Evaluation Design for the Morocco Workforce Development Activity

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ACRONYMS

ANAPEC	*Agence Nationale de Promotion de l'Emploi et des Compétences*
CAP	*Certificat d'Apprentissage Professionnel*
CAPI	Computer-assisted personal interviewing
CBA	Cost-benefit analysis
CE	*Conseil d'Etablissement*
CGEM	*Confédération Générale des Entreprises du Maroc*
CI	Confidence interval
CIDE	*Consortium International de Développement en Éducation*
CNSS	*Caisse Nationale de Sécurité Sociale*
DFID	Department for International Development
DFP	*Département de la Formation Professionnelle*
ERR	Economic rate of return
GoM	Government of Morocco
INDH	*Initiative Nationale pour le Développement Humain*
IRB	Institutional review board
MEF	*Ministère de l'Economie, des Finances et de la Réforme de l'Administration*
MCA-Morocco	Millennium Challenge Account-Morocco
MCC	Millennium Challenge Corporation
MTIP	*Ministère du Travail et de l'Insertion Professionnelle*
OFPPT	*Office de la formation professionnelle et de la promotion du travail*
OMT	*Observatoire du marché du travail*
PPP	Public-private partnership
RBF	Results-based financing
TVET	Technical vocational education and training
WDA	Workforce Development Activity

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I. INTRODUCTION

In 2015, the Millennium Challenge Corporation (MCC) and the Government of the Kingdom of Morocco (GoM) entered into a $450 million Employability and Land Compact to address two key constraints to economic growth and investment: access to education and quality of the educational system, and land productivity.[1] The Compact, which is being implemented by the Millennium Challenge Account-Morocco (MCA-Morocco) between 2017 and 2023,[2] includes a $107 million Workforce Development Activity (WDA).[3] The Activity seeks to equip individuals, especially young people and unemployed women, with the skills and competencies they need to participate productively in the Moroccan economy and to facilitate their entry into the labor force. To achieve this, the WDA aims to improve the country's technical and vocational education and training (TVET) system and the strength of its job placement services by pursuing four sub-activities: grants for TVET centers, policy reform, incentivized job placement services, and a labor market observatory. MCC contracted with Mathematica to conduct an independent evaluation of the implementation and key outcomes of the Activity.

This report describes Mathematica's design for the evaluation of the WDA. We begin with an overview of the WDA sub-activities and program logic and a brief review of the existing literature on the impacts of workforce development programs in other countries. Next, we discuss the key evaluation questions, our methodological approach to addressing them, data sources and outcomes, and our analysis plan. We present some limitations and anticipated challenges for the evaluation. We conclude with administrative details related to conducting the evaluation.

[1] The Employability and Land Compact is the second compact between MCC and the GoM. The first (2006–2011) focused on five project areas to modernize industrial sectors and increase employment: fruit tree productivity, small-scale fisheries, artisan training and urban market rehabilitation, financial services, and enterprise support and training services (MCC 2006).

[2] The Compact was initially scheduled to be implemented over a five-year period between mid-2017 and mid-2022. However, implementation is currently expected to be extended by 9 months, to March 2023, to account for delays related to the COVID-19 pandemic.

[3] The total budget for the WDA—and allocations among sub-activities—continues to evolve as the Compact extension is finalized. All budget numbers in this report reflect those in the original Compact agreement; we will update these numbers in future reports once they are finalized.

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II. OVERVIEW OF THE COMPACT AND THE WORKFORCE DEVELOPMENT ACTIVITY

The WDA aims to increase the employability[4] of Moroccans by (1) improving the quality of and access to TVET that is well aligned with private-sector needs, (2) linking vulnerable women and youth to the labor market through job placement services, and (3) providing high quality information about the labor market. It comprises the following four sub-activities, of which sub-activities 1 and 2 are known as the "training" component of the Activity and sub-activities 3 and 4 are known as the "employment" component:[5]

- **Sub-Activity 1: Private-Sector–Driven TVET ($73.7 million)** establishes a grant facility, the Charaka Fund, to support TVET centers managed through public-private partnerships (PPPs) and offering trainings driven by employer demand. MCA-Morocco selected 15 centers as grantees through a competitive proposal process. Of these 15 grantees, the Charaka Fund is supporting the creation of 8 new TVET centers and the rehabilitation or extension of 7 existing centers.[6] Rehabilitation includes physical infrastructure improvements, improved management, modifications to course content, and the introduction of new courses at the existing centers. Each of the 15 Charaka-supported centers will be managed through one of two new PPP governance models, which reflect an increased role of the private sector in governance: (1) Conseil d'Etablissement (10 centers), under which centers remain public entities but are managed by a board with equal public and private sector representation; or (2) Société Anonyme (5 centers), which establishes the center as a new, independently managed private entity. The Charaka-supported centers will offer courses across 11 sectors: aeronautics; agriculture and livestock; artisanal crafts; baking and pastries; building and public works; business administration; health; leatherworking; logistics, mechanics, metallurgical, electrical and electronic industries; textiles and clothing; and tourism. Courses will be offered at six different levels, with entry requirements and duration varying by level. (Table II.1 summarizes the 15 Charaka-supported centers and the courses they will offer; Appendix Table A.1 provides more details about the different levels.) This sub-activity accounts for the majority of WDA funding and is supported by about $19 million in co-contributions from the GoM and grantees.
- **Sub-Activity 2: TVET Sector Policy Reform ($6.7 million)** provides technical assistance to GoM ministries and agencies involved in the TVET sector to design and implement reforms to the Moroccan TVET system. Specifically, the sub-activity will provide technical assistance to help the GoM: (1) establish a formal TVET quality assurance and evaluation system; (2) develop a new costing tool for TVET programs; (3) develop a new categorization

[4] For the purposes of this evaluation, we define employability as the ability to find paid work.

[5] The Activity also includes a component designed to promote gender-equitable workplaces ($0.3 million) and a labor market impact evaluation initiative ($3 million), neither of which is included in Mathematica's evaluation.

[6] One of these existing centers, *ISTA-Had Soualem*, is being rebuilt in a new location; for the purposes of this evaluation, we consider it to be an existing center and not a new one.

system for TVET programs; (4) systematically integrate gender and social inclusion into the TVET system; (5) establish a new publicly-recognized certification model for graduates from private vocational training institutions; and (6) implement the law around continuing education and training. This work builds on technical assistance that has already been provided to improve the legal framework governing the TVET system, through the Continuing Education Law that was passed by the GoM in October 2018. A key objective of this law, which signals the GoM's commitment to delivering sectoral policy reform, is to expand the rights of private-sector employees, certain categories of public enterprise employees, and other non-salaried employees engaged in private activity to participate in professional development activities.

- **Sub-Activity 3: Results-Based Financing (RBF) for Inclusive Employment ($9.4 million)** supports results-based payment mechanisms for integrated job placement services—which may include short-term training—especially those for vulnerable women and youth.[7] Under this sub-activity, MCA-Morocco will base payments to job placement service providers largely on job insertion and retention rates.[8] In contrast, traditional job placement programs implemented by the *Agence Nationale de Promotion de l'Emploi et des Compétences* (ANAPEC), the government agency responsible for these programs, base payments to providers largely on training provision. Nine providers were selected in December 2019 through a competitive application process and signed grant agreements in early 2020. However, the COVID-19 pandemic caused implementation for many grantees to be delayed until later in 2020.[9] Further, as a result of pandemic-related disruptions, one grantee withdrew from the program, leaving eight implementing grantees. (Appendix Table A.2 summarizes the grant amounts, locations, and targeted number of beneficiaries for each implementing grantee.) Under the RBF sub-activity, MCA-Morocco is also funding technical assistance to the *Initiative Nationale pour le Développement Humain* (INDH), a national development project, to adapt RBF for their own programs (although the RBF payments for these programs will be funded outside of the Compact). INDH will pilot the RBF approach and consider scaling it up if the pilot is successful.

[7] In the original Compact agreement, RBF was expected to target women and "at-risk" youth. Discussions with local stakeholders subsequently clarified that the targeted group is "vulnerable" women and youth, defined as those who had not been engaged in training for a certain period (initially six months for those without a post-secondary diploma and a year for those with a diploma, later reduced to three months and six months, respectively).

[8] MCA-Morocco will make these payments based on insertion into and retention of formal employment, using data collected by the *Caisse Nationale de Sécurité Sociale* (CNSS), the Moroccan national social security agency.

[9] Specifically, two grantees began implementation with a small number of participants in February 2020, but most began in May 2020 or later. The pandemic also resulted in the following adjustments to the original grant agreements: (1) all providers' contracts were extended until June 2022 (and one provider has since received an additional extension through the activation of the first option year for their contract); (2) the timing for achievement of training, insertion, and maintenance results was revised to stipulate that results must be achieved at least three months prior to the end of the contract to be eligible for payment; (3) some providers received additional prefinancing; and (4) the participant eligibility criteria and verification process were revised.

- **Sub-Activity 4: The National Labor Market Observatory (l'Observatoire National du Marché du Travail, or OMT) ($14 million)** seeks to provide TVET sector stakeholders—including GoM ministries and agencies, TVET providers, prospective trainees, job seekers, and employers—up-to-date, relevant, and accessible data on the labor market to improve decision making. To do this, the sub-activity is providing technical assistance to strengthen the existing OMT by consolidating existing labor market information, conducting additional labor market surveys as needed to fill key information gaps, and developing an accessible platform for disseminating information. The platform will be a cloud-based platform that will combine labor market data from various sources and will use artificial intelligence and other "big data" methods to analyze trends in the labor market and disseminate real-time labor market information.

Table II.1. Charaka-supported centers

Project number[a]	Charaka-supported center	Governance model	Rehabilitated /new	Sector(s)	Level(s) of courses to be offered[d]
2	Institut des Arts Traditionnels (IAT-Fès)	Conseil d'Etablissement	Rehabilitated	Artisanal crafts	S, Q, T, TS
		Conseil d'Etablissement	Rehabilitated	Leatherworking	Q, T
3	Institut des Arts Traditionnels (IAT-Meknès)	Conseil d'Etablissement	Rehabilitated	Artisanal crafts	S, Q, T, TS
27	Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)[b]	Conseil d'Etablissement	Rehabilitated	Business administration	TS
		Conseil d'Etablissement	Rehabilitated	Building and public works	S
		Conseil d'Etablissement	Rehabilitated	Mechanics, metallurgical, electrical, and electronic industries	Q, T, TS
		Conseil d'Etablissement	Rehabilitated	Textiles and clothing	S, Q
48	Institut Spécialisé des Métiers de l'Aéronautique et de l'Aéronautique et de la Logistique Aéroportuaire (ISMALA-Nouacer)[c]	Société Anonyme	Rehabilitated	Aeronautics	Q, T, TS
28	Institut Spécialisé du Bâtiment (ISB-Casablanca)	Conseil d'Etablissement	Rehabilitated	Building and public works	S, FQ, Q, T, TS
71	Institut de Technologie Hôtelière et Touristique (ITHT-Tanger)	Conseil d'Etablissement	Rehabilitated	Hotel and tourism	S, T, TS

Project number[a]	Charaka-supported center	Governance model	Rehabilitated /new	Sector(s)	Level(s) of courses to be offered[d]
72	Institut de Technologie Appliquée Hôtelière et Touristique (ITAHT-Ouarzazate)	Conseil d'Etablissement	Rehabilitated	Hotel and tourism	S, Q, T, TS
76	Institut de Formation dans les Métiers de la Boulangerie et Pâtisserie (IFMBP-Casablanca)	Société Anonyme	New	Baking and pastries	Q, T, TS
7	Institut de Formation dans les Métiers du Bâtiment et Travaux Publics (IFMBTP-Fès)	Société Anonyme	New	Building and public works	Q, T, TS
79	Institut de Formation dans les Métiers d'Élevage des Petits Ruminants (IFME-Bellota)	Société Anonyme	New	Livestock and agriculture	CAP or S, Q
4	Institut pluridisciplinaire des Métiers de la Logistique et de l'Industrie (IPMLI-Fahs Anjra)	Conseil d'Etablissement	New	Logistics	FQ, T, TS
56	Institut de Formation dans les Métiers du Transport et de la Logistique (IFMTl-Nouaceur)	Société Anonyme	New	Logistics	FQ, T, TS
24	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Beni Mellal)	Conseil d'Etablissement	New	Health	Q, T, TS
32	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Oujda)	Conseil d'Etablissement	New	Health	Q, T, TS
36	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Meknès)	Conseil d'Etablissement	New	Health	Q, T, TS

[a] Project numbers were assigned by MCA-Morocco and are included here to facilitate the review of the report by stakeholders.

[b] Center will be reconstructed in a new location.

[c] At this center the private sector holds a 51 percent share (through professional associations and their affiliates); in all other Société Anonyme centers the private sector holds a 100 percent share.

[d] Levels in ascending order are *Certificat d'Apprentissage Professionnel* (CAP), *Formation Qualifiantes* (FQ), *Spécialisation* (S), *Qualification* (Q), *Technicien* (T), and *Technicien Spécialisé* (TS). See Appendix Table A.1 for details about the entry requirements and course duration for each level.

DH = Moroccan Dirhams.

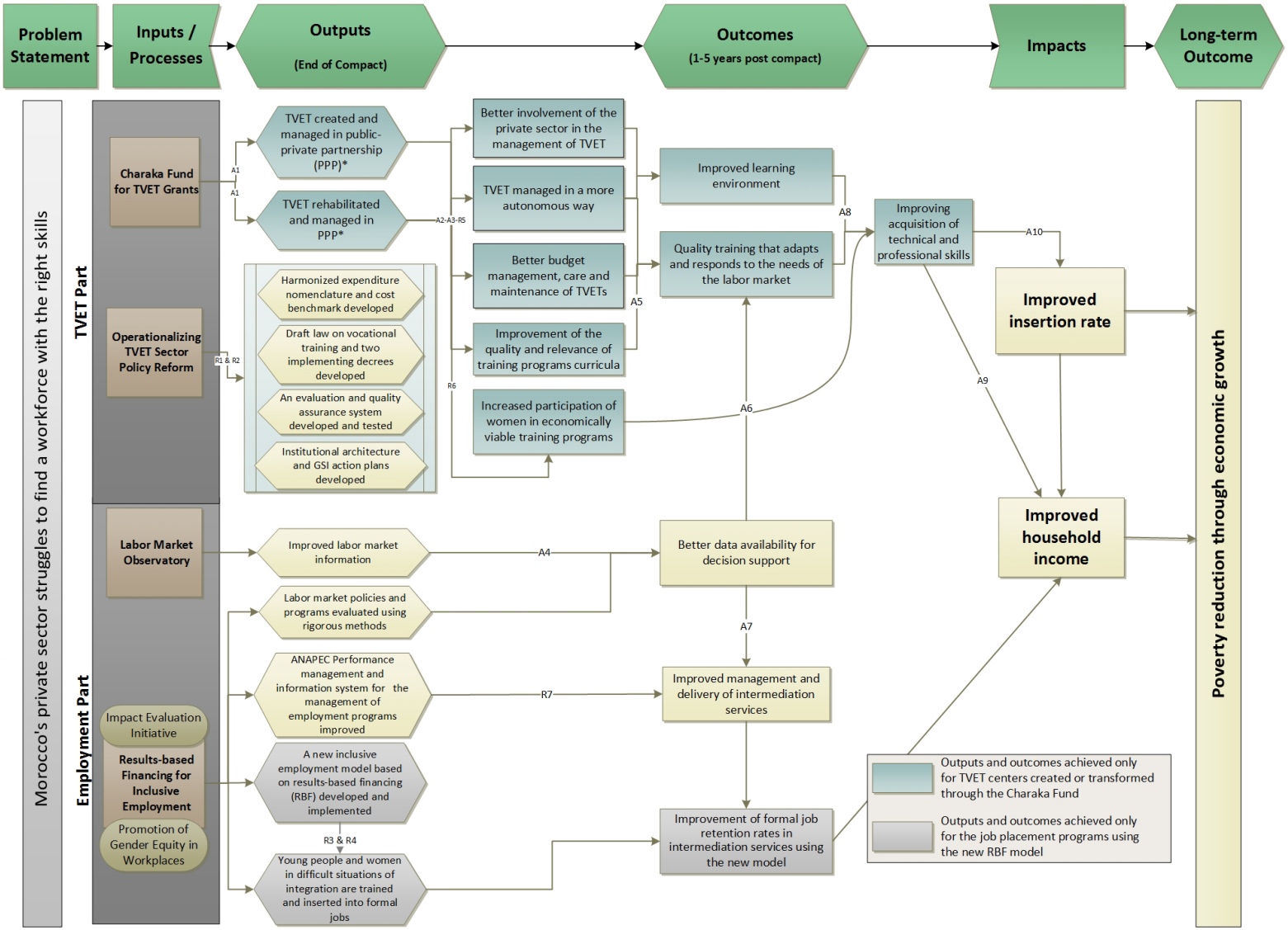
A. Logic model

The WDA logic model, developed by MCC and MCA-Morocco, illustrates how the four main sub-activities are designed to promote the ultimate goal of the Compact, which is improved

poverty reduction through economic growth (Figure II.1). Sub-activities 1 and 2 fall under the "training" component of the Activity and are largely distinct from sub-activities 3 and 4, which fall under the "employment" component. Overall, the Activity works to (1) improve the management of TVET centers and the quality and relevance of their training programs to ensure they are responsive to the needs of the labor market through increased involvement of the private sector (sub-activities 1 and 2, TVET component); (2) increase the participation of women in training programs (sub-activities 1 and 2, TVET component); (3) improve the availability of labor market information for decision making (sub-activity 3, employment component); and (4) improve the management and delivery of job placement services (sub-activity 4, employment component). These outcomes are expected to improve the acquisition of technical and professional skills, resulting in an improved insertion rate, for those trained at the Charaka-supported TVET centers and improve job retention rates for those benefiting from RBF job placement services, all of which should result in increased household income and poverty reduction.

