



Background Paper *Transforming the Education Workforce*

Redesigning the Education Workforce

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The Education Workforce Initiative (EWI) was established in response to a recommendation from the Education Commission's Learning Generation report to explore new ways of diversifying and strengthening the education workforce. The Transforming the Education Workforce report is one of EWI's key contributions to catalyzing this thinking. It draws on recent evidence and provides thought leadership on how to rethink the education workforce. For the full report and other supporting documents, please visit EducationWorkforce.org.

The Transforming the Education Workforce report was originally commissioned as a set of sequential background papers and thus each paper influenced and references the others. The background papers are written by different authors and cover the rationale for rethinking the education workforce, the design of the education workforce, how it can be strengthened, and political economy and financial considerations.

This background paper focuses on new approaches to designing the education workforce and proposes design options for the workforce needed now and in the future.

For questions or more information about this paper, please contact: info@educationcommission.org

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Abbreviations and Acronyms

CPD Continuous Professional Development

EIA English In Action

EWI Education Workforce Initiative

HIV/AIDS Human Immuno-deficiency Virus/ Acquired Immune Deficiency Syndrome

ICT Information and Communications Technology
IIEP International Institute for Educational Planning

MGCubed Making Ghanaian Girls Great
NGO Non- Governmental Organisation

NQT Newly Qualified Teacher
NTN New Technology Network

OECD Organisation for Economic Cooperation and Development

OER Open Educational Resources

PEAS Promoting Equality in Africa Schools
PLC Professional Learning Community
PTA Parent Teacher Association PTA
PTQR Pupil to Qualified Teacher Ratio
SAT Sistema de Aprendizaje Tutorial
SDG Sustainable Development Goal

STEM Science, Technology, Engineering and Mathematics
TALIS Teaching and Learning International Survey (OECD)

TARL Teaching at the Right Level

TCAI Teacher Community Assistant Initiative TCAI Teacher Community Assistant Initiative

TTC Teacher Training Colleges
UIS UNESCO Institute for Statistics

UNESCO United Nations Educational, Scientific, and Cultural Organization

US United States



Executive Summary

This paper was commissioned by the Education Workforce Initiative (EWI), as part of the Education Commission's response to the learning crisis. It recognizes that teacher quality is the most important determinant of learning outcomes at school level, but teachers cannot work alone. Teachers need leadership and support to be effective and to help learners with the greatest needs. The design of the education workforce must evolve to keep pace with the rapidly changing world and embrace the new opportunities these changes bring. This paper aims to catalyze new thinking on education workforce reform by drawing on existing evidence and promising examples from education and other sectors and using this to develop a vision for the education workforce needed in the future.

This vision for the future is one in which learners experience a wide range of interactions with different workforce members and with technology to support their individual learning needs. Instead of the school day being dominated by lessons in classes of 30-50 taught by a single teacher, learning experiences might include:

- Various sized classes for different lessons delivered by on-site and off-site specialist teachers;
- peer learning, group problem solving and creative team tasks;
- technology based content sources and interactive learning applications, and
- one-to-one mentoring sessions.

This vision involves a diverse workforce: teaching, learning, student welfare and inclusion professionals, with different skill sets and experience levels, working together in teams to provide differentiated teaching and welfare support tailored to students' individual needs. New workforce roles, drawing from other sectors and the community, would provide learners with a greater connection to the world outside to ensure that there is alignment between the skills that students are learning and their relevance in the real world.

The pathway towards realising this vision will vary greatly by contexts. Some systems need to move from "crisis" to "stable", and immediate workforce reforms need to revolve around finding cost effective solutions to ensuring that all children receive effective instruction for foundational learning. The paper envisages incremental "Next" steps towards this vision and to address immediate challenges. For many systems, this would require a degree of diversification of their workforces to increase instructional time and leverage teacher expertise. For these diversified roles to work effectively together at all levels of the system, the paper envisages a workforce that is operating as "learning teams":

Learning teams

Groups of role-holders would work closely together to maximise **learning and inclusion of all students** in their schools and to **learn professionally from each other** to become more effective at supporting students and better able to adapt to change.

The paper recommends key shifts in workforce design needed to achieve the learning team vision.

At school level the focus would be on skill optimisation through task shifting and differentiation across roles. There would be a small number of new roles – such as learning assistants and community education workers - to deliver tasks that do not require a qualified teacher, to increase instructional time and leverage teacher expertise. Specialist teacher roles may be required to improve subject specific content and pedagogy, support inclusion and enable teachers to use new learning configurations.



At school principal level, the focus is on instructional leadership, including supporting high impact approaches such as teacher collaborative learning. Shifts away from administrative tasks could be supported by technology and, where possible, support staff. School principals support a concept of professionalism where the collective capacity of a group of people is leveraged as opposed to focusing on developing the skills of individuals to do their work better. By working collaboratively in learning teams, school professionals would be encouraged to provide more effective teaching through better targeting of specialist expertise, on the job learning and support, more instructional time, improved workforce motivation and better support for inclusion.

At district level, the focus is on strengthening existing functions to lead cycles of data-driven school performance improvement. Instead of corrective feedback or compliance monitoring, roles such as supervisors and pedagogical coaches would be defined as leaders of change and improvement. They would work directly with schools to raise professional expectations, lead data-driven performance management and provide developmental feedback. They would focus on building school capacity and empowering schools in line with evidence on effective supervision.

At state level, the focus is on evidence-based policymaking. There would be a system-wide focus on strengthening professional capacity for learning and the use of evidence, moving towards a system where teams of education professionals at all levels of the system lead cycles of data-driven improvement.

This paper also sets out a **"Future"** vision for the education workforce in which learners experience a wide range of interactions with different workforce members and with technology to support their individual learning needs. The paper envisages a future education workforce which is radically re-configured to support this vision, by being transformed into a **learning system**:

A learning system

In the learning system, a diversified workforce - including networks of schools, education professionals and cross-sectoral partnerships – would be directly involved in innovating and applying evidence of what works; and the resulting knowledge, data and evidence is shared to create a system that cultivates student learning, is able to learn itself and is better adapt to change.

Key shifts in workforce design will be needed to build on the learning team foundations and more radically reconfigure the workforce system into a **learning system**.

At school level, new roles would provide learners with a greater connection to the external world outside school, including work and the community, drawing support from increasingly professionalized specialists and vibrant school networks to improve teaching and learning. School professionals would work together in a wider variety of team-based configurations to provide greater opportunities for differentiated teaching around student individual needs. Learning from the health sector, the **teacher trainee** role would become a critical part of the education workforce.

School principals shift to become more externally facing as teacher capacity grows to lead peer professional development. They increasingly look outward to draw in resources and expertise for students from wider sectors and networks, including businesses, charities and the community. The best school principals act as **system leaders**, providing peer school evaluation, acting as a critical friend and coaching peers in their school improvement journey. They may have a formal leadership role as a **school network manager** helping to extend their leadership influence to benefit more students.



Looking across schools, school networks become the engine of professional development and innovation. New workforce roles would be created, with the best subject and pedagogical specialists becoming system leaders playing a role to develop the practice of other professionals and to share their expertise. They may also play a more transformative role as innovation leaders, by fostering a learning climate where school networks become the site of disciplined practitioner research, with the best innovations taken to scale.

The district shifts to a strategic role, offering overall locality leadership to align network resources behind common challenges, and to advocate for disadvantaged students. Districts increasingly collaborate with other organizations and intermediaries which can help improve inclusive teaching and learning for students in the locality and could become an important part of the local school system.

At state level, officials would encourage an R&D culture, promoting policies which encourage schools as sites for experimentation and testing to continuously improve teaching and learning,



Introduction

This paper was commissioned by the Education Workforce Initiative (EWI), as part of the Education Commission's response to the global learning crisis.

It recognizes that teacher quality is the most important determinant of learning outcomes at school level but believes teachers cannot work alone. Teachers need leadership and support to be effective and to help learners with the greatest needs. Other roles and relationships at different levels within an educations system, such as school leadership and management, are also strongly associated with better education outcomes. These roles have received little attention and there has been limited experimentation on ways professionals with different specializations could work together effectively in low- and middle-income contexts.

The education workforce must evolve to keep pace with the rapidly changing world and embrace the new opportunities these changes bring. Experts point out that the current education workforce design is still largely based on an outdated model of education created to meet the labor needs of the industrial revolution and organized on the principle of mass production. This has led many governments to pursue an input-based rather than a systems-based approach to education reform. This often means that the interplay among inputs and actors within systems is not fully recognized,² and not all workforce practices within education systems actually contribute meaningfully and consistently to the overall goal of learning.³

Approach to this paper

This background paper was originally written as a chapter of the Education Workforce Initiative's (EWI) report and has since been published in summarized form as part of the *Transforming the Education Workforce: Learning Teams for a Learning Generation*. The wider background papers for the EWI were originally written as sequential chapters of a report and cover the design of the education workforce, how it may be strengthened, and implementation approaches such as political economy and financial considerations. This paper focuses on design elements and refers to the other background papers. In particular, it makes references to the paper on *Strengthening the education workforce*, (referred to hereafter as "the strengthening paper").

The EWI aims to catalyze new thinking on education workforce reform by drawing on existing evidence and promising examples from education and other sectors. Despite the challenges outlined, international evidence gives us grounds for optimism: in many jurisdictions important workforce shifts are happening and there are 'bright spots' of promising practice.

