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Demand for Skills in Zambia

A firm-based study of demand for technical occupations

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1. Introduction

The lack of skilled technical workforce is commonly cited as a critical development constraint for private sector development in Zambia. Yet, more precise estimates of the size and nature of the demand for technical skills in Zambia are missing. For vocational training centers (VTCs) as well as regional and national education authorities in charge of planning, designing and executing technical skills training, a better understanding of the size and nature of the skill gaps is necessary.

United Nations Industrial Development Organization (UNIDO), the Swedish International Development Cooperation Agency (Sida), Volvo Group and Northern Technical College (NORTEC), have joined forces in addressing skills shortages in the transport-commercial trucks sector and promote sustainable and productive employment for Zambian youth. Phase 2 of the Zambian Industrial Training Academy (ZAMITA II) will enhance the institutional capacity of NORTEC through a modern curriculum, modern machinery, infrastructure upgrade to accommodate the modern machinery, and staff development programs empowering the staff to maximize the usage of the modern machinery.¹ These efforts are expected to strengthen NORTEC's capacity for providing a workforce that meets the requirements of the labor market, foster productivity growth in the private sector, and create sustainable and decent jobs for automotive and heavy equipment engineering.

To ensure that the number and qualifications of graduates corresponds to market needs, more information on the demand for skills is needed. What is the size of the skills gap? At what level of skills (basic, intermediate, advanced) is the gap most severe? What transversal skills (workplace skills such as diligence, autonomy or team-work, analytical skills such as problem solving), are important to complement specific technical skills? How should NORTEC and other VTCs in Zambia best structure their courses to fill this gap?

As part of project preparation, UNIDO/NORTEC have undertaken surveys with local firms in Northern Zambia to better understand their workforce needs, with a particular focus on the transport sector and heavy-equipment repair. Two sets of surveys have been deployed, with two different purposes: (i) one in-person and one online survey focusing on the demand for skills in terms of expected hiring in the near future and in terms of most valuable transversal skills (ii) a technical survey focusing on employers' expectations of technical content for each of these strands. This report summarizes results from the first set of surveys of labor demand. The technical survey (ongoing) will feed directly into the curriculum.

This report presents a brief overview of the economic outlook and implications for Zambia's growth and job creation prospects; the survey design and process, main findings from the surveys, and conclusions and recommendations emanating from these findings.

2. The macroeconomic and labor supply context

Prior to the on-set of the Corona-pandemic, Zambia was already experiencing a slow-down in economic growth. The high growth rates of the recent past, much due to high global demand for copper, did not translate into poverty reduction, largely because of the lack of direct or indirect impact on job creation. Copper mining is a capital-intensive industry with limited direct effects on the economy in terms of jobs, backwards or forward linkages to local firms, or technical know-how. Whereas copper provides the bulk of exports income and is a major contributor to economic growth, over 40 percent of the population remains locked up in subsistence agriculture characterized by low productivity and precarious income opportunities, with as many as one out of four Zambians living with food insecurity. A serious drought

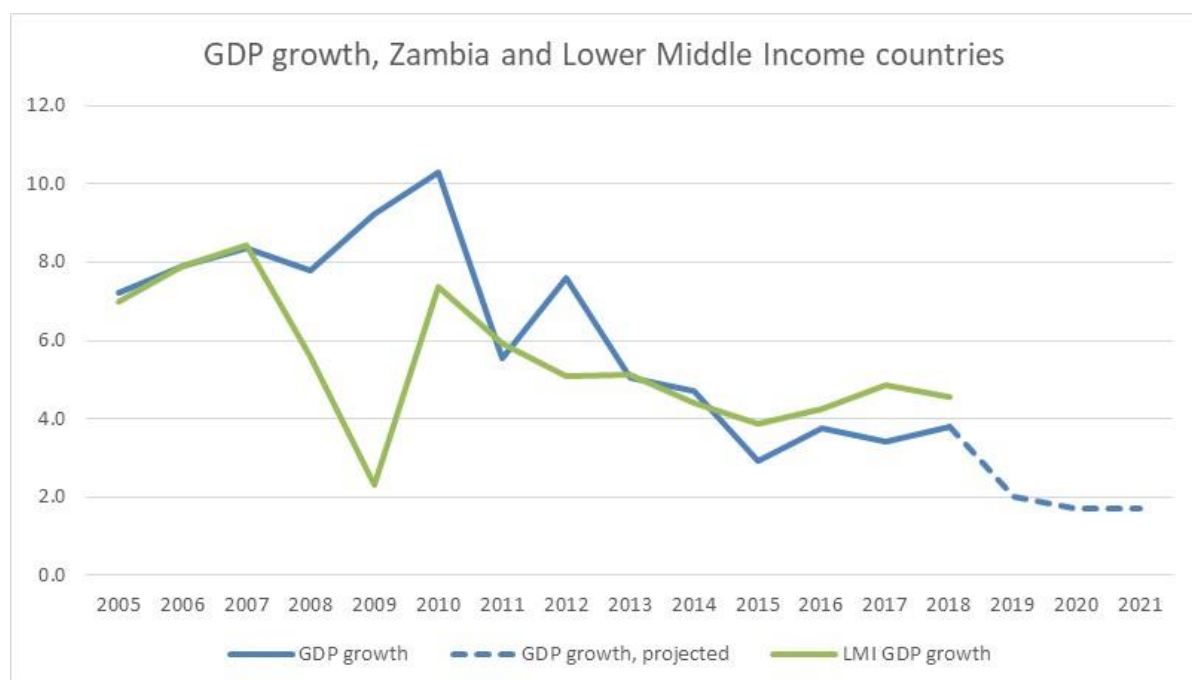
¹ The first phase of the project implemented through this partnership (ZAMITA I) also focused on building skills, in heavy equipment repair techniques.

in 2018-2019 affected agricultural output and incomes significantly. Growth has slowed down and fallen beyond the average levels registered in low and middle-income countries (Figure 1).

To ensure more stable and inclusive growth, Zambia urgently needs to diversify its economy. In doing so, Zambia will need to harness its natural resources in a sustainable manner – especially those that are renewable, such as forests, agricultural land, and water – to boost agriculture, forestry, and tourism exports. Moreover, Zambia could become a significant trade-hub for southern Africa. Infrastructure connectivity, including better transport, is needed to support this transformation. To develop these sectors as productive activities, technical skills in transport sectors will be needed.