The success of the Activity in achieving the envisaged outcomes will depend in part on the quality with which each of the sub-activities is implemented and the extent to which the assumptions underlying the logic model hold (see Table II.2 for a list of assumption and risks to the logic model). Successful implementation will require demand for Compact-supported training courses from trainees, buy-in from all stakeholders (including training providers, firms, and policymakers), and a well-designed RBF mechanism that minimizes unintended consequences. The success of the Charaka-funded centers is predicated on the assumption that the centers will have the necessary resources to hire qualified trainers and respond to labor market information and that the private sector will have the capacity to participate in center management and provide on-the-job training for trainees. Achieving the desired outcomes also requires that the OMT continues to provide up-to-date data beyond the end of the Compact and that Charaka-funded centers and ANAPEC actively use these data to guide their service provision. Achieving the Activity's ultimate goal of higher household income also requires that the Charaka-funded centers provide training of significantly higher quality and relevance compared to other TVET centers, so that firms recognize this difference and respond by hiring graduates at a higher rate and offering them higher wages. It is also important to note that demand-side constraints in the labor market, such as the availability of jobs, strict labor market regulations that might dissuade employers from hiring, and competition with the public sector are largely not addressed by the WDA and could limit trainees' opportunities to improve their employment outcomes.

Figure II.1. WDA logic model



Source: MCC and MCA-Morocco; adapted to show long term impacts.

Notes: Subject to final approval by the MCA-Morocco board. (*)TVET created / rehabilitated and managed as a PPP correspond to centers ready to welcome trainees and meeting the following conditions: construction/rehabilitation of the existing center; defined training program; equipped training center; PPP governance model defined and operational; technical-pedagogical staff as well as administrative staff trained.

ICT = information and communication technologies; TVET = technical and vocational education and training; A = assumption; R = risk.

Table II.2. Assumptions and risks underlying the WDA logic model

Results level	#	Assumptions and risks
Outputs	A1	For centers managed by the CE, regulatory changes required (amendment of the decree on the general status of TVET) before the creation and transformation of TVET centers managed by PPP.
	R1	In the absence of decision-making authority exercised by the Department of Vocational Training, the presence of stakeholders with conflicting interests presents a risk of failure to all outputs.
	R2	The high cost of reform actions could hinder their implementation.
	R3	The impact of COVID-19 may hinder the integration of youth and women in difficult situations, given the poor employment opportunities that arise in connection with a recession that is likely to affect all sectors of economic activity on a lasting basis.
	R4	MCA is not involved in the selection of participants. Providers could always choose from the eligible population the best candidates who have the most potential and are therefore easily employable.
Short-term Outcomes	A2	The private sector has the necessary capacities to participate effectively in the management of vocational training centers, guarantee training within their firms for trainees, and anticipate and adapt appropriately to the changing skills needed by the Moroccan labor market.
	A3	The management firm will have sufficient income from public and private partners to finance operations and maintenance activities, including replacing equipment, and will be able to guarantee attractive salaries for the most qualified trainers.
	R5	For the centers managed by the CE, the involvement of the private sector could be limited compared to expectations since this body does not have significant room to engage in decision-making, especially related to financial management.
	R6	The implementation of each TVET center's social and gender integration plan may not be sufficient to increase women's engagement in economically viable training programs and, despite these efforts, women may not be willing or able to enroll in these programs. This risk may be present depending on the sector of each training program.
Medium-term Outcomes	A4	The labor market information system will continue to be updated regularly beyond the Compact period through conducting various surveys initiated according to a pre-established schedule.
	A5	It is assumed that there are no constraints to hire qualified trainers, i.e., the labor market offers qualified staff and TVET centers are flexible enough to offer attractive salaries.
	A6	The TVET centers supported by the Compact will have the capacity and willingness to use more reliable and useful information and data to adapt their programs and meet labor market needs.

Results level	#	Assumptions and risks
Medium-term Outcomes *(continued)*	A7	Links are created between the Labor Market Observatory and ANAPEC to ensure that the data and information produced by the Observatory are actively used by ANAPEC to improve the management and quality of its intermediation services.
	A8	The presence of the private sector in the management of TVET centers is assumed to be effective through its real commitment to offer trainees practical training within their firms.
	R7	Improvements in performance management and information systems may not be sufficient to improve the quality and management of intermediation services, as many factors that influence the ability to achieve this outcome are outside the scope of the Activity.
Impacts	A9	There is a significant difference in the quality and relevance of the training offered by Compact-supported TVET centers compared to traditional TVET centers in Morocco. In addition, this difference is clearly understood and internalized by firms so that graduates of centers supported by the Compact receive higher salaries.
	A10	There is a significant difference in the quality and relevance of the training offered by Compact-supported TVET centers compared to traditional TVET centers in Morocco. In addition, this difference is clearly understood and internalized by firms when making hiring decisions, so that the insertion rates of graduates from centers supported by the Compact are higher.

Source: MCC and MCA-Morocco; edited for clarity.

Note: Subject to final approval by the MCA-Morocco board.

PPP = Public Private Partnership; CE = *Conseil d'Etablissement*

B. Cost-benefit analysis

Based on this theory of change, MCC conducted an initial cost-benefit analysis (CBA) and estimated the economic rate of return (ERR) for the WDA as 13 percent (MCC 2015). The CBA focused only on the benefits and costs associated with the Charaka Fund, which is the largest sub-activity in terms of costs and the one whose economic benefits are easiest to quantify. The CBA assumed that attending TVET training in Charaka-supported centers instead of traditional centers would result in two benefit streams: a higher likelihood of employment and higher wages for those employed. MCC modeled these benefit streams using data on employment rates and wages by sector and training level from a survey conducted by DFP (*Département de la Formation Professionnelle,* the Moroccan department of vocational training) with 2015 graduates of public TVET courses. MCC further made assumptions on the costs of establishing and rehabilitating TVET centers based on a study of existing PPP TVET centers in Morocco. MCC will produce a revised CBA for the Charaka Fund in 2022, along with updated counts of participants, direct beneficiaries, and total beneficiaries.

MCC will conduct a closeout CBA within a year of the end of the Compact; this will cover the WDA as a whole, although the benefits are still expected to be driven primarily by the Charaka Fund. Mathematica will conduct an independent evaluation-based CBA, designed to provide an updated ERR estimate for the sub-activity based on updated information about the realization of benefits and costs after the end of the Compact. As we discuss in Section VI.C, we will compare this ERR estimate to that from the closeout CBA and explore the reasons for any difference.

III. LITERATURE REVIEW

This chapter gives a context for the evaluation by reviewing the literature on TVET programs, management of training programs by PPPs, and results-based payment mechanisms for job placement services. We also briefly discuss the importance of labor market observatories (such as the OMT).

A. TVET programs

In this section, we review the literature on the impacts of vocational training programs in low- and middle-income countries. Outside of Morocco, several rigorous impact evaluations have examined the relationship between vocational training programs and labor market outcomes, especially employment and wages. McKenzie (2017) reviewed 12 impact evaluations that used an experimental design, which provides the highest standard of evidence (Table III.1).[10] Only three of the nine studies that measured employment as an outcome found a statistically significant impact of the offer of training on employment, and the mean impact was only about 2.3 percentage points.[11] However, there is some evidence of larger impacts on formal employment, with a mean impact across studies of 3.6 percentage points—suggesting that training might shift workers from the informal to the formal sector.[12] Only two of nine studies that examined earnings as an outcome found a statistically significant impact, although most estimates were positive, with a mean of a 17 percent increase and median of an 11 percent increase in earnings. McKenzie concluded that the impacts of vocational training on employment and earnings are modest in most studies, although they are positive in some cases. He also suggested that few of these programs are likely to pass a simple cost-benefit test given the high costs of training and uncertainty about the sustainability of labor market impacts over time.

[10] The literature also includes several relevant quasi-experimental impact evaluations. However, a review by Tripney et al. (2013) found that the quality of these studies varies markedly, making it difficult to interpret the findings on labor market impacts, which also vary markedly. In addition, other studies have found that evaluations of the same training program that are based on different quasi-experimental methodologies can yield very different results (Ibarrarán and Rosas Shady 2009; Delajara et al. 2006). Therefore, we focus our review on the higher quality experimental studies summarized in Table III.1.

[11] The impact estimates provided in Table III.1 are the intent-to-treat effects, which are the impacts of being offered vocational training. The treatment-on-treated effects, which are the impacts of taking the training when it is offered, are between 20 and 40 percent larger than the intent-to-treat effects. (The magnitude of the difference depends on the take-up rate for the offer of training in each study, which typically varies between about 70 and 85 percent.)

[12] The definition of formal sector employment varies across studies. It is typically based on employment in a job that includes legally mandated benefits in each country context, such as health insurance, injury compensation, or social security contributions.

Table III.1. Experimental evaluations of vocational training programs in low- and middle-income countries

Country	Study	Population	Follow-up period relative to end of training	Impact of the offer of training				Cost per trainee (USD)
				Employment (percentage points)	Formal employment (percentage points)	Earnings (percent)	Formal earnings (percent)	
Argentina	Alzúa et al. (2016)	Low-income youth	18 months	n.r.	**8.0**	n.r.	**64.9**	$1,722
		Low-income youth	33 months	n.r.	4.3	n.r.	23.1	$1,722
Colombia	Attanasio et al. (2011)	Low-income youth	14 months	**4.5**	**6.4**	**11.6**	**27.1**	$750
	Attanasio et al. (2015)	Low-income youth	Up to 10 years	n.r.	**4.2**	n.r.	**13.6**	$750
Dominican Republic	Card et al. (2011)	Low-income youth	12 months	0.7	2.2	10.8	n.r.	$330
	Ibarrarán et al. (2014)	Low-income youth	18 to 24 months	-1.3	1.8	6.5	n.r.	$700
	Ibarrarán et al. (2015)	Low-income youth	6 years	-1.4	2.6	-1.9	n.r.	$700
	Acevedo et al. (2017)	Low-income youth	3 years	0.7	n.r.	n.r.	n.r.	n.r.
India	Maitra and Mani (2017)	Low-income women	18 months	**8.1**	n.r.	**95.7**	n.r.	$39
Kenya	Honorati (2015)	Low-income youth	14 months	**5.6**	n.r.	29.7	n.r.	$1,150
Malawi	Cho et al. (2013)	Low-income youth	4 months	n.r.	n.r.	-19.6	n.r.	n.r.
Peru	Diaz and Rosas (2016)	Low-income youth	36 months	1.6	**3.8**	13.4	n.r.	$420
		Low-income youth	36 months	n.r.	4.5	n.r.	n.r.	$420
Turkey	Hirshleifer et al. (2016)	Unemployed	1 year	2.0	2.0	5.8	8.6	$1,700
		Unemployed	2.5 years	n.r.	-0.1	n.r.	-0.8	$1,700

Source: McKenzie (2017).

Notes: Impacts that are statistically significant at the 5 percent level are in bold. USD = United States Dollars.

n.r. = not reported.

To complement McKenzie (2017), we also identified several more recent rigorous impact evaluations of vocational training programs, which found similarly mixed impacts:

- Mathematica's recent impact evaluation of MCC-funded scholarships for vocational training in Namibia (Borkum et al. 2017) randomized the offer of vocational training scholarships to applicants. The trainee scholarships were provided by issuing competitive grants to training providers and were designed to fund training in high-priority skill areas. Although the evaluation found that receiving a scholarship offer had large impacts on the probability of enrolling in and completing vocational training, especially among women, there was no evidence of positive impacts on employment and wages. A complementary qualitative study (Velyvis et al. 2017) suggested that the process TVET providers used to assess market demand was not fully developed when the grants were made, which could partially explain the project's limited labor market impacts.
- Alzúa et al. (2019) conducted a randomized controlled trial of short, inexpensive vocational training programs for disadvantaged youth in Mongolia, which offered up to 45 days of training and included a substantial internship component. The authors found that the offer of training led to an increased self-employment rate (3.5 percentage points higher for the treatment group than the control group) and higher monthly earnings (more than 20 percent higher for the treatment group than the control group) after 12 months, although it did not increase overall employment. However, most of these benefits accrued to trainees who were wealthier, older, and better educated. Also, take-up of training was low, possibly because the program placed part of the burden of finding internships on trainees.
- Chakravarty et al. (2019) recently used a regression discontinuity design to conduct an impact evaluation of the Nepal Employment Fund, a large training and job placement program for disadvantaged youth in Nepal. The program gives trainees one to three months of technical training, six months of paid on-the-job trainings, and life skills training for female trainees. The study found positive impacts of the offer of training on non-farm employment (10 percentage points) and monthly earnings (almost 50 percent) one year after the end of training, but no impacts on overall employment. These impacts were largely driven by women who started their own businesses inside their homes.

Overall, the literature suggests that, although the effects of many vocational training programs in developing countries are modest, these programs can be successful in specific contexts. The success of any given program likely depends on factors such as social, economic, and labor market conditions; existing skill levels of targeted groups; and characteristics of the training programs. To the best of our knowledge, no large-scale, rigorous evaluations of vocational training programs in Morocco or other countries in the Maghreb have taken place, so the likely range of effects in the Moroccan context is unclear.

B. Public-private partnerships for TVET

Responsiveness to private-sector demand is one crucial aspect of successful TVET programs, and a disconnect between labor supply and demand could limit the effectiveness of training programs. Reviews of TVET systems in developing countries suggest that private sector participation can improve training programs and help ensure they align with labor market demand. The World Bank Group's "Middle East and North Africa Regional Synthesis Report" cites successful demand-led approaches to TVET (Abu-Ghaida and Thacker 2015). Examples include Costa Rica's introduction of technical training and curricula to support its expanding information technology sector, and the Palestinian Territories' inclusive Local Employment and Training Councils. In both these examples, employers were able to weigh in on workforce development priorities, which helped TVET programs do a better job of meeting private employers' needs.

Managing TVET centers through PPPs, as in the Charaka Fund, is one approach to getting the private sector to participate in providing TVET. The Charaka Fund builds on a recent GoM pilot that transformed traditional public TVET centers into PPP-managed centers, with positive results. These pilot programs demonstrated that involving private business associations in operating training centers increased job placement rates for trainees (MCC 2015). Analysis of a quantitative survey of TVET teachers in Benin and Nigeria revealed that management of TVET centers by PPPs influenced the optimization of human and financial resources, development of curricula, and procurement of modern facilities (Edokpolor and Imafidon 2017). A broader systematic review of youth employment and training programs conducted by Kluve et al. (2016) found that programs implemented through PPPs achieved slightly larger impacts on employment and earnings relative to those implemented by the public sector. However, programs implemented solely by the private sector—nongovernmental organizations or private-sector firms—achieved even larger impacts. Overall, the evidence suggests that private-sector involvement in shaping TVET programs is important, with PPPs representing a feasible path to achieving this involvement in the Moroccan context.

