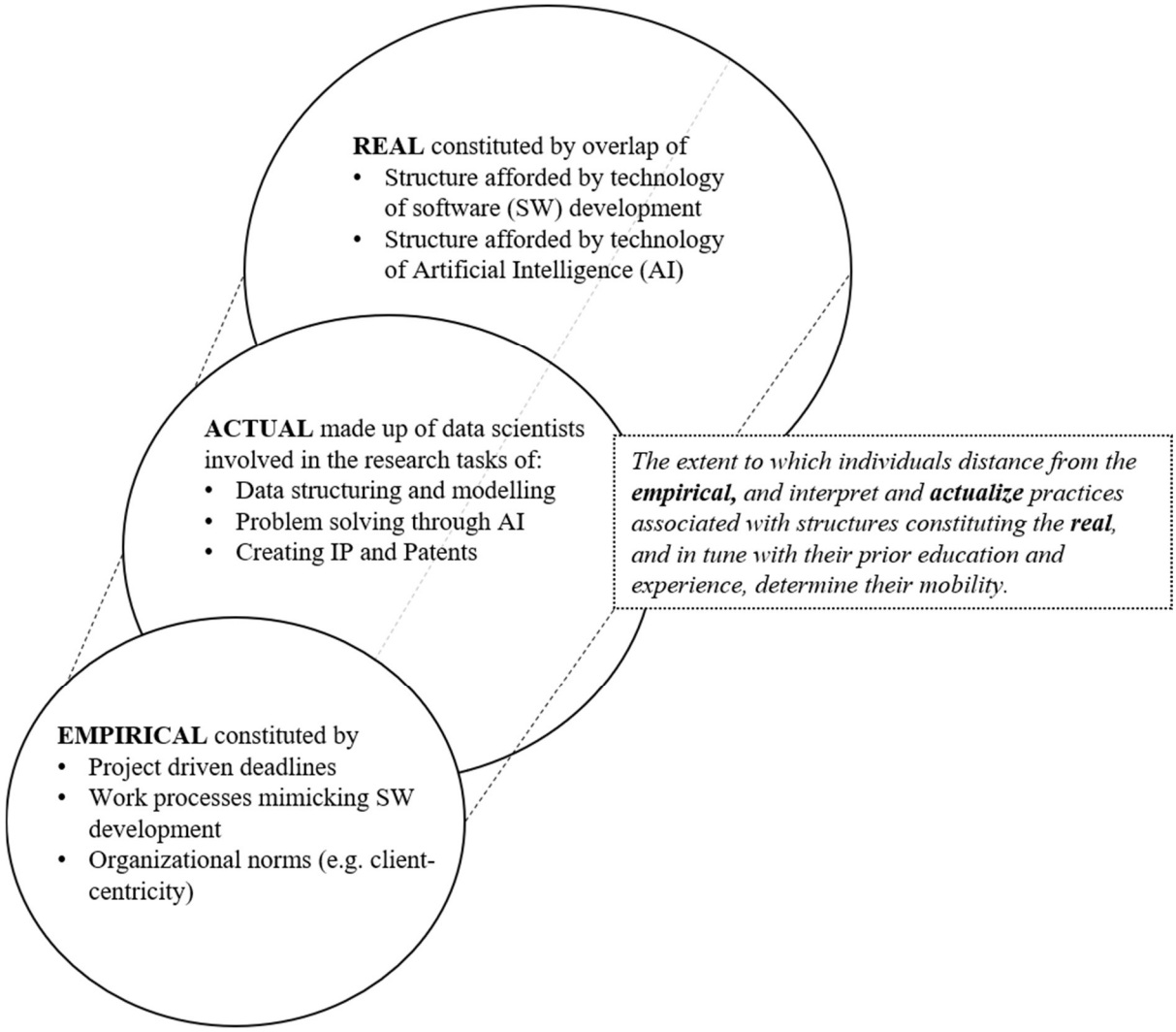
well as different work roles. Business analysts or project managers, who are at the helm, are attempting to actualize the structures defined by work in development and delivery of traditional software services to the clients. At the organizational level, an unwavering resolution for ensuring client-centric service delivery that Indian IT companies are traditionally known for (Jalote and Natarajan 2019), makes it easier for the them to trade-off the performance of AI solutions with the ease of following traditional software development work processes that clients too are familiar with. Data scientists on the contrary, are attempting to actualize the structures that constitute development of AI solutions, which are typically characterized by work processes and practices that ensure scope for experimentation, require multiple iterations with clients for ramping up to the domain knowledge and nature of their raw data, and provide less scope for direct customization and reuse of existing ML strategies (Amershi et al. 2019; Sculley et al. 2015). Efforts are being made by data-scientists to alter the workflow of AI projects to suit the actual structure of AI solution development, but such efforts are still at their very nascent stages. In summary, we therefore see that bound by work norms and processes typically followed by the traditional software development teams in this organization, even the teams working on AI projects also fall back upon generic 'bricolage' solutions that rely on customization and reuse of their solution stack.

