

## CHAPTER III: RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter introduces the selected research method to determine the factors that may contribute to labour productivity in selected government oil companies in Libya, The study focuses on HR practices such as staff selectivity, on-the-job training, decentralised decision-making, and motivation of the employees and its link with labour productivity through social skills. The chapter also introduces the data, its nature, and sources of collection. Further, the chapter discusses the models adapted to evaluate labour productivity in the selected companies. The chapter begins by articulating the research design and approach. Following this, it introduces the research hypotheses relating between constructs. The chapter then introduces the measurement of independent and dependent constructs. It shows how independent and dependent constructs have been measured and presented. The chapter also introduces sampling techniques, and data collection approaches and analyses. It highlights what statistical and econometric techniques are used by the study along with testing the relationship between dependent, independent, and mediating constructs.

### 3.2 Research Paradigm

Social science research is undertaken to understand the nature in which people live in this world. Such an understanding helps in determining or establishing appropriate guidelines or policies to spur socio-economic growth (Mangan, Lalwani, and Gardner, 2004). Research undertakings are driven by ontological and epistemological assumptions. Ontological assumption is defined as “a branch of philosophy concerned with articulating the nature and structure of the world” (Wand and Weber, 1993). Epistemological assumption is defined as “the nature of human knowledge and understanding that can possibly be acquired through different types of inquiry and alternative methods of investigation” (Hirschheim, Klein, & Lyytinen, 1995). The ontological and epistemological views of a quantitative research paradigm are enveloped within a positivist stance, which views research outcome as singular and objective in nature. The idea is to find one answer that could be true in multiple situations. On the other hand, the ontological and epistemological assumptions of a quantitative research paradigm are subjective with multiple possible answers (Creswell, 2013).

Walby (2001) noted that epistemology is one of the antipathy towards perception that is common between disciplines but it is difficult to justify philosophically. The study on investigating employee’s opinion is more towards constructionist perspective that is too simple to serve as a research method. Thus, the positivism paradigm is more suitable for this kind of research (Fay, 1996).

The term paradigm refers to the process of scientific practice based on people's philosophies and assumptions about the world and the nature of knowledge and in this context it is about how the research should be conducted. A correct procedure is followed to find answer to a question with appropriate reliability and validity. As said by Gay and Weaver (2011), positivism has a long rich historical tradition. Positivism has particularly successful association with the physical and natural sciences. Gay & Weaver (2011), also debated whether or not positivist paradigm has a pluralistic attitude on the research of social sciences.

This research follows the positivist paradigm to investigate the attitude of the employees towards the labor productivity issues in the oil and gas companies of Libya. The author is actively involved with the management field and as such has personal views and beliefs about the research topic. However, for this research, the reality of the phenomenon studied is stable, observed and described from an objective viewpoint. The positivist approach is used and the variables are modified according to the requirements of the research questions.

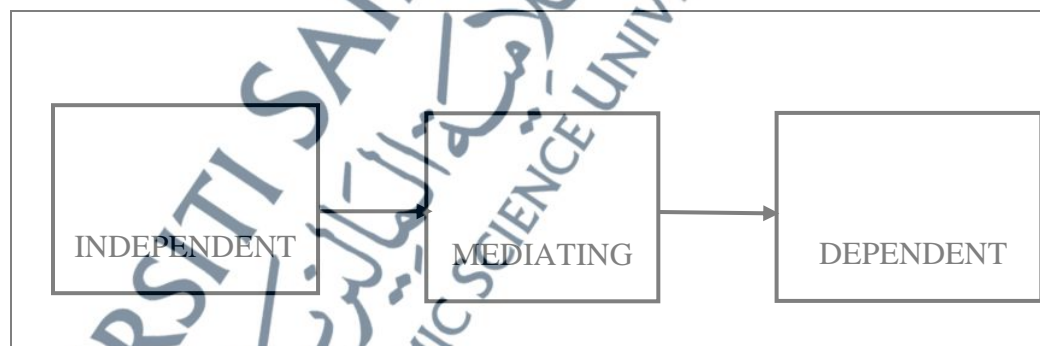
Silverman (2006) argued that positivism routinely uses facts, random samples, standardized questions and tabulations. He ruled out the use of mixed or tabular data as well as survey data as methodological positions. Bryman (2006) pointed out that it is important in Social Science to avoid epistemological incoherence between the uses of two main types of data. He suggested that for practical reasons one type of technique is usually primary.

### 3.3 Research Approach

The present study adopted the quantitative research approach in an attempt to answer the research questions and validate the research hypotheses. Quantitative research approach based on survey questionnaires is convenient to analyse and measure using figures, tables, graphs, and charts. In addition, numerical data generated using a questionnaire is quantifiable using statistical scales. To achieve the aims of this research, the adopted research approach follows a three-variable structure as shown in Figure 3.1 and consists of independent, mediating, and dependent variables. This research approach is appropriate in determining the relationship between variables (MacKinnon & Fairchild, 2009).

**Figure 3.1**

**A three-variable system**



#### 3.3.1 Hypothesis

The research approach explains various elements of the research. The hypotheses of the study are based on the logical relationships between independent and dependent

constructs. Each independent variable has been hypothesised with the dependent variable labour productivity. The objective of the hypotheses testing is to check the statistical validity, based on a certain level of significance.

### *HRM Practices and Labour Productivity*

It has been suggested by many academicians and practitioners that employee skills, incentives, employee motivation and radical HR practices like decentralised decisions have played an immense role for productivity improvements along with improving employee's skills (De Grip & Sauermann, 2013; Fallahi, Sakineh, & Mehin Aslaninia, 2010a). However, when it comes to the HRM practices in the oil and gas companies, there are very limited investigations. However, Lourenço Ubeda and Cesar Almada Santos (2007) mentioned that if the individual's needs were not met, then the organisation would be far reach out from improving the productivity. Similarly, Budhwar, Chand, & Katou (2007) found limited influence from HRM practices on productivity and high influence on turnover and financial performance. Other studies found mixed results. Thus, when it comes to HRM practices and labour productivity, this thesis hypothesises that:

Hypothesis 1: There is a positive relationship between HR practices and labour productivity.