At the same time, the Corona pandemic is now affecting global economic developments, Zambia's growth prospects (Figure 2), demand for copper, and demand for logistics services related to mining and other industrial activity. Given that copper is closely linked with global economic developments, prices are not likely to recover in the near future, and the outlook for mining exports remains pessimistic. This will likely have negative effects on the local economy in the Copperbelt, where NORTEC is located, as well as on the resources available to the Zambian government for productive investment (due to foregone tax income). A (likely) global depression will lower the demand for technical skills.

Figure 1: Growth has been slowing down, below developing country averages, and is projected to fall further.*



Source. WDI; projection from IMF Article IV, IMF Country Report No. 19/263. *Projection prior to Corona-pandemic.

Figure 2: Copper prices are falling which will hurt the Zambian economy

Source: <https://tradingeconomics.com/commodity/copper> (USD/LB)

Labor markets in Zambia are undergoing a transition, but with limited transformation towards higher productivity jobs. Although Zambian labor force data are not fully comparable over time, it is clear that the past fifteen years have seen the share of agricultural employment fall. However, most of this agricultural employment was replaced by low productivity jobs in low-value services in the informal urban and rural economy.² Employment is limited in the mining, construction, and transport sectors: In 2018, these accounted for 3, 6 and 4 percent of total employment.³

Although a shift into more wage jobs will be essential to raise earnings and the quality of jobs more broadly, fostering a competitive and connected SME and micro-firm sector will be necessary to improve jobs outcomes over the medium term. Across most of Zambia's economic sectors, large (and foreign-owned) firms co-exist with smaller, informal and self-employed workers. Connecting the smaller firms with the larger and more productive enterprises – through both goods and services linkages – and fostering spillovers will be critical to Zambia's economic progress.

To foster such linkages, a skilled workforce will be needed. Education, especially secondary and post-secondary education, pays off significantly in terms of earnings in Zambia. Education provides access to non-agricultural jobs. Workers in technical occupations – ranging from "high skill" technicians to "medium skill" machine workers – typically have completed secondary education. However, significant challenges remain in upskilling the future and current workforce. Although Zambia has made commendable progress in primary education enrolment (86 percent in the relevant age group complete primary school), the quality of basic education is insufficient, as witnessed in proficiency tests. Further, access to secondary education in Zambia is limited in part due to limited system capacity. The transition rates are 62 percent from primary to lower secondary education (grades 7 to 8) and 43 percent from

² Merotto, D. 2017. Zambia Jobs Diagnostic: Volume 1 – Analytics. World Bank, Washington, D.C.

³ Zambia Central Statistical Office. 2018. 2018 Labour Force Survey Report.

lower secondary to higher secondary (grades 9 to 10). Only a small minority, hence, are able to complete secondary school.⁴ Those that do, are less likely to come from more vulnerable populations.

3. The demand side context - Zamita/NORTEC Labor Surveys

3.1. Method

Overview

To understand the potential demand for students from NORTEC, two surveys were deployed to two sets of Zambian firms. 96 companies were visited for an in-person survey (labelled “*the Zamita Labor Force Survey*”). An online survey (labelled “*the NORTEC online labor data survey*”) was provided to 31 companies and filled out by the firm independently. The two surveys are similar in structure. However, in terms of occupations, the Zamita Labor Force Survey focuses on the level of training (technologist, technicians, etc.), whereas the online survey focuses on three key occupations of interest for NORTEC (heavy-duty mechanics, automotive mechanics, and automotive electricians). The online survey was made shorter than the in-person survey, to avoid “survey fatigue” and ensure that unsupervised respondents focused on answering key questions.

The choice to combine an in-person survey with an online survey reflects the desire to use cost effective approaches to collect large amounts of information with limited technical, human and financial resources. The surveys are thus partly complementary, as the in-person survey allowed for more in-depth questions (and for resolving any uncertainty or misunderstanding on the spot), whereas the online survey permitted outreach to a large number of firms. Specific larger employers were targeted for the in-person surveys - as will be seen, the firms responding to the online survey are generally smaller than the firms targeted for the in-person survey, and serve individual clients rather than other businesses or government clients.

Content

The surveys are short but contain components similar to other competency-based surveys such as the World Bank STEP-surveys⁵ in that they collect some information on employers’ views on transversal analytical and work-place skills. Both surveys ask questions related to:

- 1) **Firm characteristics:** sector, age, foreign ownership or not, main type of customer (other firms, government, individuals, etc.).
- 2) **Firm views on the demand for their services/products:** Is demand strong? Has it improved or worsened? What are the expected prospects for next year? A positive outlook would indicate more hiring opportunities, all else equal.
- 3) **Characteristics of the current workforce:** number of employees, gender and age group. What do the typical employees look like? What does the profile of workers suggest about the kind of worker skill and experiences the firm is looking for?
- 4) **Qualifications/Occupations:** number of workers at different levels of qualifications and in different occupations, recent recruitment, plans for hiring, vacancies. The surveys are centered on three levels of qualifications of relevance to NORTEC: (i) technologists, corresponding to 3 years and 3 months of training, (ii) technicians, corresponding to 2 years and eight months and

⁴ Based on: World Bank. 2017. Zambia - Education Enhancement Project (English). Washington, D.C. : World Bank Group; data are somewhat old (from 2014).

⁵ <https://microdata.worldbank.org/index.php/catalog/step/about>

(iii) artisans/craftsmen, corresponding to 2 years. The purpose is to better understand the demand for different levels of qualifications and how these pay off in labor markets.

Process

Both surveys were developed, tested and revised in several rounds before being launched, first within the ZAMITA Committee comprising members from UNIDO field office and NORTEC, to ensure logical questions and options, and then with two local companies.

The *ZAMITA Labor Force Survey* was launched on 17th February 2020 and was completed in two waves between February and July 2020. The ZAMITA field office team used three sources of information to identify firms for the survey. First, the team managed to access enterprise registry data or the Northern region from Engineering Institution of Zambia (EIZ) and Zambia Federation of Employers (ZFE). The database has more than 1400 companies out of which forty (40) were approached. Second, the team drew on ZAMITA's own database of firms that is used to organize internships, approach firms for jobs placements, firm-level training, etc.. Third, during the field visit, the team identified other firms, especially SMEs, of relevance to the training, and extended the survey to such firms where possible.