C. RBF for job placement

Results-based payment structures, in which payments to service providers are based on outcomes achieved instead of on inputs or activities, are still a relatively new approach to financing development programs but are increasingly being used in a variety of sectors. Although the literature on RBFs is still nascent, early evidence has revealed that they can increase the returns on social spending by drawing attention to results, increasing accountability, and providing flexibility to adapt to the local contexts or changing circumstances (Perakis and Savedoff 2015).

The education sector lends itself particularly well to RBF because outcomes such as enrollment, learning, graduation, and employment are easily quantified. In 2012, the United Kingdom's Department for International Development (DFID) launched one of the first results-based aid programs, which was designed to improve secondary education in Ethiopia. The program conditioned payments to the government on the number of students who took or passed a

national exam at the end of lower secondary school, with higher payments for girls and students in comparatively poorer regions (Perakis and Savedoff 2015). In the first year of the program, the number of students and girls taking and passing the exam increased, but this increase fell short of expectations, and RBF incentive payments only amounted to 10 percent of the allocated budget. However, the number of exam-takers increased substantially in the second year, and incentive payments reached 60 percent of the allocated budget. In response to the success of this program, DFID used RBF in 25 of its 37 girls' education programs, worth a total of 300 million pounds sterling by 2017 (Instiglio 2017).

Although not part of the Morocco Compact, social impact bonds and development impact bonds—which rely on investment from the private sector—are other examples of RBF that have been successful in increasing the efficiency and effectiveness of service provision, including in the education sector.[13] One of the first development impact bonds in the education sector was launched in 2015 in Rajasthan, India, and tied payments to learning gains for students and enrollment of out-of-school girls. A randomized controlled trial conducted after three years found that learning gains were 28 percent higher in the treatment group compared with the control group, and that 92 percent of out-of-school girls in treatment villages were enrolled—far surpassing the final targets set for both outcomes (Kitzmüller et al. 2018). Gustafsson-Wright et al. (2015) reviewed 38 development impact bonds in existence as of 2015 and found that their pay-for-performance model had successfully shifted the focus of programs to outcomes and increased the efficiency and effectiveness of service delivery. However, most of these initiatives were small in scale—25 of the 38 initiatives served populations of 1,000 individuals or less—suggesting that the ability of development impact bonds to succeed at scale is largely untested.

In the TVET sector, RBF mechanisms for training and job placement programs have achieved comparable positive results. In Colombia, a performance evaluation of a job placement program that conditioned provider payments on job insertion rates and job retention after three and six months found that these providers better aligned their trainings to market needs and gave trainees with more assistance after they were employed to help them keep their jobs (Instiglio 2018). The Nepal Employment Fund, discussed previously, includes an RBF mechanism for its job placement component. The program conditions payments on trainees passing a national skills test, as well as job retention rates at three and six months, offering higher financial incentives for certain geographic regions, for women, and for vulnerable populations (people in low castes, victims of internal displacement caused by Nepal's civil war, and handicapped people) (Instiglio 2018; Chakravarty et al. 2019). The program successfully placed vulnerable populations in the labor market—more than 50 percent of those placed in jobs were female, and over 80 percent were disadvantaged people. Another program in Chile, which based payments to training providers on the number of trainees passing skills tests, increased the number of women receiving training, but achieved mixed results on labor market outcomes (Instiglio 2018).

[13] Social impact bonds and development impact bonds are funded by private investors who provide upfront financing to a service provider and receive a return on their investment from a third party—an outcome payer—based on the results the provider achieves. With a social impact bond, the outcome payer is a government, and with a development impact bond, the outcome payer is a funder such as a foundation or development agency.

Specifically, the program had no impact on younger beneficiaries, but employment and wages for trainees older than 40 increased. The review of youth employment programs conducted by Kluve et al. (2016) found that conditioning payments to service providers on trainee outcomes such as program completion, test scores, employment rates, or earnings generally resulted in more positive and statistically significant impacts relative to programs without outcome-based payment structures.

D. Labor market observatory

The efficiency of the labor market depends on the availability and reliability of labor market information. Policymakers need information on labor supply and demand to create appropriate policies, whereas educators, training providers, and job placement services need information on market demand, occupational profiles, educational requirements, and growth trajectories to tailor courses to employment opportunities (Johnson 2016; European Training Foundation 2016). Together, this information can help facilitate policy feedback loops, translating to government policies that are responsive to private-sector demand, which in turn lead to improved labor market outcomes and economic growth.

Labor market observatories conduct the data collection, research, and analysis necessary to provide this information, typically through a labor market information system (International Labor Organization 2015; European Training Foundation 2016; *Consortium International de Développement en Éducation* [CIDE] 2018). An effective labor market information system should produce data, indicators, and analysis that are aggregated and disaggregated across multiple dimensions, regularly updated, and disseminated in formats that are accessible to all types of stakeholders (CIDE 2018). Box III.1 provides more information on the characteristics of a successful labor market observatory. The labor market information provided by Morocco's OMT is currently not comprehensive, coherent, and integrated enough to meet the country's needs (CIDE 2018); the WDA seeks to help improve this information to better support decision-making in the TVET sector—for example, by the Charaka-funded training centers and ANAPEC.

Box III.1. Characteristics of successful labor market observatories

- Methodological credibility
- Tools and approaches for data generation, analysis, and interpretation (either in house or outsourced)
- Ability to evolve and adapt to new analysis, products, and user demands
- Relationships with data generation bodies, social partners, state and international actors, and other labor market observatories
- Adaptation of final products to end users, including those adaptations designed to improve readability, attractiveness, and online access
- Research independence and capacity to link research results to public policy dialogue and recommendations for action

Source: European Training Foundation (2016).

E. Gaps and policy implications

To the best of our knowledge, there has not been a large-scale, rigorous evaluation of vocational training programs in Morocco or other countries in the Maghreb. This evaluation will therefore contribute to the growing body of literature on TVET systems and provide evidence that applies in a previously unstudied context. This evaluation will also contribute to the small but growing body of literature on the effect of PPPs in TVET and the effects of result-based payment mechanisms for job placement providers on labor market outcomes for the people who are served.

This evaluation will also provide information on the effectiveness of a TVET intervention whose design addresses many of the issues identified as detracting from potential impacts, in the following ways:

- First, private-sector involvement in the management of the Charaka-supported centers is greater than it is for most TVET programs evaluated in the literature. Private-sector associations or federations have been closely involved in developing the Charaka-funded courses, which should result in greater market alignment and better outcomes for trainees.
- Second, the Charaka-funded courses are substantially longer in duration and involve training at higher technical levels compared to most TVET programs studied in the literature. Although Charaka-funded courses range in their length and prior educational requirements, the majority are either one or two years in duration and require at least secondary school completion. In contrast, most TVET programs discussed in the literature are less than a year in duration and target trainees with lower education levels.
- Third, the Charaka-funded training programs are being implemented in the context of a strong government commitment to improve the TVET model; the Charaka Fund was based in part on the successful experience of a handful of TVET centers that adopted a new PPP model (although this is different to the new PPP models being piloted by the Charaka-funded centers). Compared with the vocational training programs that have been evaluated before, the Charaka-funded centers could potentially be a unique feature that results in larger positive impacts on labor market outcomes for graduates.

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IV. EVALUATION DESIGN

In this chapter, we describe our evaluation design, including the key research questions, analytical methods, study sample, and the time frame for the data we plan to collect.

To evaluate the WDA, we propose a mixed-methods performance evaluation, which will include three studies: (1) a quantitative outcomes study of the Charaka Fund; (2) a quantitative descriptive study of the RBF sub-activity; and (3) a qualitative study assessing the Charaka Fund, RBF, and OMT sub-activities. The evaluation will not cover the TVET policy reform sub-activity, for several reasons. First, the program logic focuses only on the outputs of this sub-activity, and it does not link in a clear way to other sub-activities or the overall Activity objective (in particular, it is not looking to directly support Charaka centers). Second, the learning and accountability value from an implementation study focused on outputs would be limited given that the contents of this sub-activity were not clearly defined when the Compact was signed and have been shifting over time (that is, assessing whether and how the envisaged outputs were achieved would be challenging, because these were not clearly specified at the outset). Third, this is a small component of the overall Activity accounting for about 3 percent of the total budget.[14]

To evaluate the possible effects of the Charaka Fund, the outcomes study will measure the training and labor market outcomes of trainees in Charaka-supported centers and, to the extent possible, compare their outcomes with those of a relevant sample of trainees who attend centers that are not supported by the Charaka Fund. For the RBF sub-activity, the quantitative descriptive study will measure the labor market outcomes of participants in RBF-funded programs over a longer-term period than that used to determine RBF payments. The qualitative study will further explore the extent to which the envisaged outcomes in the project logic were achieved, the mechanisms underlying these achievements or reasons why they were not achieved, and prospects for sustainability.

[14] As noted, the evaluation will also not include the initiatives on gender-equitable workplaces and labor market impact evaluation initiative, which are being implemented under the RBF sub-activity. The intervention on gender-equitable workplaces entails technical assistance to be provided to the Ministry of Labor (*Ministère du Travail et de l'Insertion Professionnelle,* or MTIP) to elevate its gender trophy prize, which is a competition the ministry runs to recognize companies that promote gender-sensitive workplaces. After discussion with MCC, we concluded that the intervention is too small to justify evaluating it. Instead, we will account for gender in the other components of our evaluation; for example, we plan to conduct gender-specific focus groups of trainees in Charaka-supported centers and conduct subgroup analysis of trainee tracer survey data based on gender. The labor market impact evaluation initiative will itself comprise several evaluations, which are distinct from Mathematica's evaluation.

A. Evaluation questions

Table IV.1 presents the key evaluation questions and the approaches we will use to answer them.

Table IV.1. Evaluation questions and approaches to answering them

Evaluation questions	Approaches to answering them
Sub-Activity 1: Charaka Fund	
1. How did the implementation of the Charaka Fund sub-activity facilitate or hamper the achievement of the envisaged outcomes in the program logic?	**Qualitative study** • Interview MCA-Morocco and MCC staff, center management, Charaka Fund public-and private-sector partners, teachers in Charaka-supported centers, MEF staff, and DFP staff to understand how the way in which the Charaka Fund was implemented might affect outcome achievement
2. What are the labor market outcomes of graduates from Charaka-supported TVET centers? a. What are graduates' job insertion rates and their average earnings? b. How do job insertion rates and earnings compare to those of graduates from comparable traditional TVET centers? c. Do labor market outcomes vary by subgroup, including trainee gender, course level, whether the center is new or rehabilitated, governance model, training sector, and grantee?[a]	**Outcomes study** • Analyze trainee survey data to measure labor market outcomes among trainees in Charaka-supported courses, overall and by subgroup • Compare labor market outcomes for trainees in Charaka-supported courses to those of trainees in a broadly similar set of traditional TVET centers in Morocco (benchmarking approach) **Qualitative study** • Conduct trainee focus groups in Charaka-supported centers to explore perceptions of and satisfaction with training, differences in training experiences and challenges by gender, and career expectations • Interview teachers in Charaka-supported centers to explore the adequacy of professional development, infrastructure, and training materials; challenges in teaching the Charaka-supported courses; and perceptions of trainees • Interview employers of graduates from Charaka-supported centers to understand the job search, hiring, and wage-setting processes
3. Are Charaka-supported TVET centers responsive to the demands of employers? a. How do employers engage with TVET centers to communicate their demand for skills, and how do the centers respond? b. To what extent are the skills of graduates from Charaka-supported TVET centers aligned with the skills demanded by the labor market?	**Outcomes study** • Use the benchmarking approach described above to provide suggestive evidence about whether graduates from Charaka-supported courses are more valued by employers than graduates from other broadly similar courses **Qualitative study** • Interview center management and public- and private-sector partners to understand how market demand was identified and how trainings were designed to align with employer needs • Interview employers to understand their perceptions of graduates from Charaka-supported courses and the underlying reasons for these perceptions • Interview CGEM to assess the alignment between TVET trainings provided by Charaka centers and employer needs

Evaluation questions	Approaches to answering them
4. Are Charaka-supported centers sustained after the end of the Compact? a. Were Charaka-funded centers that were not completed during the Compact completed as planned after the end of the Compact? b. How have center management and the courses offered evolved after the end of the Compact? c. Are the Charaka-supported centers financially viable, and how do training costs compare to those at traditional centers? d. What are the main challenges to sustaining the Charaka-supported centers, and to what extent are centers able to overcome these challenges?	**Qualitative study** • Interview center management to document how the centers have evolved after the end of the Compact, and assess the prospects of sustainability • Analyze summaries of financial data on the revenues and costs of Charaka-funded centers and benchmarking centers (if available) to assess financial viability and compare costs for PPP versus traditionally managed centers
5. Has the Charaka Fund investment influenced the Government of Morocco to expand the number of TVET centers managed through PPPs?	**Qualitative study** • Interview MEF staff, DFP staff, Charaka Fund public and private partners, regional-level stakeholders, and other donors to explore the prospects for future PPPs in managing TVET centers
Sub-Activities 3 and 4 (RBF for Inclusive Employment; OMT)	
6. Has RBF demonstrated an effective and sustainable model for job placement services? a. How did the implementation of RBF programs facilitate or hamper the achievement of the envisaged outcomes in the program logic? b. What are participants' job insertion rates, retention rates, and average earnings? c. Do labor market outcomes vary by trainee subgroup (gender, age, education level, and region where job placement services are provided)?[a] d. Do RBF stakeholders (participants, grantees, employers) perceive that the program has increased opportunities for target populations? e. Did the RBF incentives have any unintended effects on participant recruitment and service provision? f. To what extent has RBF been sustained and expanded after the end of the Compact?	**Descriptive study** • Analyze trainee survey data to measure labor market outcomes of participants in RBF programs, overall and by subgroup **Qualitative study** • Interview staff at RBF grantees to understand how the way in which RBF grants and programs were implemented might affect outcome achievement, the process of recruiting and selecting participants, and perceived effects of RBF on opportunities for target populations • Interview participants in RBF programs to better understand their training and labor market experiences • Interview employers to understand their perceptions of RBF participants • Interview staff from the MEF, MTIP, ANAPEC, and INDH to explore perceptions of the effectiveness of RBF, the extent to which RBF has been sustained and expanded, and why
7. To what extent has the OMT improved the availability of labor market data to support decision-making in the TVET sector? a. How and to what extent are Charaka-funded centers using the labor market information produced by the OMT? b. How and to what extent is ANAPEC using the labor market information produced by the OMT? c. What aspects of the OMT's new data platform are expected to be sustainable?	**Qualitative study** • Interview OMT staff and consortium partners to understand the labor market data inputs and outputs of the OMT's data platform, as well as the prospects for sustainability • Interview center management and public and private partners at Charaka-supported centers, as well as ANAPEC—key potential users of labor market data that are involved in other WDA sub-activities—to assess how and to what extent they are using data from the OMT, and what the remaining challenges are to doing so

[a] We will use baseline data to inform the selection of other subgroups, based on variation in the data and available sample sizes (for example, rural versus urban location of origin).

ANAPEC = Agence Nationale de Promotion de l'Emploi et des Compétences ; CGEM = Confédération Générale des Entreprises du Maroc; DFP = Département de la Formation Professionnelle ; MEF = Ministère de l'Economie, des Finances et de la Réforme de l'Administration ; MTIP = Ministère du Travail et de l'Insertion Professionnelle ; OFPPT = Office de la formation professionnelle et de la promotion du travail.

B. Methods

This section describes the three components of the evaluation—the outcomes study of the Charaka Fund, the descriptive study of the RBF sub-activity, and the qualitative study—in detail.