### *Staff selection*

One of the major components of HRM practices that affects the productivity of the organisation is the selection of staff. This component not only affects organisational

productivity, but also its sales if not managed effectively (Huselid, Becker, & Beatty, 2005). An organisation utilises a variety of practices for HRM to improve the skills of the employees with an aim of fostering labour productivity. Recruitment should be such that it shortlists only the most eligible candidates. Such an approach has been found to boost labour productivity and organisational performance. Staff selectivity is an important HR practice which directly as well as indirectly affects organisational outcomes effectively (Huselid et al., 2005). HR efforts can concentrate on sophisticated selection procedures designed to screen out all but the very best potential employees can be hired only.

According to previous studies (Datta, Guthrie, & Wright, 2005; Ruël & Bondarouk, 2014) on the relationship between staff selection and labour productivity, this study also proposes positive relationship between these two variables. This hypothesis establishes a directional relationship between the two to hypothesise that:

H1a. There is a positive relationship between staff selectivity and labour productivity.

### *On-the-job Training*

According to De Grip and Sauermann (2013), "Training is a set of intervention that intends to maximise performance of individuals". If the employees in the organisation gets on-the-job training, it not only improves employee's skills but also lead to increase quality of the work performed. In order to increase knowledge and skills of employees, training play a crucial role benefiting the organisational outcomes and organisational objectives (Bartel, 2004). Labour performance is also enhanced while working in the dynamic environment of oil and gas industry in Libya (Darity Jr, 2003). Therefore, it can

be said that employee's attitude and behaviour is associated with the training and firm performance and even further associated with organisational outcomes like skills when it is in line with business strategy and organisational intensity. This thesis therefore hypothesises:

H1b. There is a positive relationship between on-the-job training and labour productivity.

### *Decentralised Decisions*

According to Zabochnik (2002), "Decentralisation refers a decision making responsibility as per the constitution of the organisation". Top management are the decision makers in the organisation. According to the study performed by Bloom & Van Reenen (2011), investigating 4000 different organisation in the countries from the United States, Europe and Asia revealed that decentralisation improves productivity of the organisation. It was also found that organisational outcomes are also improved with the help of decentralisation decision making. Thus, it can be said that firm productivity is directly connected to decentralised decisions. It is therefore hypothesised that:

H1c. Decentralisation decision is positively related to labour productivity.

### *Motivation*

Benefitting employees through compensation and rewards for their task achieved is considered motivation (Abozed et al., 2009; Kanfer, Chen, & Pritchard, 2012). Employee's behaviour and attitude along with their work performance is enhanced by providing rewards and compensation. Organisational performance can also be increased

by improving employee competencies and other forms of monetary rewards. According to Kinyili, Karanja, and Namusonge (2015), retention of potential and loyal employees can be maximised through compensation schemes. Similarly, according to Dreher and Dougherty (2005), team and individual performance can be maximised through reward based approach in the organisation. However, Chiu et al. (2002) acknowledged that organisational outcomes like work performance and labour productivity can be achieved by motivating their employees through rewards and compensation and motivating the employees. Thus, from the previous discussion, it is hypothesised that:

H1d. Employee motivation is positively related to labour productivity.

#### **HRM Practices and Social Skills**

HR practices can work well if the individual selected are well technical and socially skilled. A careful selection of staff, and technical and social development trainings can help in achieving organisation objectives (Masood, 2010). Companies are now enlisting social skills as a tool for managing various organisational activities and allowing instant communication between two different parties. Social skills promise to extend the capabilities of such high skilled workers who can increasingly improve short supply by streaming communication and collaboration and lowering barriers. Only under certain conditions it can be expected that cooperative efforts to increase employee's efforts to achieve and improve the quality of their relationships with their superiors and colleagues and their psychological health.

Improved HRM practices enable organisations to achieve their intended objectives which is often confined to increase in productivity among others such financial and non-financial benefits are subject to the verification of empirical hypotheses positively relating HR practices and social skills. Therefore it is hypothesised that:

Hypothesis 2: HRM practices is positively related to social skills of the employees.

Staffing is an important HR practice which directly as well as indirectly affects organisational outcomes (Huselid, Becker, & Beatty, 2005). Employees who are hired undergo a screening process prior to their employment. Selecting the appropriate staff for a specific position determines production. This appears to be the best way to potentially improve the performance of other employees and increase their chances of using their professional social skills to collaborate and develop networking of relationships to enhance their skills. Research indicates that sophisticated selectivity in staffing is positively related to the workers social skills (Huselid et al., 2005). Previous findings provide a guide in accepting that staffing plays a crucial role in enhancing productivity. In order to provide a definitive guide to address relating staffing in the oil companies, it is therefore hypothesised that:

H2a: There is a positive relationship between staff selection and social skills of the workers.

Training is applied as an instrument to improve the professional skills of the workers including social skills (Goldsmith et al., 2001). Thang et al. (2008) concluded that that training lead to improved financial and non-financial performance of the organisations.

Good employee capabilities enhance productivity because they possess new knowledge and skills to address problems at their work place. If the workers are mismatched in terms of skills and education requirements, there is a reduction in the overall productivity (Storey, 2004; Thang et al., 2008; Tharenou et al., 2007). In conformity with the previous pre-validated argument, it is therefore hypothesised that:

H2b: On-job training of workers has a positive relationship with social skills.