The team faced significant constraints in collecting the surveys – some companies did not respond, others refused to share financial or labor data. During final follow-up, most companies were closing up as a result of social distancing limitations due to Covid-19. In spite of these obstacles, the team managed to collect in depth information from nearly 100 companies.

The *Online Labor Force Survey* was launched on 2nd March 2020 and completed on 27th March 2020. Initially, more than one thousand firms were invited of which only 5 responded. The team then decided to use a telemarketing approach through which 100 firms were targeted. In total, 31 firms provided sufficient information to be included in the sample for analysis. Again, this must be considered a strong result, given the disruption due to the COVID19 pandemic.

3.2. Survey results

The ZAMITA Labor Force Survey - In person survey

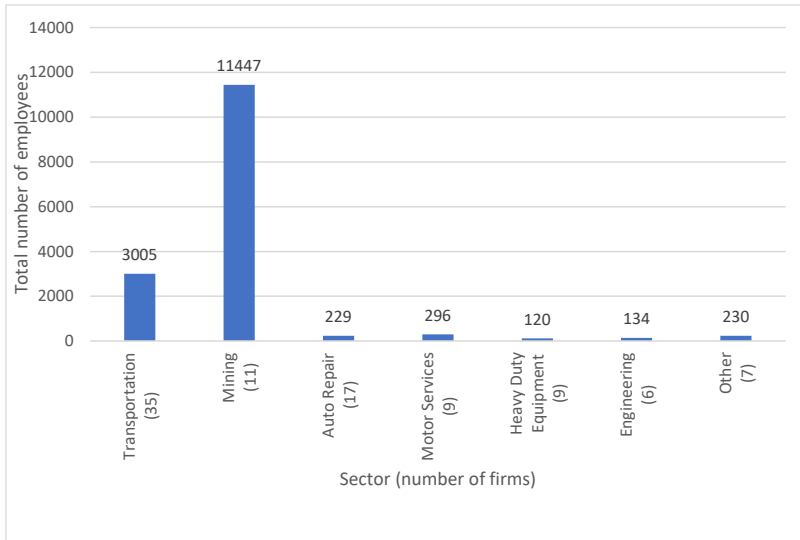
Face-to-face interviews were undertaken with 96 companies of different sectors and different sizes. Not all companies responded to all questions.

Out of a total of 96 companies, 35 companies were transport companies (with an average of 91 employees) and 11 were mining companies (with an average of 1014 employees). The remainder of the sample was made up of auto repair firms (9 companies), motor service companies (9 companies), heavy duty equipment maintenance (6 companies) and 7 firms from other sectors.

The companies mostly provide services to other companies (72 out of 96), to individual customers (59), and to government (25). Strong linkages with other businesses suggests that the overall economic situation is a key determinant for the demand for goods, services – and workers.

Most of the employment in the sample is concentrated in the mining sector (Figure 3). In fact, three large mining firms account for two thirds of all employment in the sample. The demand, or not, from the mining sector, is therefore critical to future overall demand, unless other sectors expand rapidly.

Figure 3: Mining companies account for most of employment (Number of employees and companies)



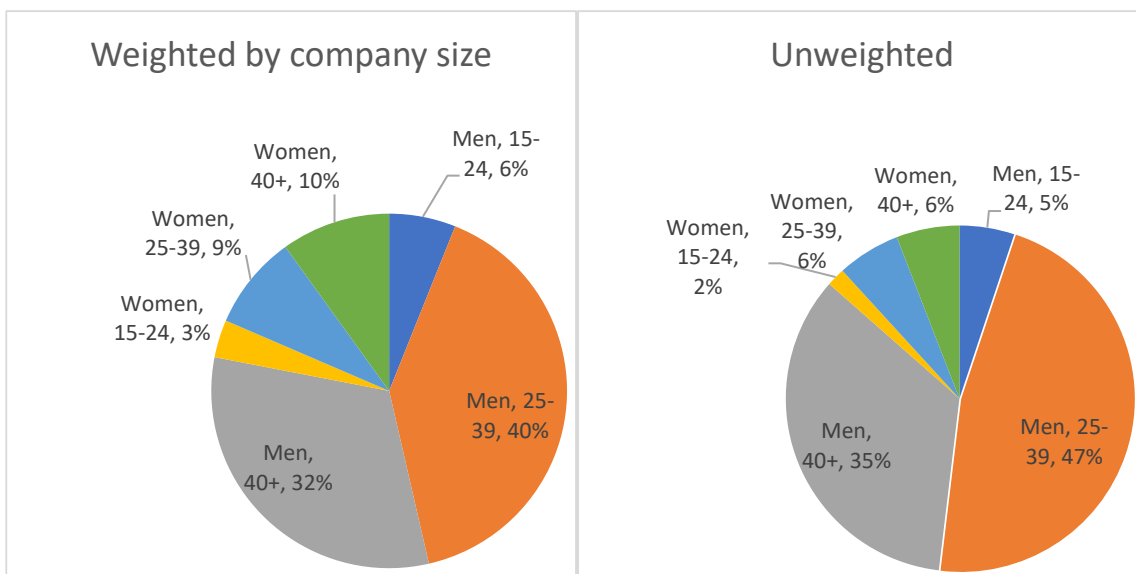
Source: Zamita Labor Survey Report. Numbers in parenthesis = number of companies in each sector.

The vast majority (78 percent for the weighted sample) of current employees are male – only the larger firms, especially the mining companies, have female workers. Because of the relatively high age of men working in the mining companies, almost one third of the employees in the total sample taken together are made up of male workers aged 40 or above (Figure 4a). Using the unweighted average, in a typical firm, about half of the employees are males aged between 25 and 39 (Figure 4b).