This paper on workforce design therefore draws inspiration from the best available evidence of innovative workforce design and case studies of promising examples (see section "Promising developments in workforce design" for a summary of the evidence and Annex 1 for an extended review). It also draws on new primary evidence from two EWI focus countries – Ghana and Vietnam – to shed new light on current workforce challenge and opportunities. As a piece of research and thought leadership, not all the proposals and new thinking in this paper have yet been subject to rigorous testing. The EWI will be taking proposals forward with a global coalition of partners to test and refine these proposals to build new evidence in the coming years.



Vision for the education workforce

This paper sets out a vision for the future in which learners experience a wide range of interactions with different workforce members and with technology to support their individual learning needs. Instead of the school day being dominated by lessons in classes of 30-50 taught by a single teacher, learning experiences might include:

- Various sized classes for different lessons delivered by on-site and off-site specialist teachers,
- peer learning, group problem solving and creative team tasks,
- technology based content sources and interactive learning applications, and
- one-to-one mentoring sessions.

This vision involves a diverse workforce: teaching, learning, student welfare and inclusion professionals, with different skill sets and experience levels, working together in teams to provide differentiated teaching and welfare support tailored to students' individual needs. New workforce roles, drawing from other sectors and the community, would provide learners with a greater connection to the world outside to ensure that there is alignment between the skills that students are learning and their relevance in the real world.

The pathway towards realising this vision will vary greatly by contexts. Some systems need to move from "crisis" to "stable", and immediate workforce reforms need to revolve around finding cost effective solutions to ensuring that all children receive effective instruction for foundational learning. For many systems, the necessary "next" steps would involve a degree of diversification of their workforces. In some contexts this might require including alternative roles in the school level workforce (teaching assistants including community volunteers, trainee teachers, administrators) to deliver tasks that do not require a qualified teacher, to increase instructional time and leverage teacher expertise. Specialist teacher roles may be required to improve subject specific content and pedagogy, and lead school level support to inclusion. For these diversified roles to work effectively together at all levels of the system, the workforce would need to operate as 'learning teams', as described in Box 1 below.

Box 1 – Learning teams

Groups of role-holders would work closely together to maximise **learning and inclusion of all students** in their schools and to **learn professionally from each other** to become more effective at supporting students and better able to adapt to change.

These would be formed inside the classroom, within school, within districts and even at the national and international levels. Learning teams would be formed with a variety of professionals including leadership, management and welfare professionals, as well as qualified teachers and other teaching and learning roles. This is based on a concept of professionalism where the collective capacity of a group of people is leveraged as opposed to focusing on developing the skills of individuals to do their work better. By working collaboratively in learning teams, the education workforce would provide more effective teaching through better targeting of specialist expertise, on the job learning and support, more instructional time, improved workforce motivation and better support for inclusion.

School principals and directors would need to be supported to provide instructional leadership. This may require additional administrative support staff to free up their time. It may also require district level school facing roles to be reoriented towards strengthening school leadership and supporting teacher professional learning. Districts would need to develop capacity to use data to drive area wide improvement in overall learning and equity measures. At the district level, data should be used to identify effective approaches at school level and to identify, challenge and support underperforming schools.



The paper envisages a **system that is continually learning and adapting** (a 'learning system', as described in Box 2), with communities of practices sharing expertise within and between schools, school networks driving professional development and innovation, and with robust practitioner research and expertise shared widely. The district becomes a steward of this school-based expertise, quality assuring the work of school networks and aligning efforts to tackle common challenges. At state level, officials encourage the development of **a research and development culture to transform learning outcomes**, providing leadership for the experimentation and innovation, and taking to scale innovations developed at the local level.

Box 2 - A learning system

In the learning system, a diversified workforce - including networks of schools, education professionals and cross-sectoral partnerships – would be directly involved in innovating and applying evidence of what works; and the resulting knowledge, data and evidence is shared to create a system that cultivates student learning, is able to learn itself and is better adapt to change.

In the future, skilled school-based practitioners would share their knowledge across school networks and beyond. Through networks, the education system would connect to other important actors - such as employers, new innovators and other sectors - who would work in partnership with schools to improve student outcomes and more rapidly close achievement gaps for marginalized students. As the capacity of education professionals grows, evidence suggests that school networks become the engine for improved professional development and scaling innovations in teaching and learning.

A "2Revolutions" framework for this chapter

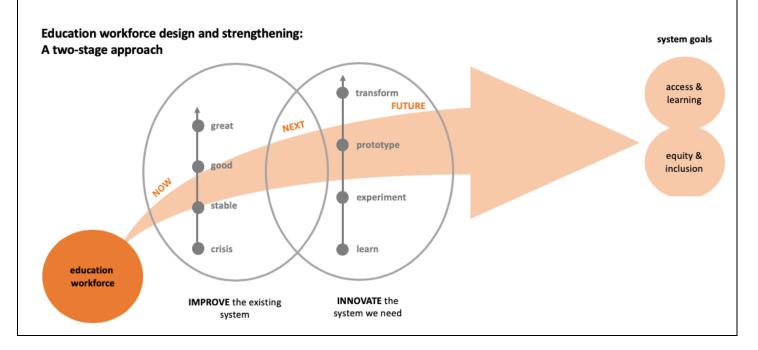
This paper recognizes that the pathway to this future vision will vary between contexts. Each system starts from a different point and faces different challenges and expectations. **The paper is therefore structured around a two-stage approach to the re-design of the education workforce,** highlighting considerations for shifting from "Today" to a "Next" stage of reform, and then from "Next" to a "Future" phase of reform. This is based on principles from the disruptive innovation literature (see Box 3).



Box 3 - Now-Next-Future: A two-stage approach to improving systems in a shifting landscape

The proposals in this paper are structured using principles from the disruptive innovation literature. The diagram below sets out the framework for the paper (**Now- Next-Future**), which is adapted from the US-based non-profit <u>2Revolutions</u>. A version of the framework is used in national education design labs in basic and higher education.

Understanding the education workforce **Now** allows us to identify the challenges and opportunities of the current education workforce system which demand immediate attention and action. **Next** is the first step that addresses immediate challenges to deliver rapid improvements and helps education workforce systems to move closer to a future vision, moving in incremental ways that are measured and evaluated. There may be multiple **Next** phases until a system is ready for more radical change. The **Future** represents more aspirational change: the desired future model of the education workforce that could exist to support the delivery of quality education for all students.



The main analysis in this paper is therefore structured through the following sections:

- An analysis of the education workforce "Now", identifying the challenges and opportunities of the current education workforce system that demand immediate attention and action
- Proposals for a "Next" stage of reform, envisaging the development of "learning teams"
- Proposals for a "Future" stage of reform, envisaging the establishment of "learning systems"

To help orientate the reader, the paper begins with a high-level overview of the **key workforce shifts** needed to build first learning teams and then a learning system.

All of the proposals are based on international evidence on 'what works' to improve education outcomes, as well as ideas from case studies of promising practice internationally. This material is presented in Annex 1.



Box 4 - Terminology used in this paper

This paper on the future of education workforce design makes significant use of key concepts and principles from organisation design theory. This includes the following terminology:

Roles – In this paper the term 'role' describes a set of activities which can be grouped together to be delivered by one jobholder, given the right context. The activities are grouped together because they are coherent in outcomes and purpose, can realistically be delivered by one individual with the right skills and knowledge, and are 'doable' in terms of the diversity of activities.

Functions - Functions are high-level activities or practices delivered by part of an organisation or system. Thinking about functions rather than job roles can be helpful in workforce design because it forces the design team to start with 'the end in mind' i.e. the work that needs to be delivered to meet end goals, before designing the specific role configurations and structures that will deliver these outcomes in any given context. This paper assumes that the following high-level functions need to be delivered by the education workforce:

- Leadership and management
- Teaching and learning
- Inclusion and welfare
- Professional services and administration

Illustrations in this paper, including the tables in Annex 2, make use of a color scheme for these functions. This helps to indicate how workforce functions may shift to be delivered by different roles in the future.

Operating model – An operating model describes the high-level functions and processes needed to deliver value (financial outcomes, public service outcomes for beneficiaries etc.) to an organisation or a system's stakeholders. Operating models can be useful tools for organisation and workforce design, because they help to set out high level governance principles which underpin design, such as conceptualising at which levels of a system different functions will be discharged, and the relationships between different core functions (such as accountability relationships or high level flows of information).



The education workforce today: defining key areas of challenge

This section looks at typical features of workforce design at school, district and state level, identifying common challenges and opportunities in how design affects access and learning, equity and inclusion. Whilst recognising that every system is different, we assume that most school systems have a 'middle tier' of administration between the schools and the central state office or ministry. This can include regional, provincial, district and smaller offices of administration. The analysis draws on secondary evidence where available, and primary evidence from EWI fieldwork in Vietnam and Ghana.

Teachers are often isolated and struggle to spend enough time on instruction

The current education workforce model in most schools is built around a one teacher to one classroom model. Teachers often work in relative isolation covering a wide range of functions and roles. In the early grades a single class teacher may have responsibility for the learning across the curriculum. As learners progress through the grades, they are taught by an increasing number of subject teachers, but teaching and learning remains largely the responsibility of individual teachers working independently to deliver different parts of the curriculum in series. Within the 'one teacher to one classroom' model, teachers are often expected to have a wide range of professional skills that cover both teaching and other core aspects of child development and student welfare. As shown in Figure 1, they fulfil increasingly diverse and complex roles to address learner needs, with limited support and often in challenging conditions. This includes different facets of subject knowledge and pedagogy, attention to student welfare, managing student behaviour, and meeting individual student needs.