Decentralisation enables workers to associate and share a goal with other workers from different location. A study by Bloom, et al (2011) that focuses on decentralisation across countries with the help of 4000 different firms located in United States, Europe and Asia shows that decentralisation improves aggregate productivity of the firms via improving social skills and immediate problems solving. They argued that there are many reasons that allow decentralisation to improve organisational outcome. Decentralisation is indispensable particularly in the large firms such as Libya oil companies, because for a CEO is not possible to go through every small matter of the company. Decentralisation thus helps to have a close look at the workers, to understand their working problems, provide immediate solution and improve their organisational outcome. Although, there is no clear clue about the relationship between decentralisation and improvement in social skills however, it is safe to hypothesise that decentralisation is related to firm productivity via improvement in the professional performance of workers including their social performance. Thus, this study hypothesises a positive relationship between decentralisation and social skills of the workers. Therefore, it is proposed here that:

H2c: Decentralisation has a positive relationship with social skills.

Employee motivation can be affected by many factors especially those relating to wages and benefits. Compensation and reward process for instance has been found to enhance productivity through the acquisition of skills by workers (Abozed, Melaine, & Saci, 2009; Kanfer, Chen 2008 & Pritchard, 2012). Chiu et al. (2002) argued that rewards and compensation considerably technical and social performance of the employees. Rewards and compensations enhance retention of employees with the best talents for labour efficiency. In compliance with the findings of the previous on the potential of employees' motivation in improving productivity, it is therefore hypothesised that:

H2d: Employees motivation has a direct relationship with social skills.

### **Mediating role of social skills**

This thesis highlights the mediating effect of social skills in this direct model. Examining the role of primary antecedents (selection staff, training, decentralised decision, motivation) on labour productivity and mediating mechanism could explain the role in which social skills play to encourage such behaviour for a more complete understanding of this direct relationship.

Previous studies provide evidence of a direct relationship between HR practices and labour productivity (Lepak et al., 2006). However, in depth recent studies Aggarwal and Bhargava (2009); Thongsennheuang (2012) suggest that organisational outcome is not a direct function of HR practices such as training and managerial skills but is

influenced through social skills of the employees, which plays an important mediating role. Social skills have an assisting effect, which contributes towards a positive behaviour effect on labour productivity and hence the aggregate performance (Chudnovsky, López, & Pupato, 2006). The mediating effect of social skills is important because lacking social skills not only adversely affects the individual personality but the aggregate performance as well. There is a wide support about the mediating role of social skill Jordan, Ashkanasy, Härtel, & Hooper (2002) that consider the explicit role of social skills for optimal performance and increase organisational objectives. Hardworking persons if lack social skills, it is difficult for the subordinates or colleagues to work with them (Goleman & Boyatzis, 2008).

Moreover, social skills have been associated with multiple positive outcomes, especially in terms of labour productivity (Thongsennheuang, 2012). The social exchange perspective argues that employees with high social skills offer positive job attitudes leading this thesis to hypothesise that social skills will mediate the relationship between HR practices and labour productivity. In the following section, the researcher provides theoretical justification for proposing social skills as moderator of staff selection, training, decentralisation decision, motivation, and labour productivity.

While proposing the mediating effect of social skills in the relationship of staff selection, training, decentralisation decision, motivation, and labour productivity, the researcher posits that the positive direct relationship between these variables (staff selection, training, decentralisation decision, motivation), and labour productivity will be durable under conditions of higher social skills and vice versa. If an organisation provides

employees supportive practices such as showing an effective standard of selection employees, giving employees the freedom and the choice in carrying out their job, providing extensive training to enhance employees' skills, and provide them more information in order to help its employees to become more effective and efficient in their work, giving them opportunity to learn new skills and show willing to invest on their personal growth in the future planning, and finally providing them a good salaries, incentives as bonuses, employees will increase the productivity of the organisation, when through high social skills.

Employees with high social skills and who perceive supportive HR practices by their organisations, will tend to be more likely to increase their productivity. In contrast, employees who possess poor social skills and do not perceive supportive HR practices by their organisations, their desire to increase the productivity of the organisation is decreased. In considering the potential impact of employee motivation especially when they collaborate with other organisation, it is therefore hypothesised that:

Hypothesis 3: HRM practices and labour productivity is mediated positively by social skills

With immense organisational efforts to improve staff motivation, productivity can be enhanced including the role of social skills and abilities of the employees. It is not that only potential employees are needed to be recruited, but also employees with less skills need to be empowered through a sophisticated selection process. Thus, the research demonstrates that staff recruitment is positively associated with labour productivity and social skills. Katou (2008) found that in the context of Greece, the relationship between

HRM practice and organisational performance is partially mediated through HRM outcomes. It becomes obvious that an active relationship exists between selection of staff and labour productivity. Therefore, to draw a tentative conclusion in explaining the relationship effect, it thus hypothesised that:

H3a: Social skills mediate the relationship between selection of staff and labour productivity.

The positive relationship is believed to be durable when the employees possess higher social skills and through collaborating with other employee in different company.

In considering the change earned from on-the-job-training, Thang et al. (2008) inferred that that on-the-job training enhance learning, abilities, capacities, mentality, behaviour and performance of workers. The study found that learning obtained through training enhanced a firm's budgetary and non-monetary performance and work productivity. Various studies have investigated the importance of training and clarified their relationship increasing outcomes and productivity (De Grip & Sauermann, 2013). Task related development programs builds strength and improves social skills. Moreover, Tharenou et al. (2007) confronted that organisational outcomes and labour productivity may be mediated by employee's social skills and attitude. However, when training is more productive in reality when coordinated with the contextual factors like capital intensity and customer oriented outputs, it becomes obvious that the role of on-the-job training cannot be underestimated. Given the above, we hypothesise:

**H3b:** Social skills mediate the relationship between on-the-job training and labour productivity.

It is assumed that the positive relationship will be energetic when the employees possess higher social skills through on-the-job training that exposes the employee to varieties of skills and knowledge to improve productivity.