Figure 4: Male and older employees dominate the workforce (employees by gender and age)

a. Total sample

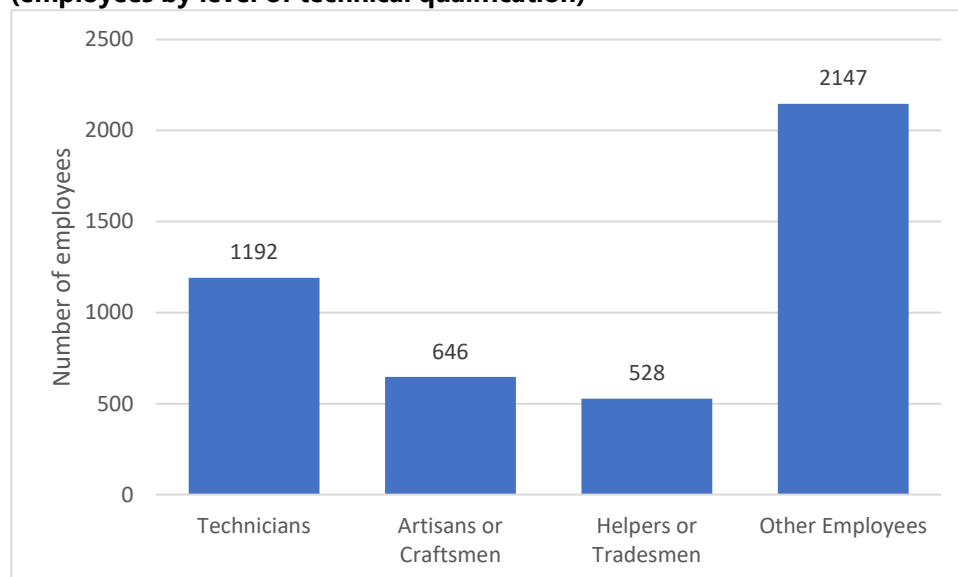
b. The "average firm"



Source: Zamita Labor Survey Report.

The most common level of training (where reported) is technician, followed by artisans and craftsmen and, next, helpers or tradesmen (Figure 5).⁶

**Figure 5: Most employees have mid-level training
(employees by level of technical qualification)**



Source: Zamita Labor Survey Report. Numbers in parenthesis = number of companies responding for each occupation.

Firms' outlook for the future was positive. A majority of firms assessed the current demand for their products and services as weak, and there is a visible deterioration in the outlook for firms that were surveyed during the summer rather than spring, as Covid-19 took a firm hold over the global, national and local economies. Yet, a majority of firms expected demand to increase in a year's time, whereas one third expected their firm to perform about the same.

However, planned recruitment was very limited among the surveyed firms. In fact, only 14 firms expected to recruit any personnel at all in the coming year. Of the total planned recruitment of 132 new employees, 73 were technicians, and 30 of them for one (mining) company (Table 1). Similarly, only 18 firms currently had any open vacancies, for a total of 160 staff. Among those, 30 were for technicians in one firm, in the mining firm planning on recruitment. The overall picture is that most firms do not plan on expanding their workforce, and that total expected demand is concentrated in very few firms and hence risky. The expected demand was highest for technicians.

The entry level requirements for work experience varied between 0 and 2 years, but most firms required some experience at entry – only eleven firms generally accepted employees straight from school.

⁶ Very few companies answered the question as to whether they had any technologists (the highest level of education). It is not clear whether this is because companies hire few technologists, or because the question was not asked or answered. For these reasons, the results for technologists are not reported.

Table 1: Overall projected demand is limited and focused on technicians (past recruitment and recruitment plans, by key occupations)

	Technologists	Technicians	Artisans or Craftsmen	Helpers or Tradesmen	Other
No. of employees recruited during past year	5	73	37	34	103
<i>Companies responding</i>	7	22	15	15	8
<i>-- that had recruited</i>	2	17	9	9	7
Planning on recruiting (no. of employees)	2	73	11	9	37
<i>Companies responding</i>	7	17	11	11	7
<i>-- planning on recruitment</i>	1	11	5	3	4
Vacancies	8	77	27	11	37
<i>Companies responding</i>	7	21	14	6	9
<i>-- that had vacancies</i>	2	14	9	3	4

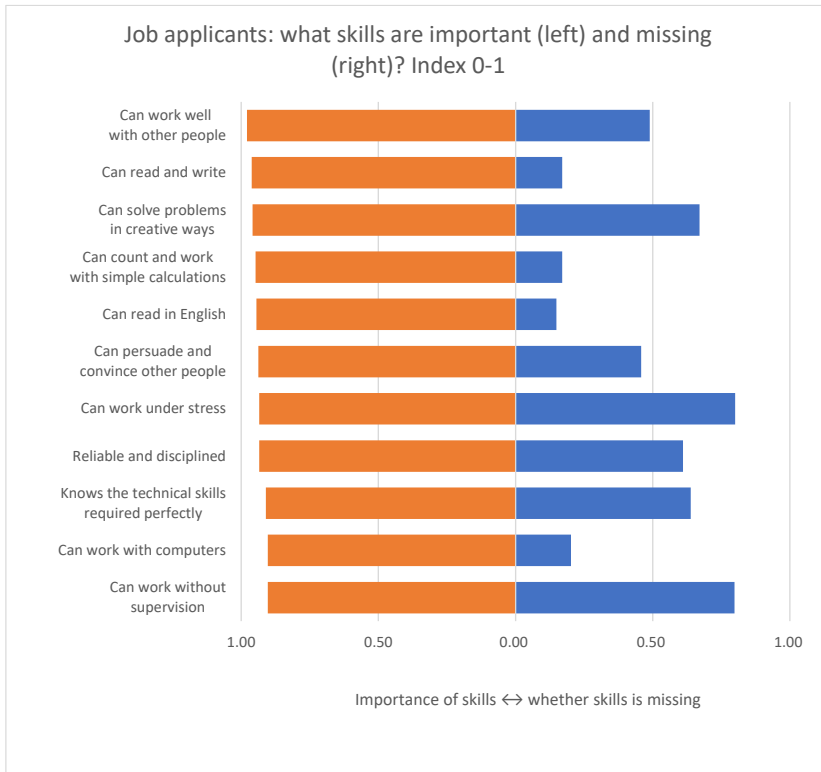
Source: Zamita Labor Survey Report.

In general, firms do not find it difficult to recruit workers. Virtually no firms had experienced difficulties when recruiting for these occupations.

Transversal workplace skills and analytical skills are highly valued when recruiting. Figure 6 presents, on the bars to the left, different transversal skills according to their ranking, with the top bar representing the highest ranked skill. Zambian employers value a range of skills, and the difference in ranking is very small between different types of skills. As seen, the "soft skills" – teamwork, discipline, independence, ability to work under duress – and creative problem solving as well as technical skills are the capacities which new job applicants are most likely to lack. Most firms report that the soft skills are not missing among their current employees – the main skill lacking is IT literacy (work with computers).