1. Quantitative outcomes study for the Charaka Fund

The primary goal of the outcomes study is to describe the labor market outcomes of trainees in Charaka-supported centers—especially their employment rates and wages. We will measure outcomes 24 months after the end of training, using data from a trainee tracer survey that follows enrollees in Charaka-supported centers after graduation and into the labor market.

To place the labor market outcomes of trainees in the Charaka-supported courses in context, we also plan to use trainee tracer survey data to compare the outcomes to those of trainees in a set of broadly similar non-supported courses in other centers. Because it was not feasible to use a rigorous approach to identify these non-supported courses, we recognize that these comparisons are unlikely to yield causal estimates of the impacts of the Charaka Fund. [15] Nevertheless, these comparisons will enable us to understand the estimated trainee-level outcomes in the existing vocational training context in Morocco. They will also help us assess whether the linkages between project activities and trainee outcomes assumed in the project logic and CBA are likely to have occurred in practice.

Specifically, we will use a **benchmarking approach** to compare the outcomes of trainees in all 15 Charaka-supported centers to those of trainees enrolled at the same time in a set of broadly similar unsupported TVET centers in Morocco, using trainee tracer survey data. This entails selecting one or more unsupported centers to serve as the most appropriate benchmarking center(s) for each Charaka-supported center. We will use a set of criteria to identify the most similar unsupported centers. (We describe the process for selecting benchmarking centers in detail below.)

From these benchmarking centers, we will collect data from trainees in courses that are at the same level and in the same sector as those offered by Charaka centers. The outcomes of these trainees will give us a broad sense of typical labor market outcomes of TVET graduates in traditional centers, and we can compare them to the outcomes of graduates in Charaka-supported centers. An important advantage of the benchmarking analysis is that it will compare trainees

[15] Because the Charaka-supported courses are unique in the Moroccan context, few comparable non-supported courses are available; and that means we cannot conduct course-level matching and implement an impact evaluation using a matched comparison group design. The selection mechanism for the Charaka Fund grants also precluded an impact evaluation using a course-level random assignment or regression discontinuity design.

who enter the labor market at the same time and hence experience similar labor conditions. However, the benchmarking results will be purely descriptive and cannot be interpreted as the impacts of the Charaka Fund grants because of possible differences in subject areas, the trainee population served, and center characteristics, despite our best efforts to identify similar centers. Nevertheless, this approach will provide suggestive evidence about whether the impacts envisaged in the program logic are plausible. For example, if graduates of Charaka-supported TVET centers do not achieve higher rates of job placement than graduates of benchmarking centers do, it would suggest that large impacts on employment outcomes are unlikely.

To assess the feasibility of the benchmarking approach, we identified a preliminary list of possible benchmarking centers for each of the 15 Charaka centers. We selected these benchmarking centers following a systematic process to identify the most suitable centers based on 2016 administrative data on all TVET centers in the country. (We describe the technical details of the selection process in Appendix B; Appendix Table B.1 is the preliminary list of benchmarking centers.) In general, we sought to choose benchmarking centers that were in the same region, operated by the same provider (or else another public provider), and offered as many courses as possible in the same sector and level as the Charaka-supported center's courses. Overall, we created a preliminary list of 29 benchmarking centers for the 15 Charaka-supported centers (typically between one and three benchmarking centers per Charaka-supported center),[16] and a list of possible alternative benchmarking centers.

We will validate the proposed list with local stakeholders and will refine it based on their feedback. Specifically, we plan to hold several in-country meetings with officials of the Charaka Fund public partners—including OFPPT and relevant ministries[17]—to obtain their feedback on the comparability of the proposed benchmarking center(s) and possible alternatives for each Charaka-supported center. We will work closely with MCA-Morocco to identify the specific officials we will meet, which will likely include national- and/or regional-level staff who are familiar with the range of TVET centers operated by the relevant public partner.

2. Quantitative descriptive study of the RBF sub-activity

The RBF descriptive study will document the labor market outcomes of RBF participants, measured 24 months after the end of training. As with the Charaka outcomes study, we plan to use the trainee tracer survey data to analyze these outcomes. However, unlike the approach we will follow with the Charaka outcomes study, we will not compare these outcomes to those of any concurrent benchmark programs because the RBF sub-activity is geared toward populations

[16] The number of proposed benchmarking centers varies across Charaka-supported centers, depending on the availability of suitable benchmarking centers and the number of centers required to sufficiently cover all course levels offered at the Charaka-supported center. A few benchmarking centers will serve as benchmarks for more than one Charaka-supported center.

[17] As shown in Appendix Table B.1, these ministries include the following: the *Ministère du Tourisme, du Transport Aérien, de l'Artisanat et de l'Economie Sociale* and the the *Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale* within the Ministry; the *Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts*; and the *Ministère de la Santé*.

not typically served by existing employment programs. These include, for example, domestic violence victims and school dropouts.[18] The RBF descriptive study will provide longer-term information about labor market outcomes than is provided by the social security data that are used for RBF payment purposes, which focuses on placement and six-month retention (consecutive employment) in formal jobs within a window of between 25 and 27 months between the start of the RBF contract and the deadline for claiming RBF payments.[19]

3. Qualitative study

The qualitative study will draw primarily on interviews and focus groups with key stakeholders, complemented by contextual information from grantee documents, administrative data, and summaries of grantee financial records (if available). We will systematically organize and synthesize the key themes that emerge from each data source and triangulate the findings across these sources to answer the evaluation questions. As we describe below, we will conduct one round of the qualitative study toward the end of the Compact (focusing on how implementation might affect outcome achievement, early effects, and perceptions of sustainability), and two rounds after the end of the Compact (focusing on effects and sustainability of the RBF and OMT sub-activities, and of the Charaka Fund, respectively). In all, the qualitative study will focus on the following six areas:

- **Trainees' experiences with training** (relevant to evaluation questions 1 and 2). To deepen our understanding of the experiences of trainees enrolled in Charaka-supported courses, we will conduct focus group discussions with trainees toward the end of the Compact. These focus groups will explore trainees' motivation for enrollment and alternative options they were considering when they enrolled, career expectations, and their perceptions of and satisfaction with training. We will include gender-specific focus groups to better explore the experiences of and challenges faced by women. Interviews with teachers in Charaka-supported centers will be an opportunity to explore the successes and challenges they faced in implementing the new training curricula, and to assess whether they thought they had the professional development, infrastructure, and training materials they needed to teach the trainees the necessary skills. Finally, interviews with entities involved in implementation—including MCA-Morocco, other GoM entities, and Charaka Fund public- and private-sector

[18] For the subset of RBF grantees who were active in the job placement market and serving similar populations before RBF, we considered using pre-RBF cohorts to provide a benchmark. However, the effects of the COVID-19 pandemic—which would likely affect participant selection, training and job placement activities, and labor marker outcomes—would make these pre-post comparisons very challenging to interpret. We are therefore unable to identify a credible benchmark that would enable us to quantitatively assess how RBF increased employment opportunities for target populations. We will explore this question qualitatively based on perceptions of RBF participants, grantees, and employers.

[19] Given that the RBF program operated by each grantee is engaging cohorts on a rolling basis, most participants will have experienced much fewer than between 25 and 27 months on the labor market in this window. Further, once a participant has been retained in formal employment for six consecutive months, the RBF program does not continue to track their outcomes. Therefore, measuring participants' outcomes 24 months after the end of training will provide a longer-term assessment of formal employment and other labor market outcomes.

partners—will shed light on how implementation might affect outcome achievement, which will help us interpret the findings on trainees' outcomes.

- **Alignment between training and market demand** (relevant to evaluation question 3). Interviews with actors involved in the design and implementation of the Charaka Fund—including center management and public- and private-sector partners—will enable us to document how market demand was identified and how trainings were designed to align with industry needs. This includes documenting how and to what extent employers were involved in designing the new and modified courses in Charaka-supported centers and exploring the mechanisms that exist to maintain the linkages between the trainings and market demand in the future. To determine whether and how trainings aligned trainees' skills with market demand in practice, we will conduct in-depth interviews with employers who hired graduates from Charaka-supported TVET centers. These interviews will enable us to assess employers' perceptions on whether the skills of graduates—both technical skills and "soft" (personal and social) skills—meet their needs, and how these perceptions might have changed in response to the work done in the centers.
- **Sustainability of the Charaka-supported centers, and the extent to which they have encouraged broader adoption of the new TVET model** (relevant to evaluation questions 4 and 5). Interviews conducted at the end of the Compact with public- and private-sector partners, MCC, and MCA-Morocco will provide early indications about the extent to which Charaka-supported centers are likely to be completed as planned and the implications of modifications to initial implementation plans for the expected outcomes in the program logic. (Because of timeline delays and budget overruns, the initial plans for construction and equipment have had to be substantially modified, and it is expected that at least some centers will not be completed by the end of the Compact and will require additional GoM support for completion.) After the Compact, additional interviews with center managers and public- and private-sector partners will update information about the completion of the centers; the evolution of the operations of the Compact-supported centers, their course offerings, engagement with industry, and funding streams; and their sustainability. Elements of sustainability we will consider include financial sustainability, physical maintenance of infrastructure and equipment, retention of teaching staff with the required knowledge and skills, demand for the courses among potential trainees, and the extent of ongoing employer engagement to ensure that trainings remain aligned with market demand. If possible, we will use financial data from the Charaka-supported centers to complement our qualitative analysis of financial sustainability and compare the cost of providing training to the cost in traditional centers operated by the same public providers. Combined with tracer survey data from Charaka-supported and benchmarking centers, this will reveal some of the relative benefits and long-term costs of sustaining TVET centers managed through PPPs. Finally, interviews with the *Ministère de l'Economie, des Finances et de la Réforme de l'Administration* (MEF), the DFP, and Charaka Fund public-and private-sector partners after the end of the Compact will enable us to assess whether additional TVET centers in Morocco have been established

or converted to follow the PPP model. If so, we will also use these interviews to assess how this was affected by experiences with the Charaka-supported centers.

- **Implementation, effectiveness, and sustainability of RBF for social inclusion** (relevant to evaluation question 6). We will review RBF agreements to grantees to deepen our understanding of the structure of the RBF mechanisms that were implemented, the different approaches taken by service providers who received RBF, and the way that outcomes were verified. In addition, we will conduct interviews with RBF-funded service providers to understand how RBF affected their approach to service delivery, the process for recruiting and selecting participants, and the perceived successes and challenges of providing these services to vulnerable women and youth. Interviewing participants in selected RBF-funded programs after they have completed them will give participants an opportunity to tell us in their own words about their training and placement experiences and highlight patterns or issues that may not be measurable or observable in the administrative data. As we will for the evaluation of the Charaka Fund, we will interview employers of RBF participants to assess how well the participants' technical and soft skills meet the employers' needs. Interviews conducted with the MEF, the *Ministère du Travail et de l'Insertion Professionnelle* (MTIP), and ANAPEC staff after the end of the Compact will allow us to explore how the RBF sub-activity has affected the job placement services the GoM funds and the incentive mechanisms that are used. This includes whether it has broadened the scope of job placement services and populations served beyond those of the traditional ANAPEC services. We will also interview INDH to assess whether they ultimately decided to scale up the RBF approach for their programs based on the experience of the pilot they are conducting during the Compact, and whether and how they plan to modify the RBF approach to meet their needs.
- **Operationalization and use of the OMT** (relevant to evaluation question 7). Our analysis will assess how successful the OMT sub-activity was in bringing together high quality, comprehensive labor market data into a single accessible platform, and in supporting the systematic use of these data for decision making by the Charaka-funded centers and ANAPEC, two key TVET sector stakeholders engaged in other WDA sub-activities.[20] We will interview the leadership of the OMT and its consortium partners during and after the Compact to understand their approach to collating data inputs and disseminating data outputs as part of the OMT data platform, and their expectations about sustainability. We will also seek to understand how the availability of labor market information through the OMT affected decision-making at the Charaka-funded centers and ANAPEC, in terms of adapting their programs and approach to meet labor market demand.

[20] Although it is envisaged that the OMT will be widely used beyond just these stakeholders, a broader stand-alone evaluation of the OMT would be beyond the scope of the evaluation. Instead, following MCC's evaluation guidelines, we will focus more narrowly on how the sub-activity is contributing to the overall Activity objective. According to the program logic, this is expected to occur by the OMT influencing decision-making at the Charaka centers and ANAPEC. Nevertheless, we will assess the feasibility of including a handful of questions about the awareness and use of the OMT in qualitative protocols for other stakeholders who might be engaged with it, to provide additional context.

C. Study sample and power calculations

The evaluation design for the WDA requires us to collect primary quantitative data from three distinct samples: (1) a sample of trainees for the Charaka Fund outcomes study's benchmarking approach; (2) a sample of RBF participants for the RBF descriptive study; and (3) a sample of key stakeholders for the qualitative study. Next, we detail the composition of each sample.

1. Trainee sample for the Charaka Fund outcomes study's benchmarking approach

The trainee sample for the benchmarking approach will comprise the following:

- **A post-Charaka cohort in all 15 Charaka centers.** This sample will be made up of trainees graduating from Charaka-supported centers in the summer of 2025. Specifically, it will include trainees who entered their programs in the 2024–2025 school year for one-year courses and those who entered in the 2023–2024 school year for two-year courses. This is the first cohort that is expected to have full exposure to the Charaka Fund interventions because, in some Charaka centers, construction might not be finished and/or new equipment will not yet be installed by the start of the 2022-2023 school year.[21] We will draw the sample from trainees in all courses in all Charaka-supported centers, including continuing, modified, and new courses.[22]
- **A post-Charaka cohort in benchmarking centers.** This sample will comprise trainees in identified benchmarking centers who graduate in 2025, the same year as the post-Charaka cohort sample, to enable us to conduct the benchmarking approach. Based on our preliminary list of benchmarking centers, this entails sampling from around 29 benchmarking centers. We will sample trainees only from courses that are at the same level and in the same sector as Charaka-supported courses.

We carefully considered the appropriate sample sizes for each of these samples to balance the increased statistical precision with the higher costs of data collection associated with a larger sample size. To estimate statistical precision, we calculated confidence intervals (CIs), focusing on the key outcome of employment.[23] The CI is defined as the range of values that contain the true mean with a given probability (in this case, 95 percent). It is appropriate to examine CIs for the benchmarking approach because we plan to descriptively compare mean outcomes of trainees

[21] We also considered focusing on an earlier cohort of trainees graduating in the summer of 2024 so that the final evaluation findings would be available sooner. However, trainees in two-year Charaka-supported courses who graduate in 2024 might have had only partial exposure to the intervention because construction would be completed and/or equipment installed partway through their course. Partial exposure could result in underestimating the full effects of the Charaka Fund.

[22] As we describe later in the text, in rehabilitated centers some courses will continue as before, some will be modified, and some new courses will be introduced. In new centers, all courses will be new to the centers (which did not exist before), although in some cases similar courses might exist in other Moroccan training centers.

[23] We do not present CIs for wages, the other key labor market outcome, because we do not have information about the standard deviation of wages in the study's comparison groups (one of the primary inputs needed to carry out the calculations).

in Charaka-supported and benchmarking courses, presenting CIs for both samples to give a sense of the precision of the estimated means. We do not plan to statistically test for differences between these two samples given their possible lack of comparability; Section VI.A details our analysis approach.

Based on these considerations, we recommend drawing a simple random sample of 1,496 post-Charaka trainees, spread across all of the 187 Charaka-supported courses (8 trainees per course, on average). A course-level sampling approach will fully capture the diversity of the Charaka-supported courses and will enable us to estimate outcomes for the average trainee in these courses. However, our sampling approach will also take into account the substantial heterogeneity in the number of courses across Charaka-supported centers, which is expected to vary from 4 to 22 (median 11). Specifically, to improve precision for center-level estimates and subgroup analyses, we will impose a minimum total sample size per center (or sample all trainees in a center, if the number of trainees does not meet the minimum). Therefore, in practice, the number of trainees sampled per course will vary, with more trainees per course in centers with relatively fewer courses. In benchmarking centers, we recommend a simple random sample of 5 post-Charaka trainees in each course included in the benchmarking sample (about 215 courses), for a total benchmarking sample of 1,075 trainees.