Figure 1 - Teachers often cover a wide range of the overall teaching and learning functions needed within schools

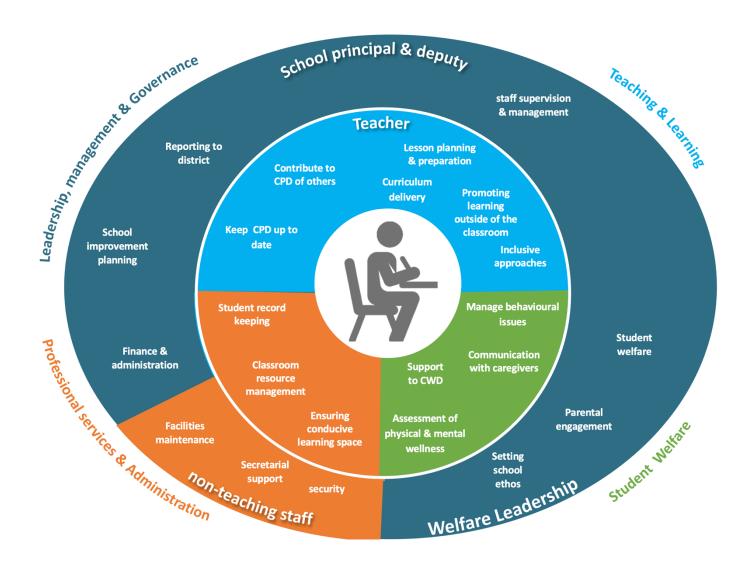
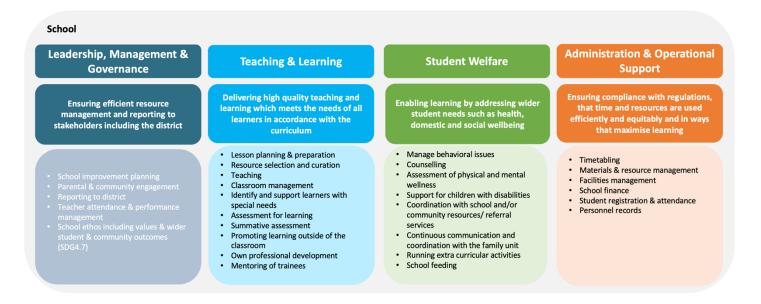




Figure 2 - Typical functions at school level



Source: Wolfenden, F., Buckler, A., Santos, C. and Mittelmeier, J. 2018. "Re-envisioning and Strengthening the Education Workforce: Initial Literature Review." The Open University. Prepared for the Education Workforce Initiative, Education Commission.⁷

Within the 'one teacher to one classroom' model, critical functions for the effective delivery of teaching and learning can be lacking or insufficiently covered.

- Teachers can struggle to spend enough time on instruction. On average, teachers currently spend over 20 percent of their time on administration and keeping order in the classroom, according to the TALIS survey of teachers in high income countries. The same challenges are reflected in the World Teacher Survey across 166 countries: managing student behaviour was joint top of a list of professional concerns, alongside managing mixed ability classes, with 41 percent teachers identifying this as a challenge. Similarly, evidence from Bruns and Luque's study in Latin America and the Caribbean suggested that up to "20 percent of instruction time was lost compared with the Stallings benchmark of 15 percent and most of that time lost was on classroom management- with between 24 percent and 39 percent of total time of teacher time off task". It is important to note that the causes of teacher time off task are complex, encompassing broader workforce issues including teacher preparation, motivation and accountability, and cannot be resolved solely through workforce design. However, there are opportunities to re-design workforce roles for greater leverage of teachers' professional skills, and to improve motivation.
- The model provides limited opportunities for differentiating teaching and attention to individual learners' needs. There are few dedicated human resources where specialist skills are provided to support special needs, remedial support, and mother tongue instruction. For example, EWI fieldwork in Ghana noted that many schools lacked qualified teachers who spoke the local mother tongue. The model puts high demands on a lone teacher teaching a large class with a wide range of learning needs. Inclusion of children with learning and behavioral difficulties in classes can be particularly difficult for teachers to manage without additional support. In Vietnam, stakeholders noted a need for more assistants to support the teacher with individual students:



"If school needs to have some support to students' learning, there should be more support staff, not necessarily a supervisor in the discipline area, but in learning, to support learning." (Student Activity Director, Vietnam)

There are few dedicated human resources allocated to student health and welfare in low income countries, meaning that non-specialist staff take on these functions, or they are underserved. This was confirmed in EWI research in Ghana and Vietnam. Ghanaian school nurses were highly valued by students but only found in secondary schools. Vietnamese students expressed a need for psychological

'Students, especially at this age, can have a lot of physical health and, mental health issues, they need somebody to talk to because they don't have that kind of relationship with the teachers. We need somebody we can talk to, to understand and hear our stories. It will relieve the stress.' (Vietnamese Secondary Student)

Similarly, teachers and other stakeholders in Vietnam recognized that the role of the education workforce needed to extend beyond academics and to include behavioral health and to support student welfare:

'It is necessary to add positions, for example someone to teach life skills for students or community integration education, someone that guides students to self-study which is also very important, for example through learning projects to develop students' thinking abilities to be more aware of real life problems in society.'

The current school workforce model is not always configured around the concept of professional learning communities which studies consistently show can support improved teaching and learner outcomes. ¹¹ Contrary to evidence showing the benefits of collaboration (see strengthening paper), teachers have only limited access to collaborative professional development opportunities. Data from the TALIS survey in primarily high income countries indicates that only 34 percent of teachers participate in co-operative professional development. ¹² Teachers occasionally attend off-site training workshops but the school is rarely seen as a professional learning community: on average, more than 40 percent of teachers report never teaching jointly or observing other teachers' classes to provide feedback. ¹³ This limits opportunities for better trained and more experienced teachers to use their professional knowledge to support those with less training and experience, or for teachers with different skills to share them and support each other.

Leadership is often administrative rather than instructional

Almost all government schools worldwide have a school principal or headteacher, and larger schools may have wider leadership roles such as Deputy Principals, and leaders of grades and curriculum areas. **However, key leadership functions for the effective delivery of teaching and learning are often underdeveloped**. Studies, particularly in higher income contexts, consistently show the effect of 'instructional leadership' on teaching and learning outcomes.¹⁴ The instructional leader spends much of the week in classrooms observing teaching, evaluating learning and providing constructive feedback to professionals.



Policymakers increasingly view school principals as instructional leaders – particularly as systems move towards decentralization - but **in practice principals' roles focus on traditional management duties.** ¹⁵ UNESCO's in-depth global review of school leadership suggests that principals struggle to implement instructional leadership due to factors such as a poor understanding and poor preparation for new responsibilities, as well as local cultural norms around leadership which see school leadership as a 'figurehead' rather than an instrumental activity. Data from the TALIS survey in primarily high- income countries also shows that school principals spend on average 40 percent of their time planning and managing resources ¹⁶ and are often overburdened with administration.

EWI fieldwork in Ghana noted that the school principals' working day was dominated by administration and management focused on process compliance – monitoring and supervising teacher punctuality, attendance and submission of lesson plans. In primary schools in particular, there were no dedicated staff to support with administration, pupil welfare or maintenance of the premises. Therefore, the principal's time was predominantly used for activities such as hiring of night watchmen, supervising student cleaning of the school compound and distributing materials to teachers (chalk, pen, notebooks, etc.).

District functions are often focused on compliance rather than school improvement

Whilst recognizing that every system is different, this section focuses on typical workforce roles at the district which is understood to engage with schools on a regular basis, as noted above however evidence is limited. Evidence from IIEP¹⁷ and EWI analysis¹⁸ suggests that typical functions currently may include:

Figure 3 - Typical functions at district level



Source: De Grauwe, A. and Lugaz, C. 2011 "Strengthening local actors: The path to decentralizing education: Kenya, Lesotho, Uganda." Paris: UNESCO-IIEP; EWI analysis of local district documentation from jurisdictions including India, Pakistan, Rwanda, Ghana, Zimbabwe.

Evidence suggests that the **critical functions needed at district level for school improvement are currently typically underdeveloped.** Studies by IIEP in a range of contexts, most recently across 10 countries in sub-Saharan Africa and Asia, suggest that this is because of a **significant gap between theory and practice** in district workforce roles.¹⁹

In practice, school supervision often focuses on compliance monitoring which alone, does not have a strong effect on teaching and learning quality. Reviews of current supervisor practice²⁰ suggest that officer time can be focused on ensuring policy cascade, gathering compliance data in areas such as school facilities and resources, and reporting upwards to central government. Analysis suggests that district supervisor roles typically spend just 20-30 percent of time on school-facing activity.²¹ This focus on bureaucratic compliance has little impact on teaching and learning – in fact, Eddy-Spicer *et al.* find that it can negatively affect school



principal and teacher motivation.²² EWI field analysis in Ghana found a similar pattern of activity, with district officers' core business currently focused on compliance and monitoring, serving as a delivery system for resources and materials, for the cascading of policies, and for the collection of data from schools to return to district officials. Fieldwork showed that concern for raising standards of teaching and learning was central to the identity of district staff, but a typical week is dominated by basic monitoring:

'Checking school enrolment figures, teacher attendance, inspecting head teachers' record keeping practices [...] validating teacher and pupil work load.' (Circuit Supervisor)

The administrative focus is also reflected in workforce ratios within the district: fewer than 60 percent of roles in the Ghanaian districts were charged with school-facing duties; over 40 percent held administrative or operational roles (e.g. finance, drivers, secretaries). However, there were also good opportunities for reform, with supervisors for primary schools typically holding a caseload of just 10-20 schools – comparable to target caseloads in higher income contexts.²³ Secondary schools are afforded less support from districts with just one dedicated coordinator in the district.