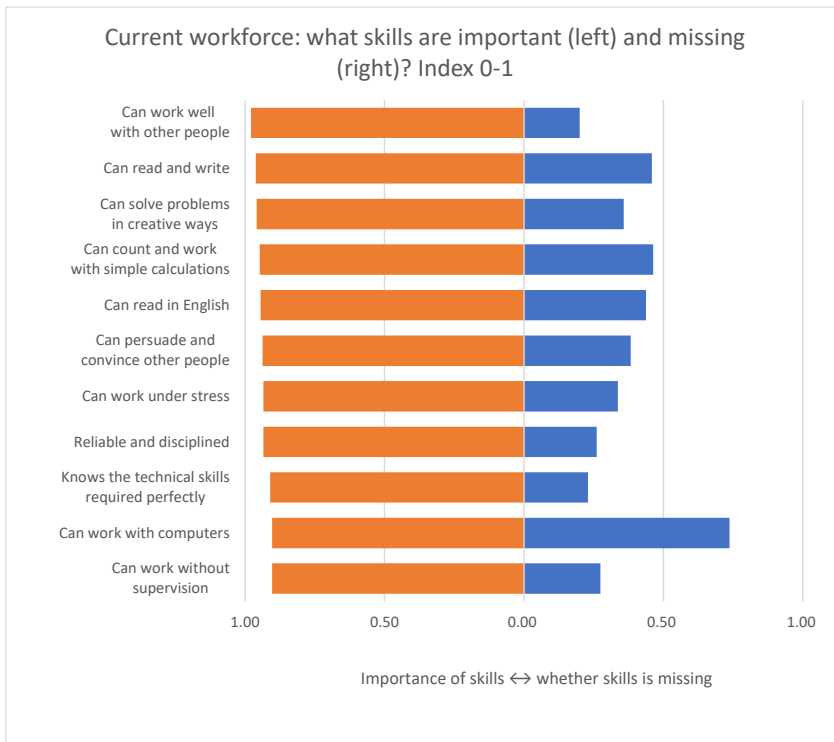
When firms are separated out by size of work force, some differences emerge, however, especially between the large firms on the one hand and the small and medium sized firms on the other. Large firms have different skill needs from SMEs, as the latter require broader skills and less specialization. The ability to work independently and be reliable and disciplined is more highly valued in large firms, where workers are likely to be more specialized in their tasks and one supervisor oversees many workers. Creativity and people skills, whether team skills or persuasive (sales) skills, are more highly ranked by smaller firms, where a worker may need to fill many different roles and needs to be able to work in teams, and creatively, to address non-routine problems (Table 2).

Figure 6: People skills and analytical skills are most important when hiring a worker



Source: Zamita Labor Survey Report.

Figure 7: Important skills are not lacking among current employees



Source: Zamita Labor Survey Report.

**Table 2: The importance of skills depends on the firm size
(ranking of skills, by firm size category)**

4 large firms (1000 to 6500 employees)	23 medium sized firms (56 to 302 employees)	66 small firms (3 to 45 employees)
Reliable and disciplined	Works well with other people	Works well with other people
Can work without supervision	Can read and write	Solves problems in creative ways
Works well under stress	Solves problems in creative ways	Can persuade, convince others
Works well with other people	Can persuade and convince others	Can read and write
Can read and write	Works well under stress	Can count, do simple calculations
Can read in English	Can read in English	Can read in English
Can count, do simple calculations	Can count, do simple calculations	Reliable and disciplined
Knows the technical skills required	Reliable and disciplined	Works well under stress
Solves problems in creative ways	Can work with computers	Knows the technical skills required
Can work with computers	Knows the technical skills required	Can work without supervision
Can persuade and convince others	Can work without supervision	Can work with computers

Source: Zamita Labor Survey Report.

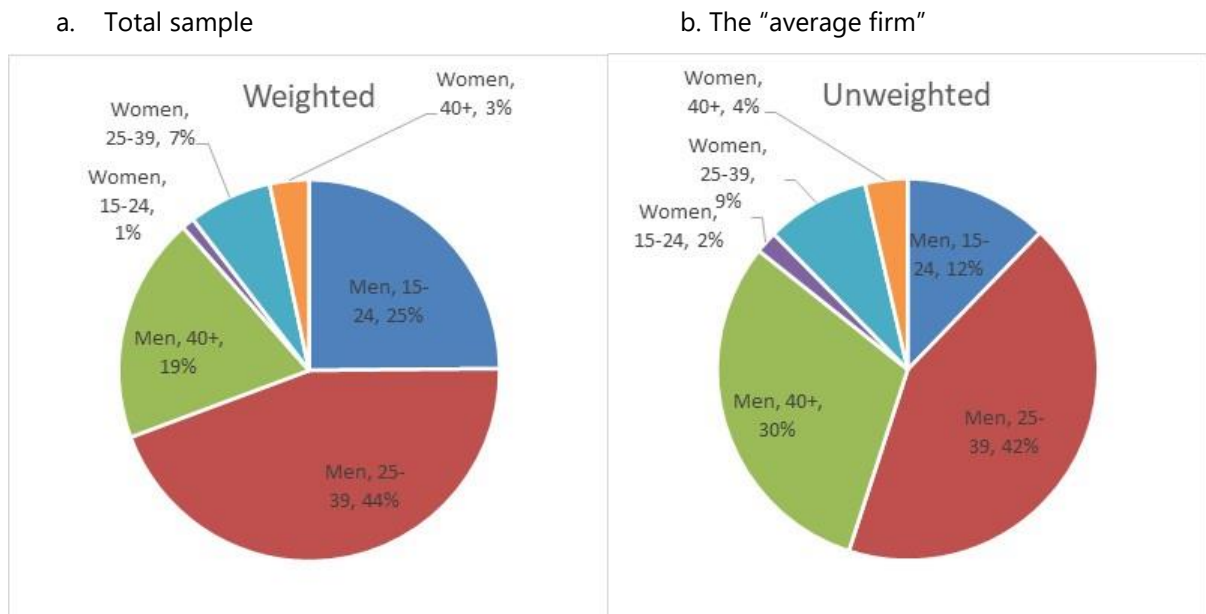
ZAMITA Online Labor Data Survey: Online survey responses

In total, 31 firms responded to the online survey. There were very few missing answers in the responses submitted, suggesting that the online surveys can be an effective and reliable tool for collecting information.

The firms participating in the online survey are relatively small in terms of employment. The firms varied in sector and size, with several manufacturing firms and construction firms. The largest firm (a manufacturing firm) had 617 employees. The average number of employees was 58, but the average is brought up by 5 large firms who account for 76 percent of all employees. The median firm taking the online survey had only 15 employees. A majority of firms serve both individuals and other companies.