We expect to be able to estimate precise means for the benchmarking analysis with our proposed sample sizes (Table IV.2).[24] Specifically, we will have a high degree of confidence that the employment rate is within 3 percentage points of the estimated mean. Even for a relatively small 25 percent subgroup, the CI is only about 5 and 6 percentage points either side of the mean for Charaka-supported and benchmarking courses, respectively.

In addition, we plan to conduct the analysis separately for each center. Center-level means will be substantially less precise because of much smaller sample sizes. For example, for a center with 11 courses (the median) and 8 trainees per course (the average), the CI for employment is about 10 percentage points around the mean. This suggests that our estimates will be precise only for centers with a relatively large number of courses and trainees.

[24] Table IV.2 assumes a response rate of 80 percent. In recent TVET tracer surveys for MCC, we achieved a response rate of about 70 percent in Namibia for a one-year phone-based follow-up with poor baseline contact information, and about 85 percent in Georgia for a one-year phone-based follow-up with good baseline contact information. In Morocco, we plan to conduct an in-person survey with good baseline contact information, which would improve response rates relative to those studies. On the other hand, the longer two-year follow-up period might reduce response rates relative to those we achieved with a one-year follow-up. Our estimated response rate of 80 percent balances these considerations. The estimated CI margins are not very sensitive to the response rate—for example, with a response rate of 70 percent, the CI margin for the full sample would only increase from 2.4 to 2.5 percentage points.

Table IV.2. CI calculations for trainee outcomes benchmarking analysis

Sample sizes and CIs	Full sample	50 percent subgroup	25 percent subgroup
Charaka-supported cohort (15 centers) sample size	1,479	740	370
Benchmarking cohort (29 centers) sample size	1,075	538	269
95 percent CI for the Charaka-supported cohort (either side of mean employment, in percentage points)	2.4	3.4	4.8
95 percent CI for the benchmarking center cohort (either side of mean employment, in percentage points)	3.1	4.4	6.3

Note: We assume that the response rate to the follow-up trainee tracer survey will be 80 percent, and that mean employment will be 77 percent in Charaka-supported centers and 67 percent in the benchmarking centers, based on the assumption in the ex-ante cost-benefit analysis and the TVET insertion rate in 2016 from the DFP.

2. Participant sample for the RBF descriptive study

For the RBF descriptive study, we will seek to survey participants across all eight RBF grantees who completed RBF programs between May 2020 and December 2021.[25] Over this period, each grantee might offer a variety of programs, serve multiple cohorts of participants, and/or offer services in more than one geographic location.

To capture the range of RBF services and provide sufficiently precise estimates of labor market outcomes while limiting data collection costs, we propose sampling 100 trainees per RBF grantee, for a total of 800 trainees in the tracer survey. This sample size will enable us to compute grantee-level CIs for employment of about 10 percentage points on either side of the mean. Increasing the sample size beyond 100 trainees per grantee leads only to small improvements in the precision of estimates and raises the cost of data collection (for example, increasing the sample size to 120 participants per grantee only reduced the grantee-level CI for employment by less than 1 percentage point at either side of the mean). Our sampling approach will seek to cover a representative range of programs, program timing, and geographic locations.

3. Qualitative sample

Table IV.3 shows the planned type of respondent, sample sizes, and sampling approach for qualitative data collection. Our plan recognizes the high degree of diversity among the Charaka Fund and RBF grantees, which suggests that implementation experiences, project effects, and sustainability might differ substantially across grantees. Therefore, to fully address the evaluation questions, the planned sample sizes of grantee-specific respondents (in particular,

[25] The vast majority of the trainings started in May 2020 or later, after the pandemic lockdown ended. Two grantees served a small number of participants in February and March 2020, and none served any participants in April 2020. Focusing on participants served after the COVID-19 lockdown will simplify the timing of data collection and will still be largely representative of all RBF participants. RBF programs were largely completed by the end of 2021.

Charaka trainees,[26] RBF participants, and employers) are relatively large and designed to maximize the coverage of grantees with the available resources. For example, in the final round of data collection, we propose interviewing four employers of graduates from eight of the Charaka Fund grantees, for a total of 32 such employers. This will enable us to obtain some grantee-specific findings about how well graduates' skills meet employers' needs, and to contrast these findings across Charaka Fund grantees. More broadly, we propose focusing most of the qualitative data collection for the Charaka Fund (from trainees, teachers, employers and partners) on 8 of the 15 centers. Specifically, we will purposively sample four rehabilitated and four new centers to provide variation in terms of region, sector, and governance model. We will avoid sampling centers where substantial aspects of the planned investments were not realized (for example, where key infrastructure improvements were not completed), because those centers will likely be less informative for future scale-up of the envisaged Charaka Fund model. Given the available evaluation resources, focusing on a subset of centers will enable us to provide more depth in the qualitative data collection and analysis relative to if we covered all centers. Nevertheless, we will seek to conduct interviews with center management in all 15 Charaka-Funded centers to fully capture the variation across them. For RBF, where there are only eight grantees, it will be feasible to collect data from all types of stakeholders across all grantees.

[26] We plan to collect qualitative data from Charaka trainees while they are still in training, but not after they have already graduated. This is because we expect to obtain detailed information on labor market experiences and outcomes for a large representative sample of Charaka graduates through the follow-up tracer survey. We anticipate including questions in this survey to help us explain graduates' labor market outcomes—for example, their engagement in job seeking and perceived reasons for not finding employment. Therefore, the value added from qualitative interviews with a relatively small sample of Charaka graduates—with potentially idiosyncratic labor market experiences—would be limited.

Table IV.3. Respondents and sample sizes for qualitative data collection

Respondent	Initial round, 2022		Interim round, 2024		Final round, 2027	
	Sample size	Sampling approach	Sample size	Sampling approach	Sample size	Sampling approach
Trainees in Charaka centers	n.a.	n.a.	16 focus groups	Two focus groups (one all male and one all female) of post-Charaka trainees in each of 8 Charaka centers (4 rehabilitated and 4 new centers); 6–12 participants per focus group, with participants selected to provide diversity across courses and socio-demographic characteristics	n.a.	n.a.
Teachers in Charaka centers	n.a.	n.a.	8 focus groups	One focus group with teachers of post-Charaka trainees at each of 8 Charaka centers; 4–8 instructors per focus group, covering a range of courses	n.a.	n.a.
Charaka center management	7 interviews	One interview at each of the 7 existing Charaka centers	15 interviews	One interview at each of the 15 Charaka centers	15 interviews	One interview at each of the 15 Charaka centers
MCA-Morocco and local MCC staff	6 interviews	Key program staff	n.a.	n.a.	n.a.	n.a.
Staff at implementing partners	4 interviews	GOPA (Charaka Fund grant manager), Instiglio (RBF implementing contractor), CIDE (OMT implementing contractor), and Mohammed VI Polytechnic (OMT lead consortium partner)	n.a.	n.a.	n.a.	n.a.
Charaka public- and private-sector partners	11 interviews	All 3 public partners at the existing Charaka centers (1 interview each) plus 4 private partners covering 4 of the existing centers (up to 2 interviews each)	n.a.	n.a.	20 interviews	All 4 public partners (1 interview each) plus 8 private partners covering the 8 grantees selected for trainee focus groups in the interim round (up to 2 interviews each)

Table IV.3 *(continued)*

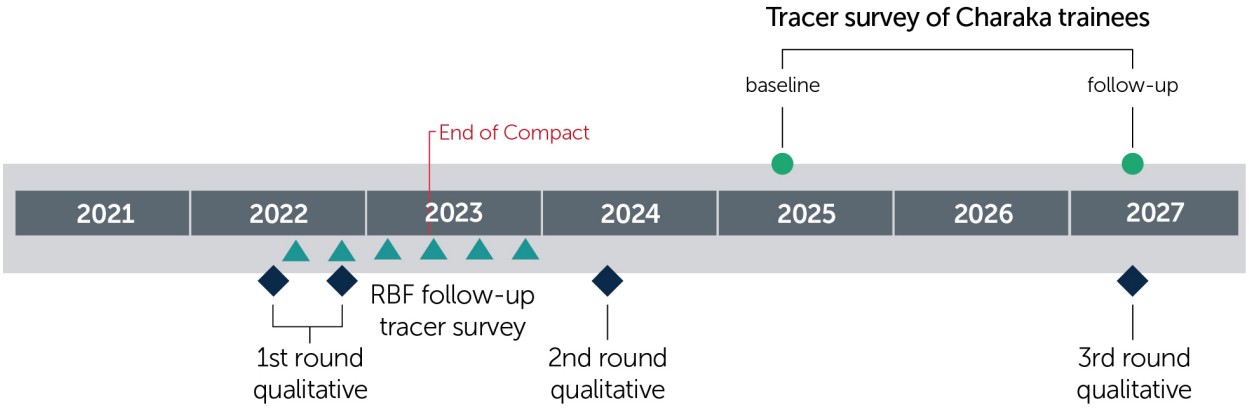
Respondent	Initial round, 2022		Interim round, 2024		Final round, 2027	
	Sample size	Sampling approach	Sample size	Sampling approach	Sample size	Sampling approach
Employers	16 interviews	2 employers per RBF grantee, selected from the most common employers of RBF participants	n.a.	n.a.	32 interviews	4 employers per each of the 8 Charaka Fund grantees selected for trainee focus groups in the interim round, selected from the most common training-relevant employers of trainees in each center
Participants in RBF programs	24 interviews	Three participants at each of the 8 RBF grantees, selected to be diverse in terms of type of services and gender	n.a.	n.a.	n.a.	n.a.
Staff at RBF grantees	8 interviews	All 8 RBF grantees	n.a.	n.a.	n.a.	n.a.
Other donors in the TVET sector	2 interviews	Two major donors in the sector	2 interviews	Two major donors in the sector	2 interviews	Two major donors in the sector
Other stakeholders	10 interviews	Staff at the OMT, MTIP, MEF, DFP, ANAPEC, INDH, CGEM, and others	10 interviews	Staff at the OMT, MTIP, MEF, DFP, ANAPEC, INDH, CGEM, and others	6 interviews	Staff at the MEF, DFP, CGEM, regional-level stakeholders, and others

n.a. = not applicable ; ANAPEC = Ministère de l'Economie, des Finances et de la Réforme de l'Administration ; CGEM = Confédération Générale des Entreprises du Maroc ; MEF = Ministère de l'Economie, des Finances et de la Réforme de l'Administration ; MTIP = Ministère du Travail et de l'Insertion Professionnelle ; OMT = Observatoire du marché du travail.

D. Time frame for data collection and exposure period

Figure IV.1 summarizes the planned timing of data collection for the various primary data sources we will draw on for the evaluation.

Figure IV.1. Timing of data collection for the WDA project evaluation



For the Charaka Fund trainee tracer survey, our plan is to survey trainees while they are still enrolled and about to finish training (at baseline) and again two years after they graduate (at endline). At endline, these trainees would therefore have received one or two years of exposure to the Charaka-supported trainings (depending on the duration of their courses), plus two subsequent years on the labor market. Similarly, we plan to conduct the endline tracer survey for RBF participant two years after they receive RBF services. (As we describe in Section V.B, we plan to obtain baseline information on RBF participants from administrative data and will not conduct our own baseline survey.) At endline, these trainees would therefore have received between 2 days and 3 months of training from the RBF grantees (depending on the duration of their program), plus two subsequent years on the labor market.

This two-year post-training follow-up period for both the Charaka Fund and RBF studies is motivated by our goal to measure long-term labor market outcomes for the evaluation. It follows the recommendation by McKenzie (2017) to measure impacts of employment programs over longer time frames than what has been typical for published studies—which is 12 to 18 months after the conclusion of a program—to assess whether programs contribute to lasting changes in labor market outcomes. It also helps account for two key features of the labor market in Morocco that would make an earlier follow-up problematic. First, we would like to measure outcomes after trainees spend more than 12 months in their job to better understand job retention, as Moroccan firms commonly terminate contracts before one year to avoid committing to the workers benefits associated with a permanent contract.[27] Second, we understand from discussions with local stakeholders that TVET graduates typically take several months off after

[27] The Moroccan Labor Code stipulates that all job contracts must be converted to permanent contracts after 12 months. One way that firms in the country circumvent this is by not maintaining workers beyond the 12-month probationary period to avoid expanding workers' benefits (AfDB et al. 2015).

graduating before they enter the labor market; it is important to account for this delayed start. Although an 18- month follow-up period would potentially account for both concerns, a two-year follow-up period would provide a more complete picture of labor market outcomes given potential seasonality in some of the sectors targeted by the Charaka Fund and would provide a better sense of the long-term trajectory of outcomes to inform the CBA. Overall, a two-year follow-up balances the benefits of a longer-term follow-up with the concerns associated with (1) the possibility of a lower response rate over time, and (2) trainees' recall of their labor market history since graduation, which is more challenging with a longer recall period. We discuss our plans to maximize response rates and limit recall difficulties in our trainee tracer surveys in Chapter VII.

The planned two-year follow-up period implies that we will conduct we will conduct baseline survey data collection for the Charaka Fund study in 2025 and endline data collection in 2027. Both the baseline and endline surveys will cover the post-Charaka cohort of trainees in all Charaka centers and benchmarking centers. Because all TVET centers in Morocco operate on the same academic calendar, with trainees graduating in the summer, we will conduct all data collection in the summer of the relevant year. Conducting baseline data collection in the summer will enable us to obtain the most up-to-date contact information from trainees before they graduate; conducting endline data collection in the summer will provide information about labor market outcomes two years after graduation. We will conduct the endline tracer survey of RBF participants on a rolling basis between 2022 and 2023, with the specific timing varying across the cohorts include in our sample, depending on when they completed their RBF program.

We also plan to conduct three rounds of qualitative data collection: once in 2022; a second time in 2024; and a final time in 2027. The first round will focus on how implementation might affect outcome achievement, and preliminary results, at a point when implementation is still active or relatively recent, and key implementation-related stakeholders (such as MCA-Morocco) are still available in country. To fully capture implementation, we will conduct the first round of qualitative data collection mostly in late 2022—a few months before the expected end of the Compact. However, because the RBF sub-activity will be largely completed in the first half of 2022, we will conduct the interviews with RBF grantees in mid-2022 to capture their experiences while they are still relatively recent and while the relevant staff are still available. The second round will explore the medium-term effects of the sub-activities and their sustainability in the post-Compact period, focusing primarily on the RBF and OMT sub-activities. The final round will focus on the Charaka Fund and will supplement the final Charaka outcomes study by enabling us to investigate mechanisms for why outcomes might or might not have occurred.

V. DATA SOURCES AND OUTCOMES

In this chapter, we describe each of the data sources we will draw on for the evaluation in detail, including the key outcomes we will capture through each source.

A. Charaka Fund trainee tracer survey

For each of the two trainee cohorts we plan to include in the evaluation of the Charaka Fund—a post-Charaka cohort in all Charaka-supported centers and their benchmarking centers—the baseline trainee tracer survey will be a short survey of trainees who are about to graduate. It will capture detailed trainee contact information, background characteristics, information about current training, and trainees' expectations for future employment and wages. This information will enable us to contact trainees for the follow-up survey, to describe trainees' characteristics, and eventually to compare trainees' initial expectations to their actual outcomes. Trainees will fill out the baseline survey on paper forms in the classroom while they are still enrolled in training and thus easy to find at their training center.[28]

The follow-up survey, which will be conducted two years after graduation, will be longer and will capture detailed information about graduates' training experiences and their labor market outcomes, such as employment and wages.[29] Specifically, we will collect a full retrospective history on employment and wages covering the two-year period from the end of training. We will use this information to implement the benchmarking approach. Our analysis of employment will consider both overall employment as well as the type of employment—for example, wage employment versus self-employment, formal versus informal employment, full time versus part time employment, and whether or not employment is in the field of training.

To maximize the response rate for the follow-up survey, we will use multipronged strategies to track respondents. We will develop the strategies in close coordination with the local data collection firm. Tracking is a process of keeping in touch with respondents between survey rounds to update contact information, build rapport, and remind respondents of the study to increase the likelihood that they can be contacted for it and that they will respond to each round. This strategy will likely rely on a combination of emails, phone calls, and/or WhatsApp

[28] The local data collection firm(s) will supervise the data collection, responding to questions as the trainees complete the survey and conducting an initial check of the completed questionnaires for completeness and legibility. The firm(s) will also follow up by phone with trainees for any necessary clarifications during the data entry process.