Supervisory functions of providing formative feedback and support are underdeveloped. Analysis shows that, where supervisors do focus on school supervision activity - such as monitoring teaching and learning – the practice of giving feedback and coaching can be ineffective, and have unintended negative consequences on teaching and learning.²⁴ For example, officers may not provide constructive developmental feedback because this is not a core role expectation.

Teacher training roles at district level are not always designed in-keeping with the latest evidence on teacher professional development, often focusing on one-off, off-site trainings for school staff. Although the district workforce often includes roles and job descriptions with a remit to support teaching and learning, such as pedagogical coaches,²⁵ in practice, core district functions have often remained unchanged for decades.²⁶

District leadership and management roles are not yet configured as leaders of local education development. Despite a trend of decentralization in many countries, district leaders and managers are underutilized as potential 'strategic actors' for local change.²⁷ For example, district leaders are often producers of data for use by the state or ministry, but not yet users of data for local strategy and decision-making. A recent analysis of education district structures in southern and eastern Africa found no planning or statistics role to support leaders to make data-driven decisions; this can lead to non-specialist roles undertaking this function and can hinder leaders when they are requested to reflect on longer-term strategy and development.²⁸ In EWI fieldwork in Ghana, district directors expressed frustration that up to 60 percent of their time was consumed by administrative tasks. There was little management discourse about pedagogy and weak feedback loops from school visits to inform priority areas for improvement.

Districts have limited capacity to support inclusive teaching and learning. EWI fieldwork in Ghana suggests that district staff are highly committed to inclusion despite limited capacity and would like more support in this area:

'More visits by the Special Educational Needs officer to schools [...] more collaboration with the Ghana Health Service, social welfare dept, guidance and counselling' [Discussion with school principals]

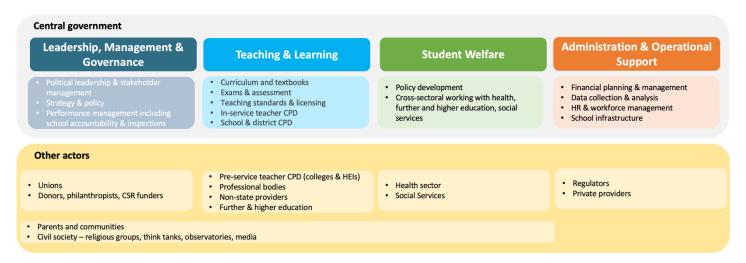


Some districts had dedicated inclusion officers, although there was little evidence on the functionality or scope of these roles. In practice roles such as Girls' Education Officers were narrowly focused on ensuring access for marginalized children, rather than ensuring that they were learning.

State level: Central government level administration is often focused on policy cascade rather than the leadership of evidence-based school improvement

A review of the current workforce at state level is beyond the scope of this paper. However, it is instructive to look at the typical functions in current educations systems, and the key challenges where these functions interface with districts and schools. Central government typically has specialist teams with key functions as shown in Figure 4. The exact configuration of responsibilities will depend upon the level of decentralization to the district.

Figure 4 - Typical functions at central government



A growing body of research exists relating to civil service effectiveness and reform, which highlights areas for state level action. Key findings from this body of work, which have implications for district and school level workforce design, are presented below.

Education policy and strategy functions are currently insufficiently based on evidence of what drives inclusive teaching and learning at scale. Strategy teams need better access to international and local evidence on 'what works', including at scale. There is a need to improve the use of evidence by policymakers and to mediate research findings for busy frontline practitioners.²⁹ Emerging research communities in 'learning science' are promising, but findings are not yet systematically used by those making education policy³⁰: pre-service and in-service training institutions need better access to support an evidence-driven teaching profession. A lack of cross-pollination within universities between, for example, neuroscience, organizational psychology, education policy and teacher training departments, can hinder the collaborative research which supports the use of key insights by training teaching professionals.



Education systems can often be data rich but not data driven, missing opportunities to better understand sector needs and learn from implementation of what works. In an analysis of how countries used their Education Management Information Systems (EMIS), only 10 percent of countries used the data to help integrate hard-to-reach areas. Similarly, only 7 percent used student assessment data to identify support which may be needed for teachers.³¹ Capacity to use local education system data is often limited, with a lack of specialist roles to provide analysis and insights, and to improve sharing of data across departments. Management roles are not always expected to make systematic use of data to continuously improve teaching and learning, and to narrow the achievement gap for marginalized students.

Too little attention is paid to defining the institutional and leadership capacities which are needed to deliver rapid educational change. When central government leaders take an overly technocratic approach to education policy delivery, they are ill-equipped to deal with the complex factors which influence student learning. A new consensus is emerging as a result of research on 'delivery approaches' and in implementation science. This calls for new institutional and leadership capacities in **change leadership and adaptive policy making**, which responds in an agile way to the complexities of implementation.³² New evidence also demonstrates the criticality of partnership and coalition-building for successful education reforms which have closed the gap in student achievement.³³

Promising developments in workforce design

The most effective interventions to improve outcomes for those furthest behind align with the concept of tiered stages of learning and include targeting foundational skills. Where education workforce capacity and support are low and students' foundational skills are not well established, approaches such as structured pedagogy, assessment for learning, use of technology and differentiated teaching roles, especially to support teaching at the right level or other personalized instruction, have been shown to improve student outcomes. For example, differentiated teaching roles leverage existing resources and have emerged alongside classroom teachers to support teaching and learning, especially in low capacity contexts. In Ghana, the Teacher Community Assistant Initiative (TCAI) utilized local high school graduates as *community assistants* (through the existing National Youth Employment Program) to lead in- and after-school remedial classes for small groups of students in primary school with significantly improved skills in literacy and numeracy on average. A teacher-led treatment to teach at the right level was also a component of this initiative and the combination of teacher-led intervention and community assistant provision resulted in the highest learning gains.

Other evidence points to complementary roles which have been shown to support improved student outcomes where teachers are overwhelmed with complex instructional roles or expected to take on additional responsibilities, such as those around student health and welfare. These can include roles such as specialist teachers, school nurses and volunteer mentors. Where there is a lack of qualified teachers or providing access is difficult, alternative models of delivery have proven successful. Utilizing differentiated teaching roles and a wider range of stakeholders and leveraging technology can help reach the most marginalized. Several case studies illustrate this, including the JAAGO program in Bangladesh (see Case Study 2 in Annex 1) which mobilizes a wide range of adult stakeholders to support the delivery of education for students in the most remote districts. Recent graduates, local moderators, psychologists, and internet companies as well as corporate entities all work together to support and deliver education.



Strong school-level leadership is increasingly seen as necessary to facilitate teacher learning for improved student outcomes. International evidence suggests that that improvement at school-level rarely occurs in the absence of effective leadership and that school leadership accounts for up to 27 percent of variation in students' learning achievement, second only to classroom teaching. A study of headmasters in India and several other countries found that a one-point increase on scoring of school management practices was associated with around a ten percent increase in student performance. But a review of school leadership policies and practices by UNESCO concluded that leaders are now expected to be more than good managers and administrators—effective school leadership that can provide instructional guidance and foster continuous improvement is the key to successful, large-scale and sustainable education reform.³⁴

In addition to school leadership, *collaboration between schools* has been shown to improve low performing schools when structured meaningfully. Supporting new leaders, distributing innovation, transferring professional knowledge more readily, and greater efficiency in the use of resources have been identified as key benefits of school clusters. In Ethiopia, clusters supported by cluster resource centers have increased teacher motivation and improved practices.

Studies from high income contexts show that districts can play a transformational role in inclusion and improving school and teaching and learning quality so investing in the district level of the workforce - the layer that supports teachers – could be very powerful. Districts can be leveraged to facilitate collaboration, provide instructional leadership and specialist support, and promote better use of data, especially for addressing inequalities. One example includes Kenya's TUSOME program where *curriculum support* officers make regular classroom visits using tablets to provide instruction support and upload data on student reading progress and teacher practice which allows district offices to generate an aggregate picture of their progress compared with other districts, as well as comparative data on their own schools. This intervention resulted in strong, significant increases in learning.

Although state level roles are beyond the scope of this paper, a growing body of research exists relating to civil service effectiveness and reform and highlights areas for state level action. There is evidence indicating that in a strong education system the elements, actors and relationships at all levels align with a coherent, shared vision to enhance the learning experiences and outcomes of all students. Lessons from other public service systems and emerging evidence from education suggest that a team-based approach at all levels of the system supported by networks could improve delivery and outcomes at scale. The health sector has responded to the increasing complexity and specialization of medical care, global workforce shortages, increases in disease, aging populations as well as financing constraints, with a multidisciplinary team-based approach. In health care it is generally believed that collaboration yields better health services and health researchers have found that teamwork actually does reduce the number of medical errors and increases patient safety.

In education, multidisciplinary categories of professionals already exist to varying extents at different levels in education systems. These include staff in finance and administration; student welfare; leadership and management; and of course, teaching and learning; however, there is little literature around if or how these groups of professionals work together toward the shared goal of providing quality education. Most approaches for team-based collaboration in education are found at the school level between teachers. Evidence around inschool collaboration suggests teachers who are in a school with high social capital, that is around others who are collaborating effectively, are able to support better student outcomes. For a full summary of the evidence, including references, on promising developments in education workforce design see Annex 1.