The share of male workers is even higher among these smaller firms, likely due to a smaller share of administrative functions where women usually work. Between 84 and 88 percent of the workforce is male, depending on whether weighted or unweighted numbers are used. The workforce is concentrated among males older than 25 years old.

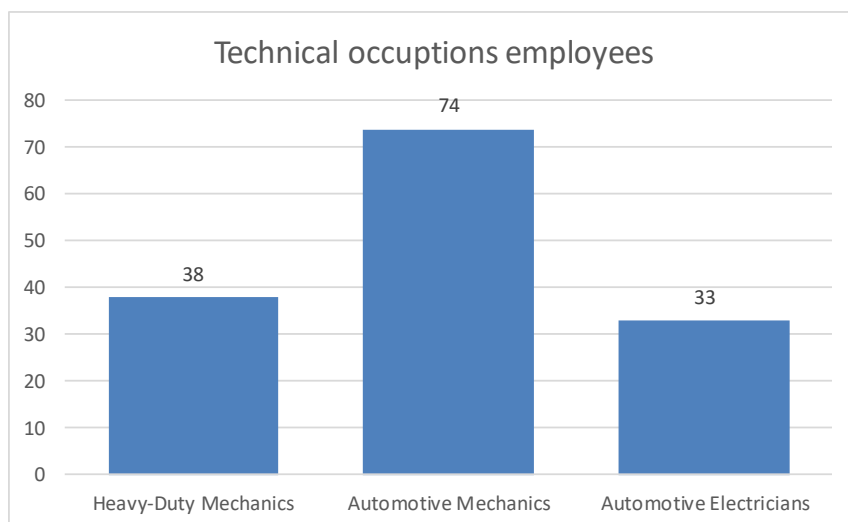
Figure 8: Male and older employees dominate (employees by gender and age)



Source: ZAMITA online labor data survey

The total share of technical occupations in the workforce is small. In total, these firms employ 145 workers in technical occupations – about 8 percent of the total workforce. There were, in total, 74 automotive technicians, 38 heavy duty mechanics, and 33 automotive electricians. Half of the firms had no automotive electricians or heavy-duty mechanics at all. The vast majority of employees in these technical occupations are employed in a handful of firms.

Figure 9: There are more automotive technicians than HD mechanics or electricians.



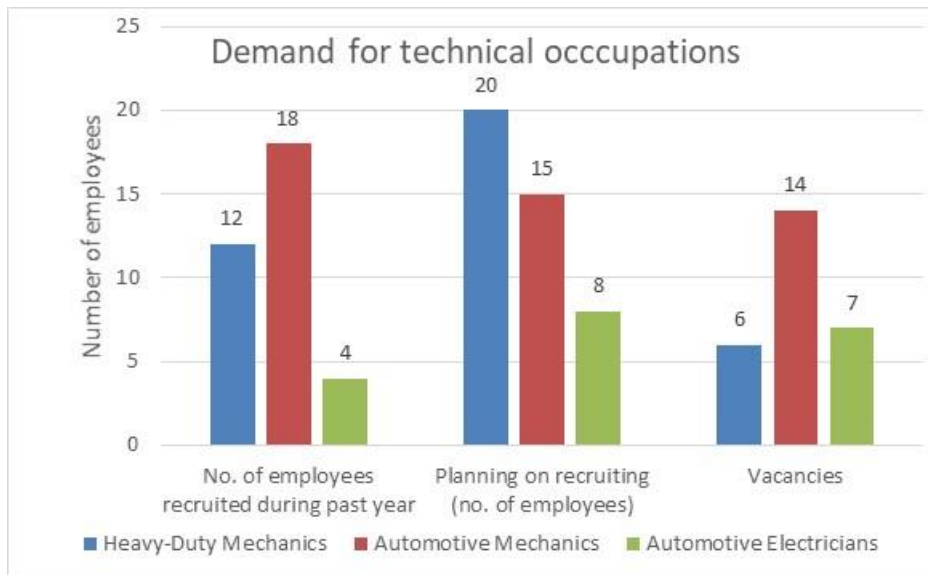
Source ZAMITA online labor data survey

Firms' outlook for the future was positive. The smaller firms had more moderate views on the current situation – about half of them felt that demand for their products/services was fair, or strong; few felt demand was very strong. Those that did were among the larger firms and hence with a potential strong

impact on employment. Nonetheless, a majority of firms expected demand to increase in the coming year.

However, the planned recruitment was limited also among these firms (Figure 10). The number of vacancies in each of these occupations amounted to 6 (heavy-duty mechanics), 14 (automotive mechanics), and 7 (mechanics). In the coming year, demand would be highest for heavy-duty mechanics (20), followed by automotive mechanics (15) and automotive electricians (8) – in total 43 planned recruitments. On a positive note, this demand is spread out among several firms, although fifteen firms were not planning on recruiting in any of the three categories.

Figure 10: Most future demand for heavy duty mechanics.



Source: ZAMITA online labor data survey

Employees in technical occupations have generally craftsmen or technician levels of education; few mechanics or electricians have training at only tradesman or helper level (Table 3). Unlike in the case of larger firms, very few companies take on workers with no experience, but only between 1 and 2 years of experience are needed to enter a job. These smaller firms are likely to have less “firm specific” know how that would require on-the-job training irrespective of the experience gained elsewhere, and fewer resources for training new staff.

Most firms had been able to find workers when attempting to recruit. Firms that had tried to hire (a minority of firms), mostly had been able to do so without problems. For the few companies that did encounter difficulties, skills of applicants (rather than applicants *per se*) were reportedly the main problem.