In trying to highlight the role of decentralisation in improving labour productivity, Richardson, Vandenberg, Blum, & Roman (2002) asserted that there had been increased organisational gains. Research examining how decentralisation relates to organisational performance is limited and inconclusive. Furthermore, Richardson et al (2002) studied the role of decentralisations on firm performance in a behavioural healthcare treatment centres. They noted that decentralisation had relationship with labour productivity via improving social skills and overall organisational performance. Similarly, there exists the tendency to propose that high relationships between decentralisation will improve labour productivity. At this clear indication, it is hereby hypothesised that:

**H3c:** Social skills mediate the relationship between decentralising firm decisions and labour productivity.

The positive relationship is assumed to be more robust as employees possess higher social skills when they are they motivated to collaborate with other employees.

Employee motivation plays a vital role in improving worker productivity. A study by

Dreher & Dougherty (2005) found that reward-based approach functions as the driver of team and individual performance via improved social skills in organisations. In another study, Chiu et al. (2002) found that compensation positively influences firm productivity and performance. It is obvious that employees need to be motivated in order to achieve high productivity, therefore it is hypothesised that:

**H3d:** Social skills mediate the relationship between employee motivation and labour productivity.

The positive relationship is believed to become more robust as oil workers possess higher social skills by collaborating with others workers.

#### **Social Skills and Labour Productivity**

HRM practices in isolation and without given proper attention to social skills could not successfully achieve an increase in the productivity of workers and hence organisational performance Velasco (2012). There are numerous studies that affirm the relationship between social skills and personal outcomes such as labour productivity Bandara & Weligodapola (2013); Uddin, Luva, & Hosnan (2013). Social skills are important because their absence or lack thereof not only adversely affects the individual personality but the aggregate performance as well. There is wide support that social skills positively affect labour productivity (Jordan et al., 2003). These researchers considered the explicit role of social skills for optimal performance and increase organisational objectives.

Based on the above judgments, it is safe to hypothesise that:

**H4:** Social skills have a direct and positive relationship with labour productivity.

The hypothetical questions enlisted above provide relevant justification of the proposed statement that requires assessment in order to define specific operational terms used in the study. The hypothetical testing is set to either confirm or disprove initially proposed statements under examination. This enables predictions of the research outcomes by deductive reasoning.

### 3.4 Variables and Measurement

The study consists of dependent, independent, and mediating variables. The dependent variable of this study is labour productivity. The literature has also coined this term individual performance or labour performance (Amalasunta, 2010). The empirical literature on HRM and labour performance include the productivity or performance measure that varies across the type and timeframe of the study. For example, performance is taken as productivity (West et al., 2002; Wright, Gardner, & Moynihan, 2003; Wright, Gardner, Moynihan, & Allen, 2005); self-reported employee productivity (Singh, Syal, Grady, & Korkmaz, 2010); labour productivity (Fallahi et al., 2010b); product quality (Wright et al., 2003); financial measures (Storey, 2004); labour efficiency (Guthrie, 2001); labour turnover (Davidson, Timo, & Wang, 2010); absenteeism (Zhu, Chew, and Spangler, 2005); and organisational performance (Savaneviciene & Stankeviciute, 2015).

The literature is mixed and does not explicitly identify what should be taken as a labour productivity measure. The nature of data and research problem jointly determines what should be taken as a labour performance or labour productivity (Amalasunta, 2010). The measurement scale used for this study is a five point Likert scale where 1 = “Strongly Disagree”; 2 = “Disagree”; 3 = “Neutral”; 4 = “Agree” and 5 = “Strongly Agree”.

### 3.4.1 Dependent variable

This study use organisational performance through labour productivity for a number of reasons. First, labour productivity is a crucial organisational outcome (Datta et al., 2005). It shows the extent to which a firm's labour force is efficiently creating output (which ultimately determine the performance of the organisation). Second, there is a direct relationship between human capital and productivity (Datta et al., 2005). Third, Delery and Shaw (2001a) reiterated that, "Strategic Human Resource Management (SHRM) philosophers have recognised labour productivity as the central indicator of labour force performance". Last but not the least, labour productivity is the most commonly used outcome in numerous strategic human resource management literature (Datta et al., 2005; Fallahi et al., 2010b; Kurre & Andrews, 2013).

Now the important question is how to measure labour productivity. Numerous measures have been used to calculate labour productivity. For example, output to labour input ratio or sale to labour cost ratio, logarithm of labour productivity, labour efficacy, labour turnover etc. Given the nature of this study (cross-sectional data collection), and the number of companies (Three oil companies which covers 80% of the total oil production), perception of organisational performance through labour productivity represent the best measure. Other productivity measures do not seem suitable with the available information related to this study.

Based on the methodology adopted from Tahir Masood Qureshi (2010), the measures of dependent variable is relative in the sense that the employees will be asked in the form of questions to determine organisational performance or labour productivity

(This study use the term performance or productivity interchangeably) relative to the performance of other commentators productivity. This study has slightly modified Delaney & Huselid (1996) model of organisational performance and developed labour productivity by using various items. Numerous studies present evidence of a positive relationship between measures of labour performance with measures of firm performance.

Table 3.1 presents the 9 items that will be used to construct the dependent variable labour productivity. These questions consist of information about various aspects of labour productivity. The items for labour productivity was extracted from Masood (2010) due to the high factor loadings and validation of the items. The other reason to consider the items of Masood (2010) was that it studied the same area of HRM. Masood focused on the perception of the employees in order to measure labour productivity construct. According to Brace (2013), previous studies in the same area are the best place for the selection of questions and are more reliable. Masood (2010) utilized the measurement items from previous scholars like Snell & Dean (1992), Boselie et al. (2001), Singh (2004), Laka (2004) and Qureshi et al. (2007) after the validation of the items. This study used the measurement items as developed by Masood (2010) based on the work of Snell & Dean (1992). Masood (2010) He used Instrumentality Theory is introduced in the 19<sup>th</sup> century. The main idea is that if we perform one job it will lead to another and people work for money by contributing towards economic outcome. It further focuses that rewards are contingent upon effective performance. If penalties and rewards are directly related to performance, the employees will be motivated to work hard. This theory is derived from scientific management.