[29] The DFP commissions tracer surveys every three years that follow the labor market outcomes of TVET trainees nine months and three years after graduation. The most recent survey was conducted for 2016 graduates; the next surveys will be conducted for the 2019 graduates, then the 2022 graduates. However, it will be important to conduct a separate tracer survey for our study for several reasons. First, it will be challenging to obtain individual-level data, even if anonymized. Second, the tracer survey sample might not cover all Charaka centers or all benchmarking centers, and even if it does, sample sizes might be too small for our purposes. Third, the 2022 graduates would not have full exposure to the Charaka improvements given the delays in construction, so we would ideally survey a later cohort.

messages and will use contact information from the baseline survey. We will contact all baseline respondents once immediately after baseline data collection to thank them for their participation. Respondents for whom we get undelivered message responses will be contacted through other means, including their training center, to update information before the end of training. Respondents sampled for the follow-up round of data collection will be tracked three additional times before follow-up data collection—at 6, 12, and 18 months after the end of training. In each tracking round, we will use secondary contact information from the baseline survey (such as social media contact information and/or phone numbers of relatives or friends) to update the primary contact information of respondents who do not respond to our attempted contacts. This will help improve response rates for the two-year follow-up data collection effort.[30]

Immediately before follow-up data collection, we will conduct a final round of tracking so that the data collection proceeds as smoothly and quickly as possible. We will set up appointments for the in-person follow-ups, for which we will use computer-assisted personal interviewing (CAPI). When respondents are unreachable, additional locating techniques will likely include visits to their permanent home addresses, the work sites of major employers of graduates, or both, to set up appointments or conduct face-to-face surveys without an appointment if the respondents offer that as an option.

Because the follow-up is designed to obtain retrospective data that cover the previous two years, the local data collection firm will use face-to-face interviews at follow-up to ensure high quality data. This allows the easy use of memory aids like calendars with salient events such as holidays and major local or national occurrences. Face-to-face interviews can also be more engaging to keep respondents' focus when working through a retrospective history on employment and wages. In the Moroccan context, the DFP has successfully used face-to-face interviews in its surveys of TVET graduates. Findings from their survey of 2016 TVET graduates revealed that, in almost all regions, about 90 percent of employed graduates found jobs in the same region they graduated from (Marsult Info 2019); this suggests travel to conduct surveys will mainly be within the regions of the centers. We will use phone surveys when face-to-face interviews are not feasible due to time or budget.

We summarize the planned contents of the baseline and follow-up surveys in more detail in Table V.1.

[30] We will also consider including a short survey in the 12-month tracking effort to provide early evidence of respondents' labor market outcomes if this is feasible within the data collection budget (this would likely require making phone contact with as many respondents as possible).

Table V.1. Preliminary contents of the Charaka Fund baseline and follow-up tracer surveys

Domain	Survey contents
Baseline survey	
Contact information	Primary and secondary phone number; email address; WhatsApp or other social media contact information; name, phone number, and email of relatives and/or friends
Training information	Provider of training; geographic location; course name; timing of training; course sector, level, and mode of training; effects of COVID-19 pandemic on training (pre-Charaka cohort only)
Expectations for the future	Expected earnings and main economic activity two years after the end of training
Demographics and background information	Gender; age; marital status; number of children; number of household members; region of origin; education level; prior training completed (level, sector, and timing); years of work experience; sector, duration, and wage for most recent job (if any); parental education level; grades in school-leaving exams; other concurrent training; current employment status
Follow-up survey	
Training / job placement service receipt	Perceptions of quality and satisfaction with training; career guidance and job placement assistance received; receipt of and duration of internships; enrollment in further training and receipt of job placement services since graduation
Employment	Employment history for the previous two years (including sector, whether formal or informal, wage or self-employment, hours per week worked, job satisfaction, etc.); relevance of training to jobs obtained; availability for work and job-seeking activities (for those not working)
Wages	Monthly wages from employment (or profits from self-employment) in jobs held in the previous two years

Note: Mode of training refers to *résidentiel* (residential, mostly in-class training with some training at an enterprise), *alternée* (equal mix of training in class and at an enterprise), *apprentissage* (apprenticeship, mostly training at an enterprise with some in-class training), or *formation professionnelle adulte* (FPA) (adult professional training).

B. RBF participant administrative data and tracer survey

The RBF outcomes analysis will rely on baseline administrative data and a follow-up tracer survey of RBF participants. The baseline administrative data, which will be collected by each grantee using a data platform developed by MCA-Morocco's implementing contractor, will capture information similar to the information collected in the Charaka Fund baseline survey. Specifically, it will capture participant contact information; participants' basic demographic and background characteristics; and information about the job placement services that participants have received from the RBF providers. It will also capture information about employment—job placement and 6-month retention, the two employment-related metrics that RBF payments are based on. The results from verification of provider-reported employment outcomes against social security data from *Caisse Nationale de Sécurité Sociale* (CNSS), which will be conducted by ANAPEC and which will determine RBF payments, will also appear in the platform.

The follow-up RBF tracer survey will be administered by a local data collection firm about two years after participants finish receiving services. Like the Charaka Fund follow-up tracer survey, this survey will capture detailed information about participants' experiences with the services received, as well as a full employment and wage history over this two-year period. To the extent possible, we will use the same tracking techniques we propose for the Charaka Fund follow-up tracer survey to maximize the response rate.[31] As we will for the Charaka Fund follow-up tracer survey, we will seek to conduct face-to-face interviews, but might revert to phone surveys for some respondents if face-to-face interviews are not feasible due to time or budget.

We summarize the available baseline administrative data and planned follow-up tracer survey in more detail in Table V.2.

Table V.2. Preliminary contents of the RBF baseline administrative data and follow-up tracer survey

Domain	Survey contents
Baseline administrative data[a]	
Contact information	First and last name; mobile phone number; email address; mailing address
Job placement information	Provider of job placement services; geographic location; job placement program name; timing of job placement services; hours of training offered and attended; job placement services provided (technical training, language training, soft skills training, etc.)
Demographics and background information	Gender; age; marital status; nationality; place of residence (urban/rural); education level; duration of unemployment
Follow-up survey	
Additional contact information	Second phone number; WhatsApp or other social media contact information; phone number and email of relatives and/or friends
Additional demographics and background information	Number of household members; head of household; literacy in Arabic, French, and English; region of origin; prior training completed; years of work experience
Training / job placement service receipt	Perceptions of the quality of and satisfaction with job placement services received; enrollment in further training since receipt of job placement services; follow-up activities conducted by job placement provider (calls, one-on-one counselling, workplace visits, etc.)
Employment	Employment history for the previous two years (including sector, formality, wage or self-employment, hours per week worked, job satisfaction, etc.); availability for work and job-seeking activities (for those not working)
Wages	Monthly wages from employment (or profits from self-employment) in jobs held in the previous two years

[a] Baseline data for the RBF sub-activity will be drawn from administrative data collected by each grantee and not on a tracer survey.

[31] Because of a delay in finalizing the evaluation design due to the COVID-19 pandemic, it will likely only be possible to implement tracking techniques for later RBF cohorts; earlier cohorts will have graduated too long ago to be tracked before they are due for follow-up.

C. Qualitative data

We will develop a qualitative data collection protocol for each type of respondent in each of the three rounds of qualitative data collection. Although we will tailor the protocols for each respondent type, they will all cover similar topics related to the research questions. (Table V.3 shows the areas of focus for each type of respondent.)

Table V.3. Areas of focus for qualitative data collection

Respondent	Charaka Fund	RBF	OMT	Areas of focus, baseline round (2022)	Areas of focus, interim (2024) or final (2027) round
Trainees in Charaka centers	X	–	–	n.a.	• Perceived strengths and weaknesses of course content, training quality, training approaches, and infrastructure • Training experiences of female trainees, and gender-specific challenges • Plans and expectations for employment or further training
Teachers in Charaka centers	X	–	–	n.a.	• Perceived adequacy of professional development, infrastructure, and training materials • Perceptions of trainees in Charaka courses • Main challenges of teaching Charaka courses
Charaka center management	X	–	X	*Existing centers:* • Implications of implementation for outcome achievement • How market demand was identified and how trainings were designed to align with employer needs • Perceived sustainability of Charaka courses, and risks to achieving long-term outcomes	*Existing and new centers:* • Implications of post-Compact implementation for outcome achievement • How market demand was identified, how trainings were designed to align with employer needs • Evolution of Charaka centers, courses, and management since the end of the Compact • Sustainability of Charaka courses, barriers to continued sustainability and risks to achieving long-term outcomes • Awareness of the OMT, and use and perceptions of OMT data
MCA-Morocco and local MCC staff	X	X	X	• Implications of implementation for outcome achievement • Perceived sustainability and risks to achieving long-term outcomes	n.a.
Staff at implementing partners	X	X	X	• Implications of implementation for outcome achievement • Perceived sustainability and risks to achieving long-term outcomes	n.a.

Table V.3 *(continued)*

Respondent	Charaka Fund	RBF	OMT	Areas of focus, baseline round (2022)	Areas of focus, interim (2024) or final (2027) round
Charaka private- and public-sector partners	X	–	X	• How market demand was identified, and how trainings were designed to align with industry needs • Nature and extent of engagement in management of Charaka centers (existing centers only) • Perceived sustainability of Charaka-supported courses, and risks to achieving long-term outcomes	• Evolution of Charaka centers, courses, and management since the end of the Compact • Sustainability of Charaka courses, barriers to continued sustainability, and risks to achieving long-term outcomes • Prospects for future PPPs in managing TVET centers, and how these were affected by the Charaka Fund • Awareness of the OMT, and use and perceptions of OMT data
Employers	X	X	–	*RBF employers:* • Nature of hiring process for RBF participants, employer perceptions about these participants, and expectations for participants' long-term employment prospects	*Charaka employers:* • Current hiring, training, and wage-setting practices, how these have changed over time, and reasons for these changes • Key challenges faced in hiring employees with the right skills, how these have changed over time, and reasons for these changes • Perceptions of graduates from Charaka-supported courses and the underlying reasons for these perceptions
Participants in RBF programs	–	X	–	• Perceived strengths and weaknesses of job placement services received • Labor market experiences since completing the RBF program (including the job search process, hiring process, job retention, and promotion) • Effects of COVID-19 pandemic on labor market experiences since completing the RBF program • Satisfaction with employment, and key challenges to finding satisfactory employment • Relevance and utility of skills to employment, and perceived skills gaps • Expectations for future employment and wages	n.a.

Table V.3 *(continued)*

Respondent	Charaka Fund	RBF	OMT	Areas of focus, baseline round (2022)	Areas of focus, interim (2024) or final (2027) round
Staff at RBF grantees	–	X	–	• Nature of job placement services provided • Successes and challenges of implementation • Perceptions of the RBF mechanism and how it affected participant recruitment and selection, outcome achievement, and opportunities for target populations • Perceived sustainability and prospects for expansion of RBF programs	n.a.
Other donors in the TVET sector	X	X		• Awareness and perceptions of the WDA, including perceived sustainability and risks to achieving long-term outcomes • Key donor activities in the TVET sector and synergies with the WDA	• Awareness and perceptions of the WDA, including perceived sustainability and risks to achieving long-term outcomes • Key donor activities in the TVET sector and synergies with the WDA
Other stakeholders (OMT, MTIP, MEF, DFP, ANAPEC, INDH, CGEM, regional-level stakeholders and others)	X	X	X	• Implications of RBF implementation for outcome achievement • Perceptions of the RBF mechanism and how it affected participant recruitment, service provision, and opportunities for target populations • Perceived effectiveness, sustainability, and prospects for expansion of RBF programs • OMT labor market data platform inputs and outputs and prospects for OMT sustainability	• Extent to which RBF has been sustained and expanded, and related successes and challenges • Evolution of the OMT since the end of the Compact • How and to what extent Charaka-supported centers and ANAPEC are using data from the OMT, and the remaining challenges to doing so • Alignment between TVET trainings and employer needs and how this has been affected by the Charaka Fund and other PPP models • Prospects for future PPPs in managing TVET centers, and how these were affected by the Charaka Fund

n.a. = not applicable

D. Project documents and other administrative data

To complement the qualitative data, we will draw on several types of project documents and administrative data. First, administrative data from Charaka-supported centers will enable us to document enrollment levels and graduation rates, which will help us assess sustainability in terms of trainee demand and estimate the number of beneficiaries in the evaluation CBA (described in Chapter VI). Second, financial data from Charaka-supported centers on their revenues and the costs of training will be useful to assess the long-term financial viability of these centers. If possible, we will also compare the costs of training provision to those in traditional centers operated by the same public providers to help inform GoM decisions on expansion of the PPP model. (Because evaluation resources are limited, we will only conduct these analyses of financial data to the extent that they are readily available from the Charaka-supported centers, GoM, or other sources.) Third, we will examine the RBF contracts to understand the structure of the RBF mechanisms that were implemented, and the different approaches taken by service providers who received RBF funding.

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VI. ANALYSIS PLAN

A. Quantitative analysis

1. Charaka Fund analysis

For the evaluation of the Charaka Fund, we will conduct the following quantitative analyses using data from the trainee tracer surveys:

- **A descriptive outcomes analysis for the post-Charaka cohort in all Charaka-supported centers.** For each trainee-level outcome that we examine, we will present both graphical and numerical descriptions of the averages for the full sample of trainees in Charaka-supported centers, including 95 percent CIs. We will provide similar descriptions of background trainees' characteristics such as gender, age, marital status, region of origin, parental education, prior training, and work experience. To complement the overall averages, we will also present averages by trainee gender, course level, whether the center is new or rehabilitated, governance model, training sector, and grantee. However, the estimated averages will be less precise for subgroup analyses, with the precision depending on the sample sizes for each subgroup.
- **A benchmarking outcomes analysis for the post-Charaka cohort in all Charaka-supported centers and benchmarking centers.** For this analysis, we will descriptively compare the average characteristics and outcomes of trainees in Charaka-supported centers to those of trainees enrolled contemporaneously in benchmarking centers. This comparison encompasses trainees in courses shown in the solid boxes in Figure VI.1. Specifically, we will report the means and 95 percent CIs for trainees' labor market outcomes in both types of centers. As noted, we do not plan to conduct statistical tests of the differences in outcomes between Charaka-supported and benchmarking centers; these would be misleading given the potential for underlying differences in characteristics between the two types of centers. Our analysis will consider that Charaka-supported and benchmarking centers have different mixes of course levels; this is important because trainee characteristics and labor market outcomes might vary substantially across levels. To account for this, we will reweight the benchmarking trainee sample so that the mix of course levels is comparable to that in Charaka-supported centers. We will focus our analysis on all centers combined, but will also conduct comparisons by trainee gender, course level, whether the center is new or rehabilitated, governance model, training sector, and grantee. Again, the precision of the estimates for these subgroups (as indicated by the CIs) will depend on the relevant sample size.

B. RBF analysis

We will use data from the tracer survey of participants to conduct a **descriptive outcomes analysis** for RBF participants. We will present averages for the full sample and for subgroups

defined by trainees' socio-demographic characteristics (participant gender, age, and education level) and the geographic region in which job placement services were provided. We will focus primarily on estimating and describing formal employment, which was the focus of the RBF sub-activity. Nevertheless, we will also seek to describe the activities of those not in formal employment to provide a complete picture of participants' status two years after program participation.

C. Cost-benefit analysis

We will conduct an evaluation-based CBA for the WDA. The evaluation-based CBA will draw on results from our quantitative analyses of the Charaka Fund sub-activity, which is expected to drive the economic benefits of the WDA. As in MCC's initial CBA, which was completed before the Compact, we anticipate modelling benefit streams from the Charaka Fund as increased incomes from improved job insertion rates and wages for trainees who are employed. Because our evaluation design for the Charaka Fund does not include an impact evaluation, we will be unable to produce estimates of benefits that are relative to the outcomes in a rigorous counterfactual in which the Charaka Fund interventions did not exist. Nevertheless, the findings from our benchmarking analysis will provide some suggestive evidence about the counterfactual, which we will use to estimate an indicative CBA model.