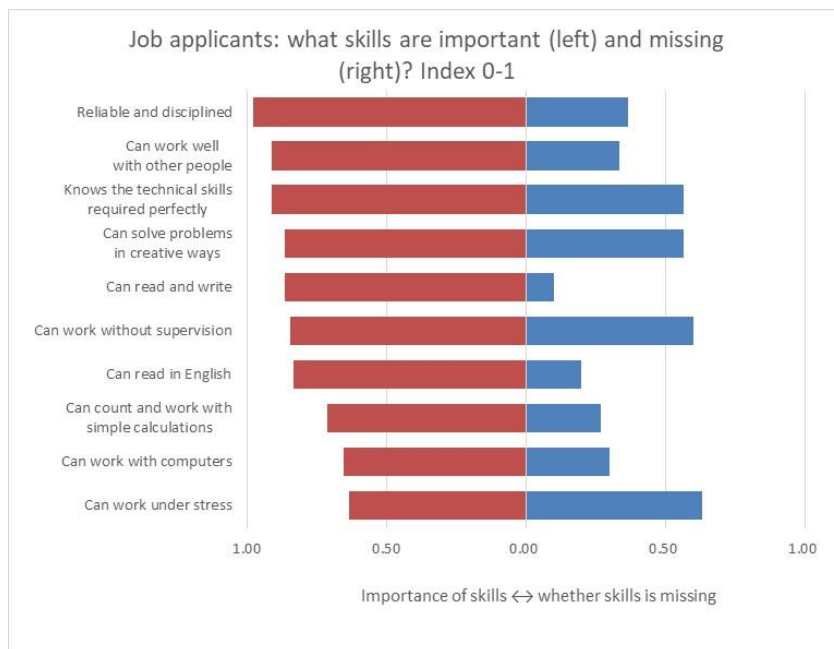
Table 3: Most employees with technical occupations have completed craftsmen or technician level

Level of Experience	Heavy-Duty Mechanics	Automotive Mechanics	Automotive Electricians	Years of experience	Number of firms accepting workers without experience
Helpers	0	0	1	1.0	0
Tradesmen	2	2	1	1.2	3
Craftsmen	13	16	16	1.2	3
Technicians	7	9	8	1.8	0
Technologist	2	1	2	2.2	1

Source: ZAMITA online labor data survey

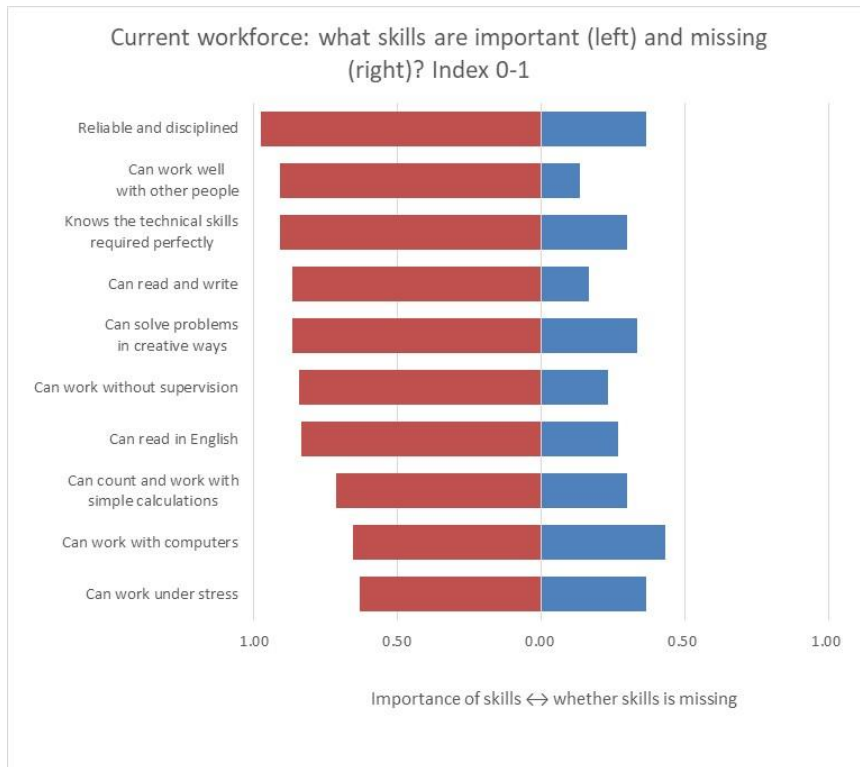
Transversal workplace skills and analytical skills are highly valued also among these smaller firms. Most skills cited in the survey were considered important or very important for the workplace by respondents. The top valued skills included workplace skills such as reliability and discipline, teamwork, autonomy, and analytical skills such as literacy and creative problem solving. These smaller firms place more importance on the technical skills than the larger firms from the ZAMITA Labor Force Survey, perhaps because they have less resources for on-the-job training. The smaller firms find that the gaps between desired skills and actual skills among typical job applicants is largest for the technical skills of the job, creative problem solving, autonomy and stress resistance (Figure 11)., Few firms report a gap between skills needed and skills available among current employees, however (Figure 12).

Figure 11: Workplace skills, technical and analytical skills are most important



Source: ZAMITA online labor data survey

Figure 12: Important skills are not lacking among current employees



Source: ZAMITA online labor data survey

4. Summary and Conclusions

4.1. Key findings

Information on the nature and extent of technical skill gaps are scant in Zambia. This report provides insights into the hiring/job creation potential of 127 Zambian firms in the transport, mining, and auto-repair sectors, currently employing close to 16,000 people. What are the prospects for hiring? And what are these firms looking for in terms of specific technical and other skills?

An overall conclusion from this exercise is that the demand for technical skills will likely be subdued in the near future, and is also subject to downward risks, due to a worsening economic environment as well as the concentration of labor demand in a few firms. Firms generally have a positive outlook for the future, stating that there is strong and/or growing demand for their products. However, this may not reflect the impact of the Corona pandemic that is likely to lower economic growth across the globe, including in Zambia. Moreover, in spite of the upbeat view on business, few firms are planning to expand their workforce in the coming years – although they expect their business to grow, they do not expect to hire. In total, the planned recruitment in technical skills is low, as is the collective number of current vacancies. Moreover, demand is concentrated in a few companies. For example, in the ZAMITA Labor Force Survey, one single firm accounts for 20 percent of planned recruitment among the large firms.

The difficult outlook makes it even more important to ensure that students match the skills demands of employers. What, in fact, are firms looking for in new recruits? The current technical workforce structure is concentrated in mid-level skills, is largely male, and has a limited proportion of youth. The demand (planned recruitment) of high-level technical training (technologists) is lower than for mid-level skills (technicians). Firms are more likely to be looking for automotive technicians or heavy-duty machinery repair technicians than for automotive electricians.