Table 3.1

## Measurement Labour Productivity

Variable	Instrument	Theory	Reference
<b>LABOR PRODUCTIVITY: 9 Items</b>	1. Quality and quantity of our employees' work output has improved.	Instrumentality Theory	Snell & Dean(1992)
	2. Coming up with new concept is appreciated in the organization as labor productivity.		(Masood, 2010)
	3. Most of the employees achieved organizational objectives of last 5 years.		
	4. Over all employees targets achievements has improved over the last 5 years.		
	5. Employees feel happy to work in teams.		
	6. Majority of our employees can work independently and they give high performance		
	7. Employees in our organization have been enabled to make decisions well.		
	8. Employees' communication skills have been improved in this organization.		
	9. Employees' competencies are in line with the organizational operational and strategic objectives.		

Nevertheless, this measure of productivity is an important indicator of the organisational capabilities that can be used across the industries and for comparison with previous studies (Masood, 2010).

### 3.4.2 Independent Variables (Xi)

This study introduces a set of progressive HRM practices that influence labour productivity and hence organisational performance. Among such factors is staff recruitment practices and on-the-job training.

#### Staff Selection

This study measured the hire and fire of staff by using a variable that will capture the perception of the employees about staff selection, staff promotion, and staff firing. Firms have many HR practices to choose from when seeking to enhance staff skills. Initially, this will begin with effective recruitment practices to identify the best potentials for the job. Effective staffing has a direct relationship with labour productivity ; Huselid et al., 2005). Firms can also offer on-the-job training to existing staff to enhance their capabilities to meet its needs (Bartel, 2004). The items for staff selection were also considered by Masood (2010) as the factor loading for all the items were above 0.60 threshold as suggested by Hair et al. (2006) and Kline (2011). Masood (2010) utilized the measurement items from previous scholars like Snell & Dean (1992), Boselie et al. (2001), Singh (2004), Laka (2004) and Qureshi et al. (2007) after the validation of the items. This study used the measurement items as developed by Masood (2010) based on the work of Snell & Dean (1992). Masood (2010) He used the Instrumentality Theory is introduced in the 19<sup>th</sup> century. The main idea is that if we perform one job it consequently will lead to another and people work for money by contributing towards economic outcome. It further focuses that rewards are contingent upon effective performance and if penalties and rewards are directly related to performance, the

employees will be motivated to work hard. This theory is derived from scientific management.

**Table 3.2**

**Measurement Staff Selection**

Variable	Instrument	Theory	Reference
<b>Staff Selectivity: 10 Items</b>	1. Hiring and selection structure followed in our organization is well characterized	Instrumentality Theory	Snell & Dean(1992)
	2. In our organization, line managers and HR managers participate in enrolment and selection.		(Masood, 2010)
	3. Valid and standardized tests are used in the selection process of employees.		
	4. Selection structure in our organization selects those having the desired knowledge, skills and attitudes.		
	5. Our organization uses comprehensive selection process before delivering a decision.		
	6. The organization uses appraisal centers for selection		
	7. Our organization uses impartial test and interviewing techniques for employee selection.		
	8. Our organization selects employees without any favouritism		
	9. We have robust merit criteria for employee selection.		
	10. We use attitude and desire to work in a team and individual as a criterion in employee selection.		

### **On the Job Training**

This study measured on the job training using 10 items. Following the approach developed by Masood (2010) the depth of job training was measured to know that the company had provided any formal job training in the past two years, similarly how many employees had received the training during that time interval, and finally, the views of the employee about the overall capabilities of their training programs. Masood (2010) utilized the measurement items from previous scholars like Snell & Dean (1992), Boselie et al. (2001), Singh (2004), Laka (2004) and Qureshi et al. (2007) after the validation of the items. This study used the measurement items as developed by Masood (2010) based on the works of Snell & Dean (1992). Masood (2010) He used the Instrumentality Theory is introduced in the 19<sup>th</sup> century. The main idea is that if we perform one job it will lead to another and people work for money by contributing towards economic outcome. It further focuses that rewards are contingent upon effective performance and if penalties and rewards are directly related to performance, the employees will be motivated to work hard. This theory is derived from scientific management.

Table.3.3

## Measurement Employee Training

Variable	Instrument	Theory	Reference
<b>On the Job training: 10 Items</b>	1. Our organization conducts extensive training programs for employees.	Instrumentality Theory	Snell & Dean(1992) Masood(2010)
	2. Employees at each job normally go through training programs every year.		
	3. Training needs are identified through a formal performance appraisal mechanism.		
	4. There are formal training programs to teach new employees the skills they needed.		
	5. Trainings need identified are realistic, useful and based on the organizational strategy.		
	6. There are formal training assessment methods to determine the capabilities of the training.		
	7. The organization has a structure for calculating the cost and benefit of training.		
	8. Training has helped reduce employee turnover in our organization.		
	9. Training has resulted in higher employee performance in our organization.		
	10. Training has resulted in higher productivity and financial returns for the organization		

## Employee Motivation

Motivation plays a very important role to boost employee and firm productivity (Abozed et al., 2009; Kanfer et al., 2012). Business organisations increase workers' motivation by giving contingent incentives. This study uses ten-item index of motivation rewards. The literature reveals that employees may not be performing well when there is no incentive or rewards for good work or when the HR administration promotes equitable practices. From the extensive literature on proper motivation towards organisational growth in Masood (2010), due to high focus on industrial growth it becomes evident to motivate the employees. Masood (2010) utilized the measurement items from previous scholars like Snell & Dean (1992), Boselie et al. (2001), Singh (2004), Laka (2004) and Qureshi et al. (2007) after the validation of the items. This study used the measurement items from Masood (2010) after the confirmation of reliability and validity testing.