In addition to estimated benefits of the Charaka Fund in terms of employment and wages, the evaluation-based CBA will require several other parameters and assumptions. For benefits from the Charaka Fund, we will use (1) enrollment levels and completion rates from all Compact-supported centers (from administrative data) to estimate the size of the affected cohorts, and (2) the qualitative analysis of sustainability to assess whether the benefits are likely to accrue to additional cohorts after the Compact ends.

For costs, we will use estimates of actual costs incurred from MCC's closeout CBA model, which will be produced within a year of the end of the Compact. We expect that the closeout CBA model will also include estimates of operational costs of Charaka-funded centers. If we are able to collect data on operational costs from Charaka-supported centers several years after the end of the Compact we will be able to update these assumptions.[32]

We will work with MCC to assess whether it is feasible and worthwhile to incorporate the RBF sub-activity in the evaluation CBA, which would make it more comparable to the closeout CBA that MCC will prepare for the WDA. To do this, we would use information about the labor market outcomes of RBF graduates and qualitative information about sustainability to update the RBF-related benefits as estimated in the closeout CBA. We anticipate that these updates will be limited because, in contrast to the Charaka Fund, we will not have quantitative benchmark that could be used to provide (even non-rigorous) evidence of the counterfactual.

[32] If we are also able to obtain data on the operational costs of traditional centers used as benchmarks, we would be also able to assess whether the Charaka-funded centers were relatively more expensive to operate or not.

We will compare the ERR of the evaluation-based CBA to that of the closeout CBA prepared by MCC. If the ERRs are substantively different we will assess and describe the reasons for this difference.

D. Qualitative analysis

To analyze qualitative data, Mathematica will use qualitative transcript-coding software to organize and synthesize the key themes that emerge from document reviews, in-depth interviews, and focus groups. Specifically, we will follow four steps to analyze the data (Creswell 2009):

1. **Raw data management.** Raw data management is the process of organizing qualitative data into meaningful units of analysis (that is, from audio files to transcripts). During this step, we will review all data and eliminate any that are incomplete or not useful to our analysis.
2. **"Chunking" and initial coding.** Often referred to as data reduction, this step will allow us to read the transcripts several times and obtain a holistic sense of the data. We will develop a detailed initial coding scheme—a set of themes we might encounter in the interview and focus group transcripts, which are mapped to the research questions and logic model (for example, initial themes might include "perceptions of training," "responsiveness to employer demand," and "sustainability"). We will also begin developing internal memos to accompany the broader coding themes.
3. **Detailed coding.** This step will involve refining the coding scheme and recoding data as we look at the data in greater depth. We will use Atlas.ti or NVivo software to review and code the transcripts based on the initial codes developed during the "chunking" process. We will iteratively expand on and refine these codes during the coding exercise and subsequent analysis of the coded transcripts iteratively as additional themes emerge.
4. **Data interpretation and writing.** Analyzing the coded transcripts will involve triangulating the findings across stakeholders to highlight mechanisms, context, and similarities and differences in perspectives. For example, for the Charaka Fund sub-activity, the analysis of interviews with employers of graduates from Charaka-supported courses might identify differences in employers' perceptions of and satisfaction with graduates across Charaka grantees. By comparing these to differences in the training experiences and perceptions reported by trainees across Charaka-supported centers, as well as those of teachers in these centers, we will work to identify why some Charaka-supported centers were more successful in meeting employers' needs than others. Similar triangulation between qualitative data from employers and RBF participants will help us understand why the latter's outcomes vary across RBF grantees and/or types of RBF participants. Finally, for the evaluation of the OMT sub-activity, we will compare the availability and accessibility of labor market data to its use by Charaka centers and ANAPEC to assess whether the OMT achieved its vision of an integrated, comprehensive, and accessible labor market database that might contribute to the achieving the Activity's objective.

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VII. LIMITATIONS AND CHALLENGES

Our evaluation of the WDA faces some important challenges and limitations that we will work to address:

- **Absence of a rigorous counterfactual.** Our evaluation design for both the Charaka Fund and RBF sub-activities is a performance evaluation. The study will not identify a rigorous counterfactual for trainees in Charaka-supported centers and RBF providers—that is, we cannot confidently determine what the labor market outcomes of these trainees would have been in the absence of the project. Our benchmarking analysis will provide information about outcomes in non-Charaka courses, but this should be viewed as suggestive evidence about the counterfactual. This will also constrain our ability to rigorously estimate benefits streams for the CBA, although as noted, we will still use the available estimates in an indicative CBA model.
- **Potential for low response rates in the tracer surveys.** Our ability to provide quantitative evidence on labor market outcomes that is generalizable to the full group of Charaka Fund trainees and RBF participants depends on achieving high response rates to the respective tracer surveys. Otherwise, there might be a concern that only certain types of trainees—for example, those with better outcomes—are appearing in the data and driving the findings. We will use several strategies to ensure high response rates, including collecting detailed contact information at baseline, using a multipronged approach to track and locate trainees for the Charaka Fund follow-up survey, and conducting phone surveys when face-to-face interviews are not possible (as discussed in Sections V.B and 5.B). In the analysis, we will also be able to get a sense of a lower bound on some outcomes by assuming a "worst case" scenario—for example, by assuming that all those who do not respond are unemployed.
- **Possible recall difficulties in retrospective labor market data.** We will use retrospective data on labor market outcomes over a two-year period for our Charaka Fund and RBF outcomes analyses. Ensuring these data are valid will be necessary for our evaluation results to reflect the actual experiences of respondents, and thus will require special attention because accurate recall over this relatively long period might be challenging. To minimize the risk of incorrect recall, we will develop and use visual memory aids such as calendars with salient events. By having interviewers identify the timing of events such as the end of training, holidays, seasons, and local or national events, respondents can more easily determine the timing of changes in their employment situation. Face-to-face interviews also enable more active engagement of respondents and help interviewers focus respondents on difficult cognitive tasks, including reconstructing a labor market history over a two-year period.
- **Macroeconomic impacts of the COVID-19 pandemic.** The adverse economic effects of the pandemic could negatively affect the labor market outcomes of RBF participants (entering the labor market starting around mid-2020). It will be important to consider this context when interpreting the tracer survey findings; to facilitate this, we will seek to capture additional information about the effects of the pandemic through the qualitative study.

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VIII. ADMINISTRATIVE DETAILS

A. Institutional review board requirements and clearances

Mathematica will prepare and submit an institutional review board (IRB) application for approval of the research and data collection plans. The application materials include three sets of documents: (1) a research protocol, which will draw heavily on the present design report and include more information about plans for protecting study participants' confidentiality; (2) copies of all data collection instruments; and (3) a completed IRB questionnaire that summarizes the key elements of the research protocol, plans for protecting participants' confidentiality, and possible threats to participants if their confidentiality were compromised. Based on experience, we expect the study to qualify for expedited review because it presents minimal risk to participants. If so, the IRB can typically review the application within one week of its submission.

IRB approval is valid for one year from the date of approval and must be renewed on an annual basis. We expect that the annual renewals will require minimal updates to the core application materials. In addition, if data collection instruments change substantially from the ones the IRB approved, we must reapply for approval. Small changes to the instruments (such as rewording or reordering of questions) do not require reapplication, but the finalized instruments must be submitted to the IRB for documentation.

After Mathematica drafts the IRB research protocol, we will coordinate with MCA-Morocco to ensure the data collector and local stakeholders agree on the data collection protocol. Because Mathematica will not have a contractual relationship with the data collector for data collected during the Compact, the data collector's contract with MCA-Morocco must specify that it will abide by the IRB's recommendations. The data collector and Mathematica must also sign an IRB authorization agreement stating that the data collector will adhere to the IRB-approved data collection procedures and protocols.

B. Data access, privacy, and documentation

After producing each of the three evaluation reports described below, we will prepare (1) corresponding deidentified data files for primary quantitative data that were collected for this evaluation and (2) codebooks that MCC can make available to the public. We will deidentify these data files, user manuals, and codebooks according to the most recent guidelines set forth by MCC. The public use data files will be free of personal or geographic identifiers that would allow users to directly identify individual respondents or their households, and we will remove or adjust variables that could introduce reasonable risks of deductively disclosing the identity of individual participants. Mathematica will remove all individual identifiers, including names, addresses, telephone numbers, and any other relevant variables. We will also remove unique and outlying data using local suppression, replacing these observations with missing values. If

necessary, we will also use top and bottom coding, setting upper and lower bounds to remove outliers and collapse any variables that make an individual highly visible because of geographic or other factors (such as region of origin) into less easily identifiable categories. Our manner of data perturbation will not significantly degrade the data.

C. Dissemination plan

Mathematica will prepare two reports with evaluation findings, and will present the findings from each report in person to MCC and to stakeholders in Morocco: (1) a final report for the OMT and RBF sub-activities (employment); and (2) a final report for the Charaka Fund and associated policy change (training) sub-activity. The final report for the OMT and RBF sub-activities will present findings based on qualitative data and the RBF participant tracer survey. We plan to submit this report by the end of 2024. After the follow-up round of the Charaka Fund trainee tracer survey and the final round of qualitative data collection, we will produce a final evaluation report for the Charaka Fund sub-activity; we plan to submit this by the end of 2027. Figure VIII.1 illustrates how the timing of the planned reports aligns with the planned data collection activities for the evaluation.[33] Table VIII.1 shows which of the evaluation questions each proposed report will inform, and how.

We will work with MCC to increase the visibility of the study's findings, particularly among education and workforce development policymakers and practitioners. We will collaborate with MCC and stakeholders to identify a variety of forums—including conferences, workshops, and publications—during which to share results and encourage donors, implementers, and policymakers to integrate the findings into future programming. For example, in addition to the project's final report, we will work with MCC to develop evaluation briefs summarizing and visualizing key findings for a broader audience of readers and stakeholders. Potential conferences for presenting evaluation findings will include forums hosted by the Comparative International Education Society, the American Evaluation Association, or the Association for Public Policy Analysis and Management. We will also seek to publish peer-reviewed articles disseminating the study's results in academic or sector-specific journals focused on vocational education systems in developing countries.

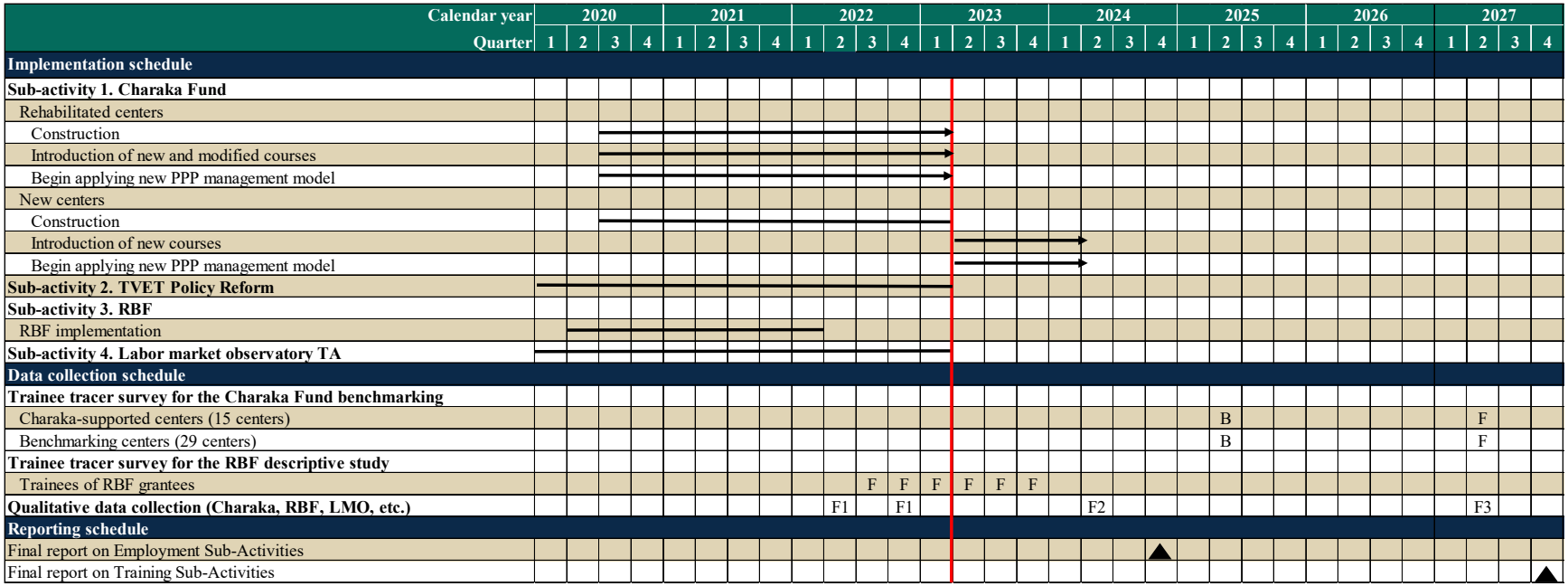
[33] The current evaluation contract ends in 2024, but the data collection and reporting plans outlined in this report will require a contract extension until mid-2027 to provide enough time for the review process for the final report and preparation of public use files.

Table VIII.1. Evaluation questions that each report will answer

Evaluation question	Final report for OMT and RBF sub-activities (2024)	Final report for Charaka Fund sub-activity (2027)
1. How did the implementation of the Charaka Fund sub-activity facilitate or hamper the achievement of the envisaged outcomes in the program logic?	Qualitative findings on implications of implementation for outcome achievement	Qualitative findings on implications of implementation for outcome achievement
2. What are the labor market outcomes of graduates from Charaka-supported TVET centers?	n.a.	Quantitative and qualitative findings on trainees' labor market outcomes
3. Are Charaka-supported TVET centers responsive to the demands of employers?	n.a.	Quantitative and qualitative findings on trainees' labor market outcomes, as well as qualitative findings on employers' perceptions of trainees' skills
4. Are Charaka-supported centers sustained after the end of the Compact?	n.a.	Qualitative findings on sustainability
5. Has the Charaka Fund investment influenced the Government of Morocco to expand the number of TVET centers managed through PPPs?	n.a.	Qualitative findings on PPP expansion
6. Has RBF demonstrated an effective and sustainable model for job placement services?	Quantitative and qualitative findings on RBF participants' labor market outcomes; qualitative findings on sustainability	n.a.
7. To what extent has the OMT improved the availability of labor market data to support decision-making in the TVET sector?	Qualitative findings on use of the OMT by Charaka-supported centers and ANAPEC, and sustainability	n.a.

n.a. = not applicable.

Figure VIII.1. Evaluation timeline and reporting schedule



▲- Report
B - Baseline
F - Follow-up
| - End of Compact

D. Evaluation team roles and responsibilities

Mathematica's project team has extensive experience conducting mixed-methods, multicomponent, large-scale evaluations in education and vocational training. Dr. Emilie Bagby is the project director and the primary point of contact for MCC. She oversees the evaluation design and implementation process to ensure high quality, while managing relationships with government agencies and other local entities. Dr. Evan Borkum is the senior analyst–workforce development, providing sectoral and technical expertise to inform the design and implementation of the evaluation, and providing support for quantitative data analysis. Dr. Kristen Velyvis serves as the senior analyst–qualitative methods expert, leading both the study's qualitative data collection and analysis and the study's quantitative data collection. Dr. Paolo Abarcar serves as the senior analyst-economist, contributing to the design and implementation of the evaluation, and supporting Dr. Borkum and Dr. Velyvis with data collection, analysis, and reporting. Ms. Margo Berends serves as the project analyst, supporting data collection, analysis, and reporting. Mr. Ali Nabil serves as the project's in-country consultant, providing in-depth knowledge of the vocational education sector in Morocco and facilitating Mathematica's relationship with local institutions and partners.