The firms in the ZAMITA Labor Force Survey – which tend to be larger than the online-survey firms - are more likely to accept workers with little or no previous work experience. These larger firms also place less value on whether new job recruits know the technical skills perfectly than smaller firms. There are two possible reasons for this. First, larger firms can better afford to give their new recruits a training induction period than smaller firms, and so will be less concerned with the recruits' ability to "hit the ground running". Second, larger firms may have developed intra-firm specific methods and approaches that new recruits need to be taught anyway, even with a technical background. Within the firms covered in the in-person survey, smaller firms tend to place more value on soft people skills and non-routine capacities such as creative problem solving, than larger firms do. The smaller firms in the online survey, by contrast, place more importance on the technical competence of new recruits and also voice more concerns about the gap between desired technical skill level and actual technical skill levels. The perceived skill gaps are larger for technical skills, creative problem solving, autonomy and stress resistance, than for other skills.

4.2. Recommendations

ZAMITA II is being launched in adverse times. What can be done to increase impact, in terms of ensuring that graduates find employment? Based on the findings above, a few recommendations follow:

Support to job search. NORTEC has several activities in place but these efforts will need to be intensified. There will be a need for a multipronged approach in terms of marketing of the school, access to internships, job matching services, etc. Graduates will need to be more flexible and mobile in order to be able to take up jobs where they are available. Possibly, students could be provided with a mobility premium (or firms could be approached for financing travel to interviews, or for financing parts of moving expenses for those who may have found a job elsewhere).

Extend and diversify the enterprise network to the extent possible – including large, small, Ndola-based, and those based elsewhere. Larger firms may be more directly affected by the ongoing global

downturn. Smaller firms, on the other hand, are less likely to higher new graduates. Reaching far and wide will be important to increase the probability of placing graduates.

Assist female graduates, especially with high quality internships. Females are severely underrepresented in the workforce in technical occupations. Female students at NORTEC have a particularly important position, not only in their own right, but also as ambassadors and role models for other females choosing future vocations, something which has shown to be important in influencing women's career choices.⁷ ZAMITA has positive experiences from placing female students in internships and assisting them in finding employment. In times of low labor demand, females may have more difficulties on the job market and are likely to need more support.

Adapt course supply and class size to projected demand. The demand for technologists appears to be very limited in numbers, with most projected recruitment at mid-level technician range. Likewise, the demand for automotive technicians and HD technicians appears to be higher than for automotive electricians. If this finding is consistent with messages emerging from other sources of information, NORTEC's classes should reflect the size of demand for different technical skills.

Help students develop necessary transversal skills. Ensuring that students are well prepared for the workplace (and marketing this fact) will require, again, that firms are approached for internships as a means of building contacts between firms and students and as a means of training students on all aspects of work (technical and non-technical). However, in-class training can also help ensure that students are well prepared for working on their own, in team with others, and with high diligence – all characteristics that are highly valued by different firms. There is considerable evidence that these generic workplace characteristics can be developed further in school through both training and information.⁸ Learning situations need to incorporate elements of teamwork, autonomy and creativity; diligence should be rewarded. Students also need to be made aware of the importance of these skills to employers so that they are motivated to develop them but also know how to market them in interviews or during internships.

For students graduating in 2021, consider providing self-employment support. If labor demand collapses, ZAMITA graduates will need to find other opportunities. In extreme times, self-employment may be the only option available. Thus, ZAMITA can provide some basic entrepreneurship training and collect information on available programs (e.g. donor programs) for micro-credit and other forms of firm financing. Training should follow best practice in terms of fostering youth entrepreneurship (e.g. focusing on entrepreneurial mind-set, rather than only traditional business skills).⁹ ZAMITA could investigate whether student alumni have started their own firms and what their experiences have been. Successful self-employed could be brought in to talk about their experiences and provide guidance, as presenting role models have shown to be a cost-effective approach to influencing the entrepreneurial behavior of less experienced micro-entrepreneurs.¹⁰

⁷ Campos, F., M. Goldstein, L. McGorman, A.M. Munoz Boudet, and O. Pimhidzai. 2015. "Breaking the metal ceiling: female entrepreneurs who succeed in male-dominated sectors". Policy Research working paper; no. WPS 7503. Washington, D.C. : World Bank Group

⁸ See, e.g. Heckman, J. J, and T. D Kautz. 2012. "Hard Evidence on Soft Skills." NBER Working Paper Series, no. 18121: 54.

⁹ Anderson-MacDonald, S., R. Chandy and B. Zia.2016, "Pathways to Profits Identifying Separate Channels of Small Firm Growth through Business Training". World Bank Policy Research Working Paper 7774, Washington, DC: World Bank; Campos, F. M. Goldstein, L. Iacovone, H.C. Johnson, D. McKenzie, M. Mensmann. 2017. "Teaching personal initiative beats traditional training in boosting small business in West Africa". Science 22 Sep 2017: Vol. 357, Issue 6357, pp. 1287-1290.

¹⁰ Lafortune, J., J. Riutort, and J. Tessada. 2018. "Role Models or Individual Consulting: The Impact of Personalizing Microentrepreneurship Training." *American Economic Journal: Applied Economics* 10(4): 222–245.

Update information on the labor market situation frequently. Given the rapidly changing environment, ZAMITA should ensure maintaining frequent communication with potential employers to gauge changes in demand. Internships provides a platform for this interaction and have in themselves proved an important indicator of hiring potential in the past. Efforts to place students in productive internships remain central to the program's overall objectives.

Make employer surveys part of an annual or bi-annual labor market review. The ZAMITA team has decided to expand the survey to other regions of Zambia across various sectors in future rounds. The experience with the online survey suggests that it is possible to cost-effectively collect information on a large scale through this channel. The team could consider implementing a short online labor demand survey, based on the surveys prepared for this round. Such a survey could leave out the questions on transversal skills and instead focus on occupations and technical levels needed. ZAMITA should consider whether it would make sense to combine online survey with only a few select in depth and in-person interviews with larger companies. Every few years, the regular online effort could be complemented with an additional section on transversal skills.

Strengthen the survey instruments and labor market analysis. Finally, the team should review the experiences from this first wave of surveys and identify means of strengthening, streamlining, and standardizing the survey instruments. Areas for improvement include: achieving a consistent approach to sampling (firm selection) and sector classification, a more consistent differentiation between the firms used for online survey and the firms interviewed in-person, reviewing the flow of questions and identifying possible consistency checks, and exploring the questions related to specific workplace skills to identify firm priorities better. ZAMITA could also prepare a template for analyzing the labor force surveys, so that the labor market analysis (the result of this report) could be done in-house, perhaps with some limited external advisory or quality assurance support.

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