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Table 3.4

## Measurement Employee Motivation

Variable	Instrument	Theory	Reference
<b>Employee Motivation: 10 items</b>	1. Compensation offered by our organization matches the expectancy of employees.	Instrumentality Theory	Snell & Dean(1992)
	2. In our organization , salary and other benefits are comparable to the market.		Masood (2010)
	3. In our organization, compensation is decided on the basis of competence of the employee.		
	4. In our organization, profit sharing is used as a mechanism to reward higher performance.		
	5. Our organization offers both financial and non-financial rewards without discrimination.		
	6. The compensation plan is revised accordingly with the economic situation.		
	7. Take home pay is enough for my family and me.		
	8. My last year's salary raise was better than the previous one.		
	9. Salary increase in my organization is primarily based on seniority.		
	10. The compensation for all employees is directly linked to their performance.		

### **Decentralised Decision Making**

Job or work structures play a vital role in organisational performance. Decentralising decisions are important to enhance organisational performance and labour productivity through trained and motivated workers (Theriou and Chatzoglou, 2008). This reflects whether all decisions are centralised. This study uses employee participation in decisions with an 8 items scale. It shows the level at which vital organisational decisions are taken regarding hiring and efficiency assessment of the employees. The decentralised decision making variable gets a smaller value when the organisation related decisions are made by the head of the organisation such CEO or Managing Director (MD). While, the same decentralised decision making variable takes a higher values when organisational decisions are taken by decentralised process such as lower and middle level management team. The items for decentralised decision making was extracted from Richardson et al. (2002) who focused on organisational gains and its financial performance confirmed that decentralised decision making is an important factor. The items of decentralised decision were developed by Richardson et al (2002) based on the work of Aiken & Hage's (1966). He used the Contingency Theory, and challenged future researchers to seek out condition in which decentralized decision-making may be embedded and which act to support or undermine decentralization influence upon outcomes, particularly ones such as those describing organizational performance.

Table 3.5

## Measurement Decentralised Decision Making

Variable	Instrument	Theory	Reference
<b>Decentralized decision making: 5 items</b>	1. There can be little action taken until a supervisor approves a decision.	Contingency Theory	Aiken and Hage's (1966) (Richards on et al., 2002)
	2. People who want to make their own decisions would be quickly discouraged.		
	3. Even small matters must be referred to someone higher up for approval.		
	4. Employees must ask their supervisors before doing almost anything.		
	5. Any decisions employees make must have their bosses' approval.		

**Mediating Variable (Social Skills)**

This study will use social skill as a mediating variable. It has an assisting effect, which contributes towards a positive behaviour effect on labour productivity and hence the aggregate performance (Brewster, Suintari, & Minbaeva, 2005). The mediating effect of social skills is important because lacking social skills not only adversely affects the individual personality but the aggregate performance as well. There is wide support for the mediating role of social skill for example (Jordan et al., 2003). They consider the explicit role of social skills for optimal performance and increase organisational objectives. Highly hard working persons if lack social skills, it will be difficult for the subordinates or colleagues to work with them (Goleman, 2003). There are many

dimensions of social skills but the most important are collaboration and networking (Dougherty & Larson, 2005). Collaboration is the ability to jointly complete tasks with others (Morris, 2008). According to Arend (2004), the members of an organisation who are working together must understand and pay respect for the sake of firm efficiency and achieving its objectives. According to Dougherty and Larson (2005), collaboration does not necessarily mean a mutual beneficial relationship between two organisations but within the organisation and its different units as well. The most common and understandable definition of collaboration is provided by (Huxham & Yangen, 2000). According to them, “collaboration is the working relationship between two or more individuals”. Networking is another important dimension of social skills. According to Samson and Daft (2009), it is the ability of the entrepreneur to work effectively with and through other group member. According to Cummings and Worley (2014), the foremost important aspect of networking is to develop interpersonal relationship with all those who are working within the same working environment. Networking is an important social skill. It helps in developing a team and interaction among the working members in an organisation (Baron & Shane, 2007). According to Thongsennheuang (2012), social skills changes managerial skills and performance. Collaboration plays an important role for the interaction between two entities for the diversity of behaviours like communication, information sharing, cooperation, coordination, and negotiations. The items considered for Collaboration construct were developed by Thongsennheuang (2012) based on the work of Croker ,A,Higgs,J& Trede,F ,(2009). Thongsennheuang (2012) used The Attribution theory, which refers to how individuals interpret events and how this relates to their thinking and behavior. Similarly, Wolff & Kim (2012) suggested a

comprehensive framework to investigate the influence of networking tapping into social and informational features that are relevant in facilitating behaviour. The measurement items of networking in the research were developed by Wolff & Kim (2012) based on the works of (Wolff & Moser 2006). Wolff & Kim (2012) used the Social Capital Theory that assumes social network is one of the firm resources that plays a role in explaining the improved performance of diverse groups.

**Table 3.6:** Measurement of Social Skills

Variable	Instrument	Theory	Reference
<b>Collaboration:</b> 4 Items	1. I have cooperation among the people at work.	Attribution theory	Croker, A., Higgs, J., & Trede, F. (2009). (Thongsennheuang, 2012)
	2. I am in teamwork and group problem solving.		
	3. I create the conditions for brainstorming the strategic issues and actions		
	4. I create credible processes for collaborating.		
<b>Networking:</b> 6 Items	1. I use company events to make new contacts.	social capital theory	(Wolff and Moser 2006) (Wolff& kim 2012)
	2. I catch up with colleagues from other departments about what they are working on.		
	3. I use my contacts with colleagues in other departments in order to get confidential advice in business matters.		
	4. I accept invitations to official functions or festivities out of professional interest.		
	5. I ask others to give my regards to business acquaintances outside of our company.		
	6. I exchange professional tips and hints with acquaintances from other organizations.		