The **Real** therefore calls for a wider understanding of the future course of the Indian IT sector. It involves recognizing that while traditional software programs can be developed in modular, customizable and reusable fashion, such strict abstraction boundaries cannot be enforced in AI projects (Amershi et al. 2019) and doing so, might in fact be counterproductive. If Indian IT organizations are able to actualize real AI structures through appropriate work practices, inter-relationship between work roles, and overarching work processes that are better suited for AI, then the real potential of AI can be exploited by the organizational actors.

This aforementioned stratification played out when we looked at prospects for social mobility by different agents within this organisation or the IT industry. Again, reflexivity or imaginative distancing from the structure played a big role. For example, we observed that those who could bring out in their narratives a broader view of the industry with its recent advancements, were also the ones who had a good grip on computer science fundamentals, programming being one of them. According to an experienced software technical architect who worked with customized AI and Software solutions,

The more understanding you gain about lot of teams that are interconnected within the IT industry, the better you can navigate this industry while exploring your career options.

Typically, this was easier for the newly recruited engineers (the data engineers) who were still not yoked to the traditional SW structure. Although they were caught up with the enormous work pressures, their prior particularities forced them to make a choice between going towards the well-defined formal career trajectories or towards becoming data-scientists. It was not only easier, but also necessary for them to go beyond the apparent empirical and its enormous work-pressures, and get a sense of the actual and the real – to foresee where the Indian IT industry was going, and to chart a role for them in it. More tuned in to the recent technical developments in this field, they were less caught up in the extant structure – the apparent empirical. For the more experienced software engineers, they either decided to go the well-trodden path towards cloud computing, which was an extension of the traditional SW career trajectory, or they struggled with AI projects and their fuzzy boundaries. Social particularities related to prior education and experience was thus far more deterministic of social mobility within this organisation.



Insert Figure 2: Depth Stratification (IT organization)

6. Conclusion

From our study of the phenomenon of social mobility in organizations, we are able to say a lot about this as a social phenomenon. Organizations, like any social institution, project certain standard rules, procedures, and beliefs or some resources or practices within it. However, when these structures are not dominant or singular, individuals have the flexibility to interpret these resources or practices differently from what the organization stipulates, thereby charting their own mobility ladders. We observe that flexible interpretation of resources allows individuals to transpose cultural schemas that better align with their social particularities, 'their historically and socially conditioned capacities, powers, liabilities and tendencies' (Bhaskar 2010). We also observe that multiple and intersecting structures give scope for individuals to develop capacities

to situate themselves in a privileged position within the overall structural context of the organization, in the context of social mobility. While singular, rigid and enduring structures typically allow only for formal mobility pathways, multiple and intersecting structures allow individuals to also actualize certain informal mobility pathways (in the form of tacitly agreed upon social positions) from the structural context. We also find that even within plural structural contexts, mechanisms facilitating social mobility can span from being predominantly agent-driven on the one end and largely structure-enabled on the other end. For example, relative to the organizational structure of an engineering college, we find that an IT organization by its emphasis on the execution of project-deadlines in the present, allows less scope for agentic ingenuity. The social mobility trajectories fashioned by individuals depends upon their ability to reflexively deliberate on their constraints - not being mired in the apparent here-and-now (the empirical), but able to distance themselves from it and glean both, that which is not so obvious (the actual) and that which is the true source of their predicaments (the real).

CR laid down the map for us to grasp how different individuals navigate through mutable and at times, inchoate structures, to chart a trajectory to move up in their careers. Our ethnographies helped identify these agentic possibilities – those admitted by them explicitly and the ones we could glean. Well defined organizational boundaries helped restrict our degrees of freedom to focus on concrete structures within them. We hope our studies provide a different lens of research in social mobility from the usual macro studies that have thrown up abundant variables, but meagre explanations. Our findings about social mobility point to this key felicity in such individuals to distance themselves from the messy circumstances thrown up by structures in a flux and discern the actual forces at work. The intransient real encompassing these multiple and diverse structural possibilities in fact offers them the flexibility to carve such a path. As to Jay Gatsby, our eponymous hero, the jury is still out on whether he succeeded in this endeavor.

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