Next - Creating learning teams

This section outlines a proposed workforce design for the Next phase of reform at school, district and state level, based on the current challenges presented, and evidence on promising practice discussed in the previous section and Annex 1. Education systems may already feature many of the roles and functions described: this 'Next' stage is presented as an incremental step which focuses on strengthening existing resources and harnessing their potential and expertise to scale what we know already works to improve access, learning, equity and inclusion.

Key shifts in workforce design

To achieve the vision set out in the introduction, key shifts will be required in workforce design for the Next phase.

In the **Next** stage of reform, rapid improvements in education outcomes can be brought about by refocusing roles on teaching and learning. Figure 1 overleaf sets out the key functions which would need to be in place to deliver this.

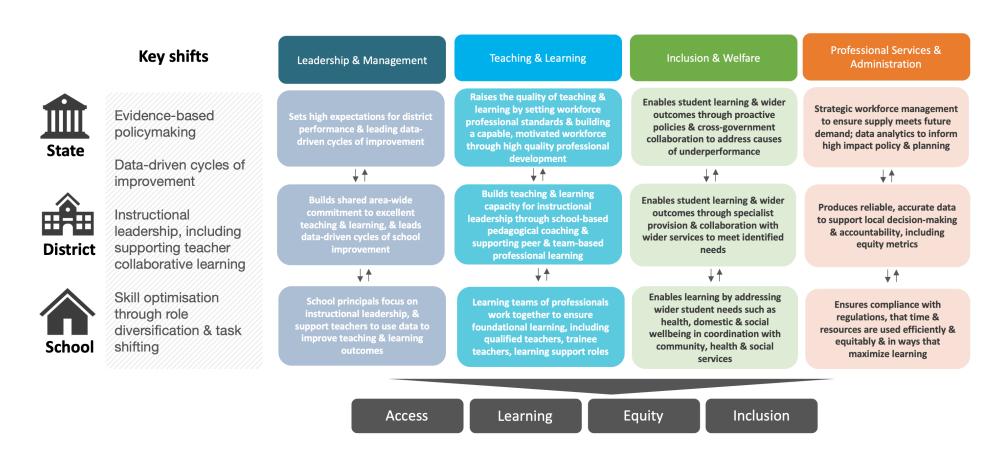
At school level the focus would be on skill optimisation through task shifting and differentiation across roles. Teaching and learning teams would be central to the new workforce architecture, with a small number of new roles so that functions currently undertaken by teachers are distributed across more professionals, ensuring all students have access to specialist expertise including subject expertise and special education support. This diversification supports teachers to increase instructional time and lead effective pedagogical approaches. All students remain under the supervision of a qualified teacher. Recruiting sufficient numbers will remain a priority for many systems.

At school leader and district level, the focus is on instructional leadership, including supporting teacher collaborative learning, and data-driven cycles of improvement. New functions become important, such as instructional leadership, and overseeing high impact strategies such as teacher professional learning communities. At district level, the focus is on strengthening and re-orienting existing functions such as school supervision and teacher coaching, so they are effective drivers of improved access, learning and inclusion. Districts would develop new institutional capabilities in instructional and change leadership - including coaching and data-driven performance management.

At state level, the focus is on evidence-based policymaking. There would be a system-wide focus on strengthening professional capacity for learning and the use of evidence, moving towards a system where teams of education professionals at all levels of the system lead cycles of data-driven improvement.



Figure 5 - The Next stage of workforce reform: operating model showing key functions and shifts required to build learning teams





At school level, optimise workforce skills by diversifying roles and taskshifting to meet learner needs

At school level there is focus on moving from a one teacher: one class model to building effective teaching and learning teams, allowing schools to provide specialist support to students. Task-shifting and more differentiated roles are central to the new model. Supported by a wider group of professionals and potentially technology where appropriate- including trainee teachers, teaching assistants and community volunteers - teachers can increase instructional time and lead the delivery of effective pedagogical approaches such as Teaching at the Right Level (TARL), assessment for learning, teaching in the mother tongue and remedial support. This will ensure ALL children achieve foundational learning. At the same time, obtaining the right number of motivated and capable teachers in the right places is a primary concern.

Whilst we recognise that wider factors such as workforce preparation and motivation are also critical in enabling effective pedagogy and professional teams, the right design of individual and team roles is an essential first step.

There will be more differentiation in the role of the teacher to leverage specialist skills to ensure sufficient specialist knowledge reaches the most marginalized.

Instead of one teacher being responsible for the learning, well-being, management and administration of a group of students, qualified teachers could work in teams with other professionals and volunteers, enabling qualified teachers to focus their efforts on leading teaching and learning.

- Current tasks that would benefit from specialist expertise, such as assessing student literacy levels, could be supported by a specialist teacher. Subject specialists can act as coaches to individual teachers to improve subject specific content and pedagogy.
- Tasks that do not require a qualified teacher (for example, checking that students are on task, helping to manage classroom behaviour and large classes, providing individual support to learners, liaising with parents) could be shifted to alternative roles (teaching assistants including community volunteers, trainee teachers, administrators) to increase instructional time and leverage teacher expertise. These roleholders should be prepared and trained for these tasks and have the support and supervision of a qualified teacher.
- Planning and review of lessons could take place in collegiate teams (for example, by subject or year group) drawing on the skills of specialist teachers to plan lessons, devise support strategies for students with special needs, design assessments, and to analyze, interpret and use assessment data to inform teaching strategies.
- Technology will increasingly enable off site specialists to provide their services at a distance.

The result is increased instructional time and student time-on-task, and more effective teaching as the right expertise reaches teaching staff and student. Task shifting also improves teacher job satisfaction, helping in the retention of experienced staff.

Additional roles within teaching and learning teams enable teachers to use new learning configurations, to deliver effective pedagogical approaches. This includes strategies such as TARL (see Annex 1 for discussion on this approach, where learners are grouped by learning level rather than grade, and lesson content and approach is adjusted to learning level), and, by shifting more routine tasks to other professionals, to focus more on assessment for learning. Evidence suggests that these configurations allow for greater differentiation



of teaching, with the lower grades being grouped by ability rather than grade and with scope for small group remedial instruction taking place.³⁵ Qualified teachers are able to focus on whole class teaching while teaching assistants and other roles support individual learners and ensure that the learners stay on task.

In addition the team-based working provides opportunities for workforce learning and career progression. By working together on joint lesson planning, joint lesson delivery, joint working on assessment for learning, teams can act as a site for professional development of teachers through peer learning and interaction with specialist teachers.

- Teachers with greater than 3 years' experience could become specialized teachers (those who have or are credentialed in areas including: special education, second language acquisition, subject specific expertise etc.). These would allow for schools to develop in-house capacity to address the gaps in their workforce and could be rotated around schools or shared virtually using technology if appropriate.
- Experienced teachers can support the induction of **newly qualified teachers (NQTs).** NQTs get to plan and teach together with experienced teachers, and generalist teachers with specialists, giving opportunities for professional development. The configurations allow teachers some non-contact time which can be used for joint planning and professional development activities.
- Teams can also provide a training environment for trainee teachers who could become **key members of the in-school workforce, learning from the health sector**. In other words, those enrolled in initial teacher training courses and alternative routes into teaching could be given greater support through teaching and learning teams, with input from specialists including teacher training institute tutors. This could enable a larger proportion of initial teacher training to take place within schools.
- Management skills will become important to support new teaching and learning teams, particularly team-based lesson planning and preparation. This could be overseen by a dedicated role such as the **deputy principal**. There will be important as there will be a learning curve, and new kinds of planning and management skills will be required when there are multiple adults working in a classroom.
- The team-based workforce structure can also support the culture and conditions for teacher-led professional learning communities to flourish (see strengthening paper).

Differentiated roles could increase school capacity to diagnose barriers to learning in the school, develop targeted solutions and monitor their implementation.

Inclusion specialists would be responsible for identifying learners with special needs and developing strategies to address these, supporting children with specialist needs such as visual and hearing impairment, physical disabilities, learning difficulties and developmental disabilities. These roles could be based in school or be cluster-based, such as Sightsavers' itinerant specialist teachers for children with disabilities in Uganda (see Annex 1 for discussion). As well as working directly with children, they can play an important role in enabling teachers to support children with special needs, for example helping teachers to access and use additional resources to promote inclusion like instructional guides on mobile phones for visually impaired students for example. Teaching assistants - which could include unpaid community volunteers - could also provide targeted learning support to students. In line with evidence in this area, it will be important that teaching assistants work under the supervision of teachers and the inclusion specialists who develop strategies to address special educational needs.

Teaching and learning teams could also work closely with roles that link to home, the community and other social services to support inclusion, provide specialist support to those with additional needs and ensure all children are in school and ready to learn. A potential new role could be a community education worker which could be undertaken in close collaboration with a community health worker. This role holder would liaise with households, identify barriers to access and learning at the household level and work with



learners, schools and communities to find solutions. This role could be particularly beneficial where members of the learners' communities are not well represented in the school and where there are high levels of absenteeism and drop out. This role would free up teacher and headteacher time to focus on instruction.