### 3.5 Population and Sampling

#### The Krejcie and Morgan Method

This research examines labour productivity in the selected government oil companies in Libya. The research sample is limited to the following Libyan oil companies: 1) Waha Oil Company (WOC), 2) Arabian Gulf Oil Company (AGOCO), and 3) Sirte Oil Company (SOC). These are the leading government owned oil companies working under the National Oil Commission (NOC) of Libya. The selected companies represent 70% of the total oil sector output.

**Table 3.7**

#### Description of Selected Government Oil Companies

Company	Waha oil Company (C1)	The Arabian Gulf Oil Company (C2)	Sirte Oil Company (C3)
<b>Industry</b>	Petroleum	Petroleum	Petroleum
<b>Employee</b>	3200	2400	6652
<b>Year of establishment</b>	1956	1979	1981

Source: [www.eia.doe.org](http://www.eia.doe.org) (2015)

Waha Oil Company with total employees of 3200, The Arabian Gulf Oil Company of 2400 and Sirte Oil Company employees are of 6652, thus the total population of the three companies is 12252 employees. Krejcie and Morgan (1970) developed a technique to determine the research sample. The technique utilised for the study is non probability purposive sampling as during the data collection period the

population data was not available appropriately. Non probability sampling is a subjective approach where the selection of probability of selecting population elements is unknown. There is also a greater opportunity for bias to enter the sample selection process and to distort the findings of the study. This non probability sampling method addresses the difficulties of accessing information that are particularly acute in Libya.

The formula can be simply expressed as:

$$S = X^2 NP (1 - P) \div d^2 (N - 1) + X^2 P (1 - P)$$

Where:

S= required sample size.

$X^2$  = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05).

Population validity approach was followed in order to identify sample from the population. This approach have the ability to generalize from the sample of individuals on which a study was conducted to the larger target of population.

### 3.6 Data Collection

The tools below were employed to collect accurate and reliable data for optimal and representative results.

#### Primary data collection

This study mostly relied on ordinal Likert scale (1-5) primary data that were collected through 339 employee's survey of the Libyan oil and gas companies. A survey is

administered to get data through questionnaires from 339 employees, working in the sampled companies. The goal of this survey is investigate the research questions in the proposed context. Based on the literature and proposed framework to investigate labour productivity, the questionnaire focus on the following factors:

1. HRM Practices
  - a. Staff Selection
  - b. On-the-job training
  - c. Decentralised decision making
  - d. Employees' motivation
2. Labour productivity
3. Social skills
4. General information about the respondents

The details of the constructs and their measurement have been given in detail in section 3.2. The data about the mentioned constructs is thus collected through a questionnaire with 339 employees.

#### **Study Period**

To determine employees' demographic and other information, data were collected from December 2014 to February 2015 in selected Libyan oil and gas companies.

#### **Defining the study area**

The sample methodologies are used to select samples. The study was conducted on 339 samples. The locations were various selected oil companies in Libya.

### 3.7 Data Analysis

The data is collected on ordinal and nominal scales to collect information about dependent, independent and mediating construct. Therefore, mean as a central tendency measure is used to reveal the average behaviour and to develop continuous variables from the data.

#### 3.7.1 Analytical Techniques

Analysis of the study has been divided into three major categories. The first section of analysis of data is related to the pilot study. It will help in investigating the consistency of the results. First, the pilot study's Cronbach's alpha test is used to check the consistency of the items in the self-administered questionnaire. Cronbach's alpha examined that the responses collected from a given item is correlated robustly with each other's or otherwise. This test helps in pilot studies to refine the questionnaire and its items for the main study. Coefficient alpha is calculated for the measured items of the variable in the reliability analysis that estimates the proportion of variance in the scale score. According to Maher et al (2003), "Reliability analysis is the key indicator of the scale quality".

Secondly, descriptive statistics for an overall summary of labour productivity, correlation analysis for investigation of association among the different factors such as progressive HR practices, experience, and employees' characteristics is used. As the data is collected on the Likert scale, the rank correlation test is more suitable (Bobko, 2001). For the development of certain indices such as staff selectivity index, motivation index

etc., we shall transfer the Likert scale variables into continuous variables by calculating the respective means of the items. Therefore, this study shall also require a Pearson's correlation test to investigate the correlation among the different items.

### **Confirmatory factor analysis**

For applied research, confirmatory factor analysis (CFA) deals with measurement models as a type of structural equation modelling technique. The hypotheses driven nature of CFA represents as a fundamental nature. The pattern of factor analysis designed by CFA helps to identify how the subscales need to be scored. According to Hair et al. (2011), factor analysis above 0.60 is considered important.

A variable is said to mediate the relationship between a predictor (HR practices in this case) variable and an outcome (Labour Productivity) variable if the predictor variable first has an effect on the mediating variable, and this in turn influences the outcome variable. Hence, a mediating (M) accounts for the relationship between a predictor variable (HR) and the outcome variable (LP). Mediation has to be strictly distinguished from moderation: Depending on the extent, two forms of mediation have to be distinguished (MacKinnon, 2008)

- Complete mediation exists if the predictor variable exerts its total influence via the mediating variable (M).
- Partial mediation is given if the predictor variable exerts some of its influence via M, and it exerts some of its influence directly on the outcome variable and not via M.

Based on our sample size (n= 339), and the nature of casual relationship we proceed to investigate between dependent variable (labour productivity) and a set of

independent constructs and mediating effect perhaps hierarchical regression seems more fit in the study of existing relationships.