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Appendix A

TVET levels in Morocco, summary of RBF grantees, and supplementary confidence interval calculations

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Table A.1. TVET levels in Morocco (in ascending order)

Level	Entry requirements	Duration
Certificat d'Apprentissage Professionnel (CAP)	Know how to read and write	Varies, but generally a few months
Formation Qualifiantes (FQ)	Varies depending on the specific course	Between 3 and 9 months
Spécialisation (S)	Completed primary school	One year, or between 3 and 6 months for accelerated training
Qualification (Q)	Completed secondary school or training at the *spécialisation* level	15 months
Technicien (T)	Completed the second year of the *baccalauréat* (12th grade) or training at the *qualification* level	Two years
Technicien Spécialisé (TS)	Awarded *baccalauréat* (high school) diploma	Two years

Table A.2. Summary of RBF grantees

Grantee	Location	Grant amount (DH)	Target number of beneficiaries:		
			Trained	Employed	Employed after 6 months
EFE Maroc	Rabat, Casablanca, Marrakech, Fès	9,106,751	559	420	336
AMAPPE	Casablanca, Rabat Oujda, Tanger	4,216,676	500	300	200
AOVDD	Ouarzazate, Zagora	2,162,824	172	140	130
S FORHET	Marrakech, Rabat, Casablanca, Tanger	15,000,000	1,000	808	600
EGO Intérim	Marrakech, Casablanca	12,000,648	1,200	1,000	800
AMIDEAST	Casablanca	4,801,556	600	500	380
IPDF	Fès	4,449,068	1,000	600	550
Al Jisr	Oujda	3,485,445	500	400	288

Source: RBF grant agreements and amendments

Note: DH = Moroccan Dirhams.

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Appendix B

Selection process and preliminary list of benchmarking centers

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We used the following process to select the benchmarking centers for each Charaka-funded center:

1. Identify potential benchmarking centers based on a set of criteria that include location, provider, sector, and course level
2. Rank benchmarking centers based on how similar they are to the Charaka-funded center in terms of these criteria
3. Select 1–3 benchmarking centers that cover all the sectors and levels of courses that are offered at the Charaka-funded center, following the ranking above

Step 1: Identify potential benchmarking centers

We identified potential benchmarking centers using 2016 administrative data from the DFP on all TVET centers and their course offerings (for existing courses at Charaka-rehabilitated centers and non-Charaka centers) and Charaka grantee applications (for new courses at Charaka-rehabilitated centers and all courses at new Charaka centers).

A center was considered a potential benchmarking center if it met all or most of these criteria for a particular Charaka-funded center:

- Located in the same region
- Operated by the same provider or, if not, by another public provider
- Offers courses in the same sector(s)
- Offers courses in at least one of the same levels

Step 2: Rank benchmarking centers

We ranked the potential benchmarking centers as follows:

- The best possible benchmarks were centers that met all of these criteria for a Charaka-funded center.
- The second-best benchmarks were centers that met all these criteria, except they were operated by a different public provider.
- The third-best benchmarks were centers that met most of these criteria but were operated by a different provider and are private rather than public.

- The fourth-best benchmarks were centers that met all these criteria but were in a different region. These centers were only included as a last resort when benchmarking centers could not be identified within the region.[34]

Step 3: Select 1–3 benchmarking centers

Once we had ranked the potential benchmarking centers, we considered the mix of levels offered at each one. Most Charaka-funded centers offer courses at three or more levels. (Appendix Table A.1 lists the levels and provides details about each level.) We sought to select the smallest number of highly ranked benchmarking centers that were needed to cover all levels offered by the Charaka-funded center and to produce a large enough sample for the planned trainee tracer survey (based on trainee enrollment numbers in the 2016 administrative data from the DFP).

In some instances, there were several potential benchmarking centers with the same rank and same mix of levels to choose from. When this was the case, we considered the titles of the courses offered by the benchmarking centers to determine which center offered more courses similar to those at the Charaka-funded center. When it was not clear which center had more similar courses, we randomly selected a benchmarking center from among the possible options. In other cases, there were no centers that offered courses at a particular level within a given sector, so it was not possible to cover every course level offered by the Charaka-funded center.

By following this methodology, we ended up selecting one to three benchmarking centers for each Charaka-funded center (Appendix Table B.1) and a list of possible alternatives (not shown). As we discuss in the body of this report, we plan to validate the preliminary list of benchmarking centers with local stakeholders and refine it based on their feedback.

Exceptions

There are a few exceptions to the above methodology based on the characteristics of particular Charaka-funded centers:

- Charaka Project 27, *l'Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)*, offers courses in four different sectors. We considered centers that offered courses in three or four of these sectors to be the most appropriate benchmarks for the Charaka-funded center, instead of choosing centers that specialize and only offer courses in one of these sectors.
- Charaka Project 76, *Institut de Formation dans les Métiers de la Boulangerie et Pâtisserie (IFMBP-Casablanca)*, offers courses in the *boulangerie/pâtisserie* (baking/pastry) sector. No existing centers offer courses in this sector; however, there are several existing centers that offer courses in baking or pastry, which are classified in the tourism sector. We considered

[34] We tried to avoid using benchmarking centers located in other regions whenever possible due to regional variation in labor market conditions and the tendency of most trainees to find jobs in the region where they studied (DFP 2019).

centers to be a potential benchmark for Project 76 if they offer courses in the tourism sector, some of which are in baking or pastry.

- Similarly, Project 79, *Institut de Formation dans les Métiers d'Élevage des Petits Ruminants (IFME-Bellota)*, offers courses in the *élevage/agriculture* (livestock/agriculture) sector. This sector does not exist at other centers, but there are courses at other centers in the agriculture sector, some of which are livestock courses. We considered centers to be a potential benchmark for Project 79 if they offer courses in the agriculture sector, some of which are in livestock.
- Charaka Project 48, *Institut Spécialisé des Métiers et de l'Aéronautique et de la Logistique Aéroportuaire (ISMALA-Nouacer)*, located in Casablanca-Settat, offers courses in the *aéronautique* (aeronautics) sector. There is only one center in the region that also offers courses in this sector, so we had to consider centers from other regions as potential benchmarking centers. When completing Step 2 and ranking potential benchmarking centers, we prioritized centers located in Rabat-Salé-Kénitra over centers in other regions because this region is closest and most similar to Casablanca-Settat, where the Charaka-funded center is located.
- Two Charaka-funded centers offer courses at the *formations qualifiantes* (FQ) level. No existing centers offer courses at this level. We considered the *spécialisation* (S) level as the best benchmark for the FQ level when completing Step 3, as that level is the most similar to FQ in terms of length of study and admission requirements.

Table B.1. Preliminary list of benchmarking centers for each Charaka center

Project number[a]	Charaka center (shaded)/; benchmarking center (unshaded)	Region	Provider(s)[b]	Sector(s)	Level(s) of courses to be offered
2	Institut des Arts Traditionnels (IAT) Fès	Fès-Meknès	OFPPT, Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	S, Q, T, TS
	Institut des Arts Traditionnels (IAT) Fès	Fès-Meknès	OFPPT, Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Leatherworking	Q, T
2	CQPAT Meknès	Fès-Meknès	Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	S, Q
2	IAT Inezgane	Souss-Massa	Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	Q, T
2	Institut Spécialisé en Tannerie et traitement du Cuir Sidi Bernoussi Casablanca	Casablanca-Settat	OFPPT	Leatherworking	S, Q, T, TS
3	Institut des Arts Traditionnels (IAT) Meknès	Fès-Meknès	Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	S, Q, T, TS
3	CQPAT Meknès	Fès-Meknès	Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	S, Q
3	IAT Inezgane	Souss-Massa	Secrétariat d'Etat chargé de l'Artisanat et de l'Economie Sociale	Artisanal crafts	Q, T
27	Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)[a]	Casablanca-Settat	OFPPT	Business administration	TS
	Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)[a]	Casablanca-Settat	OFPPT	Building and public works	S
	Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)[a]	Casablanca-Settat	OFPPT	Mechanics, metallurgical, electrical, and electronic industries	Q, T, TS

Table B.1 *(continued)*

Project number[a]	Charaka center (shaded)/; benchmarking center (unshaded)	Region	Provider(s)[b]	Sector(s)	Level(s) of courses to be offered
27	Institut Spécialisé de Technologie Appliquée (ISTA-Had Soualem)[a]	Casablanca-Settat	OFPPT	Textiles and clothing	S, Q
27	Institut Spécialisé de Technologie Appliquée Ben Ahmed	Casablanca-Settat	OFPPT	Business administration	T, TS
	Institut Spécialisé de Technologie Appliquée Ben Ahmed	Casablanca-Settat	OFPPT	Building and public works	S
	Institut Spécialisé de Technologie Appliquée Ben Ahmed	Casablanca-Settat	OFPPT	Mechanics, metallurgical, electrical, and electronic industries	Q, T, TS
	Institut Spécialisé de Technologie Appliquée Ben Ahmed	Casablanca-Settat	OFPPT	Textiles and clothing	S
27	Institut Spécialisé de Technologie Appliquée Yasmina Mohammedia	Casablanca-Settat	OFPPT	Building and public works	S, T
	Institut Spécialisé de Technologie Appliquée Yasmina Mohammedia	Casablanca-Settat	OFPPT	Mechanics, metallurgical, electrical, and electronic industries	Q
	Institut Spécialisé de Technologie Appliquée Yasmina Mohammedia	Casablanca-Settat	OFPPT	Textiles and clothing	S, Q
48	Institut Spécialisé des Métiers de l'Aéronautique et de l'Aéronautique et de la Logistique Aéroportuaire (ISMALA-Nouacer)	Casablanca-Settat	OFPPT	Aeronautics	Q, T, TS
48	Institut de Technologie Appliquée Ain Bordja Casablanca	Casablanca-Settat	OFPPT	Aeronautics	TS
48	Institut de Technologie Appliquée Ain Bordja	Tanger-Tétouan-Al Hoceima	OFPPT	Aeronautics	T, TS
48	Centre de Formation dans les Métiers de l'Automobile Kenitra	Rabat-Salé-Kénitra	OFPPT	Aeronautics	T
28	Institut Spécialisé du Bâtiment (ISB-Casablanca)	Casablanca-Settat	OFPPT	Building and public works	S, FQ, Q, T, TS

Table B.1 *(continued)*

Project number[a]	Charaka center (shaded)/; benchmarking center (unshaded)	Region	Provider(s)[b]	Sector(s)	Level(s) of courses to be offered
28	Institut Spécialisé du Bâtiment et des Travaux Public Hay Errahma Casablanca	Casablanca-Settat	OFPPT	Building and public works	S, Q, T, TS
71	Institut de Technologie Hôtelière et Touristique (ITHT-Tanger)	Tanger-Tétouan-Al Hoceima	Ministère du Tourisme, du Transport Aérien, de l'Artisanat et de l'Economie Sociale	Hotel and tourism	S, T, TS
71	CQPHT d'Asilah	Tanger-Tétouan-Al Hoceima	Ministère du Tourisme, du Transport Aérien, de l'Artisanat et de l'Economie Sociale	Hotel and tourism	S
71	Institut Spécialisé de Technologie et Hôtellerie et de Tourisme Tamuda Bay Madiq	Tanger-Tétouan-Al Hoceima	OFPPT	Hotel and tourism	T, TS
72	Institut de Technologie Hôtelière et Touristique (ITHT-Ouarzazate)	Drâa-Tafilalet	Ministère du Tourisme, du Transport Aérien, de l'Artisanat et de l'Economie Sociale	Hotel and tourism	S, Q, T, TS
72	Institut de Technologie Hôtelière et Touristique	Drâa-Tafilalet	Ministère du Tourisme, du Transport Aérien, de l'Artisanat et de l'Economie Sociale	Hotel and tourism	T, TS
72	Institut Spécialisé de Technologie Appliquée Mohamed El Fassi Errachidia	Drâa-Tafilalet	OFPPT	Hotel and tourism	Q, T, TS
76	Institut de Formation dans les Métiers de la Boulangerie et Pâtisserie (IFMBP-Casablanca)	Casablanca-Settat	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts	Baking and pastries	Q, T, TS
76	Institut Spécialisé de l'Hôtellerie et de la Restauration Casablanca	Casablanca-Settat	OFPPT	Hotel and tourism	Q, T, TS
76	Institut Spécialisé de Technologie en Hôtellerie et de Tourisme El Haouzia	Casablanca-Settat	OFPPT	Hotel and tourism	Q, T, TS

Table B.1 *(continued)*

Project number[a]	Charaka center (shaded)/; benchmarking center (unshaded)	Region	Provider(s)[b]	Sector(s)	Level(s) of courses to be offered
7	Institut de Formation dans les Métiers du Bâtiment et Travaux Publics (IFMBTP-Fès)	Fès-Meknès	OFPPT	Building and public works	Q, T, TS
7	Institut Spécialisé de Technologie Appliquée Nargiss Fès	Fès-Meknès	OFPPT	Building and public works	Q, T, TS
79	Institut de Formation dans les Métiers d'Élevage des Petits Ruminants (IFME-Bellota)	Tanger-Tétouan-Al Hoceima	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts	Livestock and agriculture	CAP or S, Q
79	ITSA Ben Karrich	Tanger-Tétouan-Al Hoceima	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts	Agriculture	CAP
79	Institut Technique Agricole d'Izemiuren	Tanger-Tétouan-Al Hoceima	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts	Agriculture	Q
79	CQA Laayoune	Laayoune-Saguia Al Hamra	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts	Agriculture	CAP, Q
4	Institut pluridisciplinaire des Métiers de la Logistique et de l'Industrie (IPMLI-Fahs Anjra)	Tanger-Tétouan-Al Hoceima	OFPPT	Logistics	FQ, T, TS
4	Institut Spécialisé dans les Métiers de Transport Routier Tanger	Tanger-Tétouan-Al Hoceima	OFPPT	Transport and logistics	T, TS
56	Institut de Formation dans les Métiers du Transport et de la Logistique (IFMTI-Nouaceur)	Casablanca-Settat	OFPPT	Logistics	FQ, T, TS
56	Institut Spécialisé dans les Métiers de Transport Routier Casablanca	Casablanca-Settat	OFPPT	Transport and logistics	T, TS
24	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Beni Mellal)	Béni Mellal-Khénifra	OFPPT	Health	Q, T, TS

Table B.1 *(continued)*

Project number[a]	Charaka center (shaded)/; benchmarking center (unshaded)	Region	Provider(s)[b]	Sector(s)	Level(s) of courses to be offered
24	NASMCO	Béni Mellal-Khénifra	Private	Paramedics and health	Q, T, TS
24	Ecole des Soins Infirmiers Appliqués de Base (ESIAB)	Béni Mellal-Khénifra	Private	Paramedics and health	Q, T, TS
24	Institut de Formation des Soins Infirmiers (FSI)	Béni Mellal-Khénifra	Private	Paramedics and health	Q, T, TS
32	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Oujda)	L'Oriental	OFPPT, Ministère de la Santé	Health	Q, T, TS
32	Institut de Formation Professionnelle dans le Domaine de Santé Oriental	L'Oriental	Ministère de la Santé	Paramedics and health	T, Q
32	Institut Work Center de Formation aux Carrières de Santé	L'Oriental	Private	Paramedics and health	T, TS
36	Institut de Formation aux Métiers de la Sante et de l'Action Sociale (IFMSAS-Meknès)	Fès-Meknès	OFPPT, Ministère de la Santé	Health	Q, T, TS
36	Institut de Formation Professionnelle dans le Domaine de Santé Fès-Meknès	Fès-Meknès	Ministère de la Santé	Paramedics and health	Q, T
36	Ecole de Formations des Carrières de Santé	Fès-Meknès	Private	Paramedics and health	Q, T, TS
36	Institut Professionnel Paramédical	Fès-Meknès	Private	Paramedics and health	Q, T, TS

[a] Project numbers were assigned by MCA-Morocco and are included here to facilitate the review of the report by stakeholders.

[b] Provider refers to the ministry or department that either runs the center or is the center's primary public partner. Private centers have no ministry or department running the center and are listed as "private."

CAP = *Certificat d'Apprentissage Professionnel*; FQ = *Formation Qualifiantes*; S = *Spécialisation*; Q = *Qualification*; T = *Technicien*; TS = *Technicien Spécialisé ;* OFPPT = L'Office de la Formation Professionnelle et de la Promotion du Travail (Office of Professional Training and Work Promotion).

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