Additional roles within teaching and learning teams such as teacher assistants or community volunteers – may bring additional skills and qualities such as being fluent in the local language and having a better understanding or learners' culture, home situation and barriers to learning. The result is improved access and learning for the most marginalized students. In rural contexts, these roles may also be more easily recruited locally than qualified teachers. When provided with close supervision and structured pedagogical materials, such locally recruited roles can effectively facilitate remedial instruction (for example, the Balsakhis model in India, and the TCAI program in Ghana, as discussed in Annex 1). The deputy principal could be the central coordinator for ensuring that children's welfare needs are addressed, overseeing student health, welfare, student behaviour, coordination with caregivers and extracurricular activities, and linking with additional expertise from the health and social care sectors.

Many of these roles already exist in schools across a wide range of economic and cultural contexts. The workforce in some schools will already share many of the features described below, and for these cases this may be a closer representation of "now".

Box 5 - School clusters and resource sharing

School size will be a key determinant of workforce design: for example, smaller schools will have less capacity for on-site specialists and larger schools may be able to develop deeper specialization, for example across different types of special needs. A **clustering model** to support school resource sharing could therefore be a key element of workforce design.

Specialist skills could be shared across schools, with roleholders based in a lead school and sharing their time and expertise with others as an itinerant worker or enabled by technology where possible. Specialization might be based on subject pedagogic competence (for example a literacy specialist) or on cross cutting expertise (for example, an inclusion specialist).

Alternatively, more specialist roles could be part time, or individual staff members could cover multiple roles. For example, a class teacher could be given a role as a school-wide inclusion specialist.

The school leadership team will focus on instructional leadership rather than administration, including supporting teacher collaborative learning

The school leadership team will focus more on instructional leadership to improve inclusive teaching and learning and be held to account for outcomes that reflect this. This would be enabled by task shifting of administrative tasks to technology where possible and/or to support staff. The school principal will typically take the lead role in providing instructional leadership, shifting their focus away from operational and wider management duties, towards becoming a leader of learning. They will drive improvement in learning outcomes throughout the school, through diagnosing barriers to better teaching and learning, and providing coaching to staff. Depending on local context, alternatively the deputy principal or nominated academic lead may play this instructional leadership role. Supported by district personnel, they will also lead whole school improvement



planning, using evidence and data on their school's teaching and learning quality to inform priorities for development.

Instructional leadership

This type of leadership refers to supporting and developing high-quality instructional practices, developing and implementing policies that support student achievement, developing learning communities, providing feedback on instruction, modelling effective instruction, and supporting the use of assessment data. *Source:* Ainley, J. and R. Carstens. 2018. "Teaching and Learning International Survey (TALIS) 2018 Conceptual Framework." OECD Education Working Papers, No. 187. Paris: OECD Publishing.

The leadership team will also play an important role in overseeing teacher-led professional development.

They will liaise with district level officials, helping to ensure that pedagogical coaching and supervision meets school improvement needs. As teachers increasingly work in professional learning communities, evidence shows that co-ordination and leadership of these peer communities is critical. The leadership team will therefore also play a role in sponsoring and facilitating peer-led professional development, supporting follow up action in classrooms and ensuring that the expertise of specialist teachers is leveraged.

The school leadership team should also nominate a welfare lead, as can already been seen in some systems (for example EWI fieldwork identified this role in existence in secondary schools in Ghana). This would lead on behavioural policies, safeguarding and the escalation of referrals to health and social services. Where schools are drawing on specialist inclusion support from off-site or cluster-based teams, the school leadership team will need to commission and liaise with specialists to ensure student needs are met.

Dedicated administrative and operational support will enable the school leadership team to focus on instructional leadership. Schools may need to shift administrative tasks (for example, finance, management of school resources and facilities) to support staff. **In small schools** a school principal may oversee both instructional leadership and oversight of the **operations and administration team**. However, it should be noted that this latter role does not require pedagogical expertise and it could be more economic and effective in many contexts to recruit a dedicated school manager from outside of the teacher cadre, as done in PEAS schools (see Annex 1 for discussion), even if this needs to be on a part time basis. Where available, technology could be used to assist with administrative tasks including data collection and analysis and timetabling. Figure 6 shows the effect of task shifting in the Next phase across all school functions.



Figure 6 – Task shifting allows the distribution of school functions across a newly configured teaching and learning team

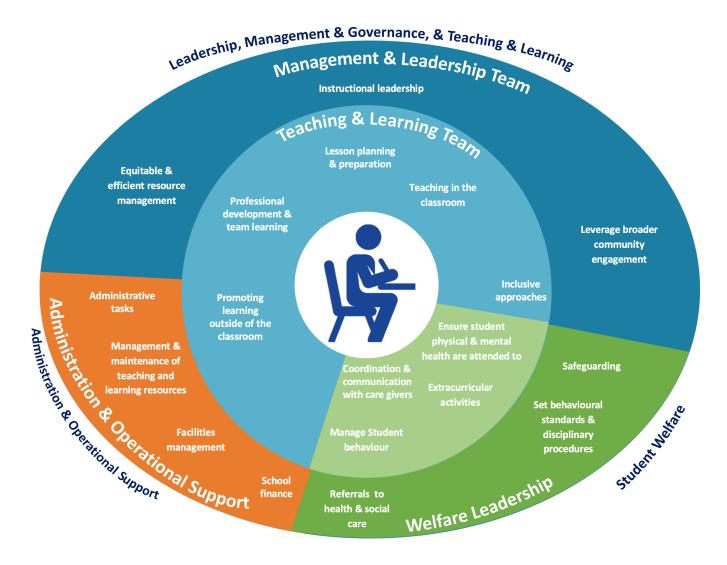
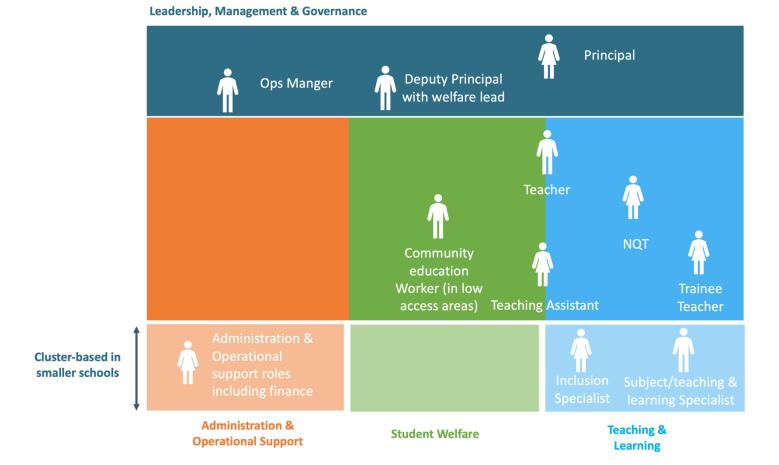


Figure 7 shows some of the illustrative school level roles, organised by teams for the **Next** stage. Most schools in low- and middle-income contexts (except for the smallest) would have a principal, teachers and teaching assistants. Other roles (for example, specialist teachers, finance officers) might need to be shared between small schools.



Figure 7: Next - illustrative school roles



Defining school level functions, roles and skills

Figure A1 in Annex 2 illustrates how the detailed functions could be distributed between the different roles within the teaching and learning, operational, and school leadership teams. Note that in these tables, "tech based" refers to ways in which technology can deliver or facilitate the functions of the teams, and not to a workforce employee/ role holder.

Specification of the skills and competencies needed for these new roles is a vital part of this new workforce design. Figure A2 in Annex 2 also outlines the skills and competencies required for success for each role grouping.

School level scenarios and configurations

These school workforce roles are illustrative and their design and deployment will depend on contextual factors such as geography, existing workforce capacity, budget, cultural considerations and the most pressing education challenges which policymakers are seeking to address.

The actual roles in any school are also highly dependent on the level and size of the school, as well as system level constraints, such as pupil teacher ratios that are achievable both in terms of affordability and availability



of qualified teachers. Based on the assumption that lower and middle income systems cannot afford to dramatically reduce their pupil to qualified teacher ratios beyond current middle income country averages, teams will need to be responsible for larger groups of students than single teachers are in the current system, but could teach in a variety of configurations, with unqualified/alternatively qualified staff always overseen by a qualified teacher. Specialist teachers will need to serve a large number of students (1:300 to 1:2000 depending on the specialism and context). Depending on the size of the school and the specialism, specialist teachers might work entirely at one school or across multiple schools, either in person or virtually.

A range of scenarios are provided in Annex 3 (see Figure A9) to illustrate how they may be adapted and implemented according to school context.

In order to be affordable, students will sometimes need to be taught in larger group sizes than with a one teacher- one class model, but will always be under the supervision of a qualified teacher. Based on the ratios given in Annex 3, a range of teaching configurations might include the following.

- One teacher per class of 30 students plus a teaching assistant supporting individual learners with special needs
- Two teachers plan as a team (one could potentially be a specialist teacher) then teach two classes of 30 students in parallel.
- Classes are rearranged into three groups of 20 based on literacy levels. A teacher and two teaching assistants deliver a lesson based on structured pedagogy, under the supervision of a literacy specialist (TARL model)
- Two classes are combined (60 students) and watch a streamed video of an off-site specialist teacher (e.g. a science teacher) facilitated by a class teacher and a teaching assistant
- Two classes are combined (60 students) and given access to tablets/ computers, working in groups of three students per tablet, with a learning application (e.g. game-based numeracy application). A teacher and a teaching assistant facilitate their learning.