### 3.8 Pilot Study

A pilot study ascertains the suitability and the clarity of the questionnaire. Following the model of Hertzog (2008), 10% respondents of the sample size is sufficient for a pilot study, therefore, this study used 40 random workers as respondents of this pilot study. The variables in this study are adopted from past studies. A pilot study must be conducted in order to confirm the selected variables are suitable for this study. The pilot study is generally helpful to ensure and determine the possible relationship among variables in the theoretical framework. The results obtained from the pilot study will also help and permit the researcher to carry out full-scale further analysis. It helps ensure that reliability of the questionnaire is acceptable. This could result in the refinement of the questionnaire based on the response from the pilot study. For this study, the pilot study was conducted on national oil companies in Libya to confirm that all the items in the questionnaire are reliable and thus suitable for further analysis. A total of 55 questionnaires were distributed with the help of colleagues and friends working in national oil companies (NOC) in Libya out of which only 40 were returned and subsequently used for reliability analysis. Past literature shows that any reliability estimate value, which is 0.7 or higher, is considered good (Hair et al., 2006).

The researcher has undertaken a pilot study for discovering the probable associations among the variables in the hypothetical framework. The results of the pilot

study will certify further investigation for the variables. Moreover, a pilot study will confirm that the all the items in questionnaire were reliable and valid. The questionnaires were distributed among the oil companies in Libya. The pilot study help in checking the language of the questions and its suitability for the respondents. If it is easy for the respondents to understand and supply answers, this will represent the suitability of questions, its language and the compatibility with the respondents understanding level. The pilot study will also help to know how much time is needed for the full sample collection and what major technical problems we may face. This will help to revise all those instruments that are either not clear to the respondents or not suitable. The timeframe of pilot study will help the researcher to estimate the real time interval for the whole study based on the pilot study experience. It may suggest changing few hypotheses or dropping some, or developing new hypotheses.

The pilot study provides new insights, concept and thoughts about the study which the researcher may not have foreseen before conducting the pilot study. Such concepts and clues increase the chances of getting clearer findings in the main study. The pilot study also allows checking the planned statistical and analytical procedures, giving you a chance to evaluate their usefulness of the data. This will be beneficial to revise, change or develop and apply additional techniques. It can also help in saving time and money. This will help in investigating the practicality and feasibility of the study. The pilot study almost always provides enough data for the researcher to decide whether to go ahead with the main study. In a nutshell, the researcher may try out a number of alternative measures and then select those that produce the clearest results for the main study.

Table 3.8

## Reliability Analysis Results for pilot study

Measured items	Cronbach's Alpha
ST1	804
ST2	798
ST3	809
ST4	796
ST5	801
ST6	798
ST7	799
ST8	.801
ST9	802
ST10	809
JT1	799
JT2	797
JT3	803
JT4	802
JT5	799
JT6	800
JT7	794
JT8	801
JT9	799
JT10	807
EM1	808
EM2	805
EM3	799

Table.3.8 (Continued)

Measured items	Cronbach's Alpha
EM4	804
EM5	806
EM6	804
EM7	803
EM8	802
EM9	801
EM10	806
DC1	804
DC2	806
DC3	807
DC4	807
DC5	803
CO1	802
CO2	811
CO3	809
CO4	811
NW1	804
NW2	808
NW3	803
NW4	805
NW5	809
NW6	800
LA1	805
LA2	802
LA3	805
LA4	808
LA5	799
LA6	810
LA7	809
LA8	807
LA9	797

After completing the pilot study, reliability test is performed to check the reliability of the Likert scale questions. If the result of the test is not reliable then the language of the questions is revised to make them more understandable for the respondents.

Hair et al. (2006) specified that the reliability estimation of 0.7 or higher recommends a decent reliability, and reliability that is between 0.6 and 0.7 is satisfactory. In the pilot test, the researcher coded the 40 returned questionnaires for analysing by using SPSS Version 21.0 and the consistency of the instrument was tested. As shown in Table 3.8, all the Cronbach's alpha values are higher than 0.70, ranging from 0.794 to 0.811 specify a decent reliability for all variables. Subsequently, the questionnaires will be distributed to the remaining targeted companies in Libya.

### 3.9 Analysis of Research Instrument

After completing the phases of collecting data from the field, data were carefully summarised and scrutinised before actual tabulation. Revealing the findings of the study, processed data were transferred to a master sheet. Then data were entered into the computer. A number of tables were prepared on the basis of aims and objectives of study.

The collected data were coded, summarised and processed for analysis. These data were verified to eliminate all possible errors and inconsistencies. Any kind of inconsistencies in data were searched and avoided out from the relevant data. Data were presented mostly in the tabular form, because it is easy to understand. Collected data were analysed by different econometric software such as, MS Excel, SPSS version 21 and AMOS 21. There are two most prevalent analytical methods in SEM, that is, covariance-based SEM (CB-SEM) and variance based SEM (PLS-SEM). This study utilized CB-

SEM with AMOS to illustrate its application in examining the relationship between HRM practices, social skills and labor productivity. CB-SEM involves a maximum likelihood procedure whose goal is to minimize the difference between the observed and estimated covariance matrices, as opposed to maximizing explained variance. When CB-SEM is executed the error terms are modeled for each indicator and loadings of the individual indicator are obtained. This enables elimination of indicators with large error terms and/or low loadings, thus improving the quality of the latent constructs modeled. Specifically, the confirmatory factor analysis (CFA) stage of CB-SEM allows all latent constructs to co-vary mutually and thereby permits quantitative assessment of both convergent and discriminant validity for each construct. Due to covariance based analysis, the validity and confirmation of model is very high in CB-SEM as compared to PLS-SEM that is unable to confirm the model due to lack of fitness criteria

### 3.10 Chapter Summary

This chapter introduced the material and methods, analytical techniques, sampling variables, and introduced the pilot study. A set of hypotheses are introduced to verify the statistical relationship between independent, dependent, and mediating variable. The hypotheses are based on standard literature. The chapter further introduced the measurement scale of all constructs, sampling technique, and data collection approach and analyses. It highlighted the statistical and econometric techniques used by the study to testify the proposed relationships between dependent, independent, and mediating constructs.