District level should move from monitoring compliance to data-driven cycles of school improvement

At the district level the focus is on re-orientating existing roles to enable inclusive leadership, teaching and learning, and introducing efficiencies for compliance and administrative tasks. School-facing roles will focus on strengthening school leader and teacher capacity. In many jurisdictions this will not necessarily mean new roles: it is about repurposing or shifting the focus of existing roles, and strengthening districts' institutional capacity to deliver roles set out in job descriptions. However, there is no "one size fits all." For the district level to successfully drive improvement it needs to take into account a range of considerations, such as the capabilities and skills which exist at the school level, geographical setting and connectivity and budget constraints. A range of illustrations are therefore provided for example scenarios (see Annex 3).

School-facing roles such as supervisors will focus more on strengthening school leader and teacher capacity and less on compliance checking.

Instead of providing corrective feedback, roles such as **supervisors** will be defined as leaders of change and improvement. We know that the interrogation of school data is critical to raising outcomes and equity) but schools need support to do this.³⁶ They will work directly with schools to raise professional expectations, diagnose performance issues using data, set objectives, review progress and provide constructive, developmental feedback. They will focus on building school capacity and empowering schools in line with



evidence on effective supervision. If they can shift their roles away from administrative duties, they can become users of data for problem solving, not just producers of data for reporting, and will gradually build school principal capacity to do the same as instructional leaders.

There will be a shift from providing training inputs to supporting teacher professional learning.

Districts will provide specialist expertise in pedagogy and subject specific content to school-based teaching professionals in foundational subjects. As outlined above, we know that continuous, school-based coaching leads, provided by roles such as **pedagogical coaches**, lead to improved teaching quality and improved learner outcomes.³⁷ We also know that teacher peer coaching is effective and motivating, when well facilitated and managed.³⁸ If current teacher trainers' core role can shift away from one-off, off-site training, they will build teaching teams' capacity to learn and improve teaching standards. With support from the state, they will provide professional resources based on the best international evidence on high impact pedagogy. They will identify good practices and facilitate dissemination and sharing across schools so that all teachers and students benefit equally from the best local innovations. Where school capacity is stronger, this pedagogical coaching function could also be provided by school or cluster-based subject specialists, whose role could focus on teacher mentoring and coaching.

District leaders shift from a focus on collecting data for monitoring purposes, to proactively using data to drive area-wide improvement plans and to leading schools and stakeholders through cycles of continuous improvement.

They build a sense of collective efficacy across the district by making progress and performance against objectives visible, feeding back to schools on improvement priorities and celebrating success.

The data analysis function shifts to support data-driven planning, providing analysis to help leaders identify gaps in performance between schools, teacher and students and to help prioritize district wide resources. Supported by specialist expertise, such as **data analysts**, the district will make smart use of data including equity metrics, identifying particularly effective approaches at school level and encouraging the sharing of high impact practice. Districts currently often invest significant resource on data collection. Aided by technology to take care of routine collection, analysis and reporting, these roles could shift from producers of data to effective users of data e.g. to monitor the implementation and impact of education initiatives and plans, including impact on inclusive education, and to allocate financing based on local needs.

Evidence from high income contexts suggests that districts can have a transformative effect on outcomes, including for the most marginalized, by working in this 'high challenge, high support' capacity and by leading cycles of learning.³⁹ District leaders and managers will need new capabilities in change leadership, ensuring schools are bought into district-wide objectives for improved teaching and learning, and are involved in collectively setting targets and reviewing progress. We know that where education leaders build a collective sense of efficacy in this way, set high expectations and align change initiatives, the pace of change increases.⁴⁰ Improved management capabilities will ensure a feedback loop between school level needs and district and state level planning.

The district will have an explicit focus on reducing inequalities.

All district staff will have a responsibility to improve inclusive teaching and learning, and equitable resourcing: effectives approaches to inclusive education ensure that the approach is embedded across organizations rather than standalone activities.⁴¹ With their area-wide view of school performance districts leaders and managers will play an important role in equity, ensuring that human and financial resources are equitably distributed, and



ensuring a direct feedback loop from equity data analysis into planning. They will also ensure that district staff are advocates for equity and the needs of disadvantaged students across the area. Districts will make smart use of data to provide targeted support to struggling schools, leaders and students. They will have an explicit role to ensure more marginalized schools – including rural schools – have an equitable share of resources including financing, support from district staff, and physical resources such as teaching materials.

Providing expert support for special needs and marginalized students, would be a critical district level function. EWI fieldwork in Ghana for example, showed a high level of demand from schools for such expertise. These roles will also act as advocates and ensure a proactive, district-wide approach to inclusion. Existing **inclusion specialists**, such as Girls' Education Officers or Special Needs Advisors, could shift from a focus on access, to a focus on supporting school staff to use inclusive teaching and learning practices. Alternatively, roles could be combined with wider social services in the district, for example, accessing the services of speech and language therapists or of community health workers. For example, in Kenya, local community health workers are engage to support inclusive education for girls, playing a role in ensuring access and identifying barriers to learning.

Defining district level functions, roles and skills

A more detailed description of the roles needed at district level to deliver the key functions outlined above is described in Annex 2 (Figure A3).

These roles in many scenarios will be leading change and improvement. Evidence suggests that it is not enough to put in place well designed roles; it is critical that the right skills and competencies are defined as these can often be a key differentiator between low and high impact roles. Specification of the skills and competencies needed for these new roles is a vital part of this new workforce design. Annex 2 (see Figure A4) outlines the skills and competencies required for success for each role grouping.

District level scenarios and configurations

These district workforce roles are illustrative, and their design will depends on contextual factors such as geography, existing workforce capacity, budget, cultural considerations and the most pressing education challenges which policymakers are seeking to address. A range of scenarios are provided in Annex 3 (see Figure A10) to illustrate how they may be adapted and implemented according to context, including development context and geographical context.

Central government will shift from policy cascade to collaborative working with the workforce and other partners to drive strategic change based on data and evidence

Workforce reform at the state level is beyond the scope of this research and paper. However, we have identified the core shits at state level which will be critical to support the education workforce at district and school level.

A shift to data-driven policy

We know from promising practice internationally that a focus on data is associated with rapid school improvement.⁴³ Strategy and policy functions will be based to a greater extent on local and international evidence about 'what works' to improve inclusive teaching and learning. Central government will play an important clearing house role in coordinating and sharing data across agencies and departments, so that



policymakers have insights into local needs and what is working. In particular, data will be used to drive efforts to narrow the achievement gap for marginalized students. This will be supported by better data analysis and reporting from district level, but the state should play a role in building better data literacy at all levels of the workforce to use data for decision-making and improvement.

A focus on enabling the education workforce with information on 'what works' to improve teaching and learning.

Teaching, like medicine, should be an evidence-informed profession and the state in the **Next** phase has a prime responsibility to ensure that school staff are equipped, in a user-friendly way, with **the best international evidence on pedagogy and school leadership.** Central government should build capacity as a broker of this evidence, working with international bodies, research institutes and universities to ensure that pre-service and in-service teacher training institutions embed evidence into curricula and teacher training materials.

The state should work with teacher training institutions to develop new curricula which includes more field experiences for teacher trainees.

Learning from medicine and healthcare, pre-service teacher training institutions should include more practical experience, releasing additional capacity into schools and supporting the diversification of the teaching workforce. Evidence shows that field experiences, including on-the-job feedback, are crucial to teacher preparation, 44 so this shift will also support improved teaching quality.

Central government will need new institutional and leadership capacities for change management and adaptive policymaking.

Evidence shows that rapid improvements in teaching and learning quality, and in closing the achievement gap for marginalized students, are almost always achieved where there is clear change leadership.⁴⁵ Research on the future of public sector leadership suggests that these skills include: storytelling and vision building, coalition building, data literacy, challenging the status quo, and strong facilitation skills.⁴⁶

The state level should have the capacity to steer cycles of improvement in education delivery, modelling and linking to expectations from district level leaders. Emerging evidence suggests that rapid school improvement requires a strong feedback loop from the frontline – through data, insights, consultation - on what is working and why.⁴⁷ Policymakers will need new approaches to policy delivery, which move away from policy cascade, towards cycles of improvement through more adaptive approaches to delivery. These new functions may sometimes be found in a separate strategy team, such as Delivery Units which have been set up with Ministries of Education internationally (for example in Uganda and Pakistan) and the Academic Cell set up by Haryana state government in India.⁴⁸



Future - Creating a learning system

This section sets out the key functions and roles that would be needed at the school, district and state level to create a learning system. The design responds to existing education system challenges in access, learning, inclusion, and equity, and builds upon the steps taken in the Next revolution to continue to refine the education workforce. The proposals draw on promising practice and evidence presented in Annex 1 but expand on these to catalyse new thinking for a more aspirational and radical education workforce re-design which meets the challenges of the future. It also takes on board the need to create a self-improving system and assumes that technology is likely to become a central feature of teaching, learning and education support including professional development.

Key shifts in workforce design

The **Future** stage of reform would build on these foundations, more radically re-configuring the workforce system. Figure 2 overleaf sets out the key functions which would need to be in place to deliver this.

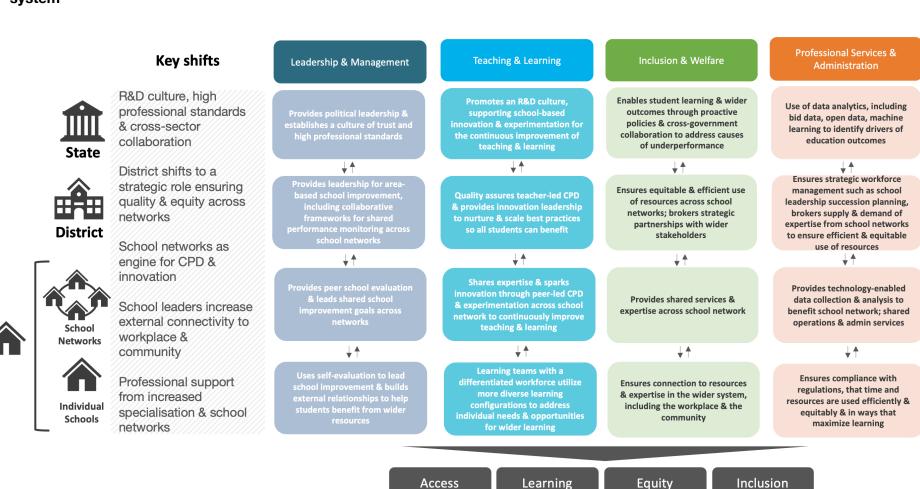
At school level, new roles would provide learners with a greater connection to the external world outside school, including work and the community. Teaching and learning professionals work together in a wider variety of team-based configurations to provide greater opportunities for differentiated teaching around student individual needs. School principals shift to become more externally facing as teacher capacity grows to lead peer professional development.

Looking across schools, school networks become the engine of professional development and innovation, with robust practitioner research and expertise shared across schools. Therefore new workforce roles would be created, with the best school leaders and subject and pedagogical specialists becoming system leaders who play a role to develop the practice of other professionals and who work 'laterally' across the system to share their expertise.

The core functions of district shift to provide strategic governance to ensure equity and quality across school networks Many school improvement roles now move location so that they are embedded within schools as system leaders. District functions include the provision of quality assurance of school-led professional development to ensure high quality, inclusive education across the locality. They retain an emphasis on inclusive education, offering specialist expertise and advocacy in this area. Districts increasingly collaborate with other organizations and intermediaries who can help improve inclusive teaching and learning for students in the locality.

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Figure 8 - The Future stage of workforce reform: operating model showing key functions and shifts required to build a learning system





Based on evidence from innovative education models and emerging thought leadership (see Annex 1 for discussion), we anticipate a number of shifts.

The school would continue to serve as one of various sites for student learning in the **Future**. Through networks, schools become more outward facing and connected to other players - such as employers, new innovators and other sectors – who can work in partnership with schools to improve student outcomes and more rapidly close achievement gaps for marginalized students. As Tom Vander Ark and Lydia Dobyns envision,⁴⁹ the school workforce will find meaningful ways "to 'give and get' expertise and create vibrant communities of adult learners" – a learning system.

The physical structures that the schools have traditionally been defined by, may begin to shift as schools and learning become more embedded within the community. As technology becomes more available and personalized learning continues to be sought out based on real-time formative assessment, the site of learning may also shift from solely being the brick and mortar classroom space. The school as an institution is likely to remain the central hub for knowledge sharing and be needed to provide a safe space for some children to learn, but there may be other spaces for facilitating learning and socialization. Planning for the **Future** education workforce requires innovative and strategic decisions that take into account the diversification of the school in terms of location and space.

In this illustrative **Future** model, to address improved learning, teaching and learning professionals work together in a variety of team- based configurations where the skills and expertise of specialized and experienced teachers are used to work with "beginner" teachers to provide more effective induction and support. As the school principal focuses on greater community and external engagement, and teachers' capacity grows, the engine for teacher professional development increasingly comes from practitioners themselves, sharing their expertise across school networks. Teaching assistants become a more formalized role supporting the students with greatest need.

At school level the workforce would draw support from increasingly professionalized specialists and vibrant school networks

A differentiated set of teaching and learning and inclusion professionals work together in a variety of teambased configurations where the skills and expertise of specialized and experienced teachers are used to work with **newly qualified teachers** and **teacher trainees** to provide more effective training, induction and support. Learning from the health sector, the teacher trainee role would become a critical part of the education workforce, supporting new learning configurations under the guidance of a fully qualified teachers, and ensuring rich workplace-based professional development for teachers from early in their careers.

Greater opportunities for differentiating teaching and learning around individual needs

As systems move towards the **Future**, schools would develop individual learning strategies for all students, with the level of staff and other support determined based on need. In order to grow their capacity to do this, teaching and learning teams need to increase their capacity to diagnose student learning needs, and strategically direct them to the broad array of learning opportunities and experiences, including technology based, face to face instruction and practical work (see Annex 1 for examples such as Mindspark and the African School for Excellence and below for further possible learning configurations).

With increased reliance on technology for both teaching (and administration as discussed below), schools will need more ICT technical support- this could be provided by a contracted service provider or by school-based ICT technician roles.

A class teacher could act as the learning manager for a class of 30-40 students, taking time with each student, on a weekly basis to review their learning, set learning goals and plan their learning activities going forward, as well as making plans to address any welfare needs. They would draw on data on student learning from a variety of sources including feedback from other members of the teaching and learning team and automated student progress reports produced by learning applications.

As a development from the "**Next**" phase, **learner assistant** roles would become more professionalized with more formal training in supporting different learning needs, support for children with disabilities, student mentoring (as in Camfed's learner guide role, see Annex 1) and facilitating computer-based learning and group work.

Learners will experience a wider range of learning configurations some of which are facilitated by technology. All learning experiences and configurations will be overseen by a qualified teacher but may be supported by other teaching and learning support roles which are treated as professionals in their own right. As schools move towards the **Future**, learning would become progressively more varied, with a greater diversity of education professionals and technology contributing to the learning process. The class teachers would be responsible for ensuring that learners were able to access a varied but comprehensive set of learning resources and activities catering for a range of learning needs and levels, that are aligned to curriculum, engaging and stimulate learning.

Teaching configurations could include:

- → Large class lessons delivered by on-site and off-site specialist teachers,
- → Lessons and training delivered by content connectors from other sectors (for example health, business)
- → Peer learning, group problem solving and creative team tasks
- → Technology based content sources and interactive learning applications, facilitated by a learning assistant
- → Laboratory or workshop-based activities facilitated by a subject teacher
- → One to one learning with an adult (a community volunteer or learning assistant)
- → Project work (individual or group work) mentored by learning assistants (at primary) or content connectors (at secondary)
- → Work experience/ shadowing placements (older secondary students only)

New workforce roles will provide learners with a greater connection to the world outside school e.g. with businesses and the community to help to ensure that there is alignment between the skills that students are learning and their relevance in the real world

Teaching and learning teams work closely with student welfare and community teams. New roles - such as part-time or volunteer positions from the local community, local businesses and service providers - deliver a broader range of applied expertise than the teachers alone are able to provide. These "content connectors" bring real world content and applied expertise into the classroom, helping to bridge the gap between school and work. These are particularly important at secondary level where they would help to bridge the gap between school and work. Content Connectors could be from local or national businesses, community organizations, non-profit youth serving organizations, other parts of the social sector, universities or NGOs.



It should be noted that bringing these roles into schools will require additional safeguarding requirements to be met, and some schools will only have access to a narrow range of locally based expertise. Use of carefully curated video content, social media and live streamed interactive sessions could be used to give learners access to expertise from other sectors in cases where distance and/or safeguarding concerns limit the feasibility of face to face interactions.

The model of education delivery reflects a team-based and communal approach. Such an approach appreciates that individuals both within and outside of formal learning spaces can and should support the education of children and young people. Beyond the implications of creating a positive impact on achievement, learning from a network of adults, can positively affect student engagement, grades, and college and career aspirations.⁵⁰

Coordination with other services would provide greater access to specialist professionals to meet welfare needs

As systems move towards the **Future** there would be closer coordination with professionals working in the health and social services, providing specialized services within schools such as assessment of physical and mental health, counselling, health education and addressing domestic issues that impact on learning (for example: early childbearing, children needing to act as carers, domestic violence etc). Where there is a high degree of integration between local services there may be less need for roles such as a community education worker.

Greater automation of administrative tasks

As systems move towards the **Future**, there is scope for some administrative tasks to become automated, for example, automated capture of student attendance data, reporting of school management data. As access to technology among households increases, communications with parents regarding student learning progress could also become automated, based on the outcomes of weekly learner review meetings.

School leadership becomes increasingly externally-facing and focuses on enabling teacher professional growth

As teacher capacity increases and teachers increasingly lead their own professional development, the role of school principals becomes increasingly externally facing.

Emerging evidence suggests that where **school principals** focus more on building external connections – for example through activities such as working with parents, developing community relations, going to community meetings, and interacting with outsiders, such as foundations and publishers, to enhance the school's resources – this builds the school's external social capital and is associated with improved teaching and learning.⁵¹

School principals could increasingly look outward to also support other schools, sharing their expertise. The best school principals act as **system leaders** (for example as school network leaders working across a collaboration), providing peer school evaluation, acting as a critical friend and coaching peers in their school improvement journey.



School networks become the means for professional development with robust practitioner research undertaken and the results of the research, as well as expertise, shared across schools

As school and teacher capacity increases, school networks become the engine for improvement, shifting reliance away from external experts. The concept of the professional or learning team expands beyond the individual school, so that the best professionals offer expertise and professional development to other teachers within the network. Schools therefore become the primary site and provider of professional development: as the availability of specialist expertise and instructional leadership within school networks increases, reliance on district level support for off-site training reduces. Professional development occurs through school and school network based professional learning communities (see strengthening paper). This enables direction of pedagogic development to be determined by the contextually specific needs of the learners within those schools.

The school improvement workforce becomes increasingly embedded within schools, and new roles such as school-based system leaders drive effective practice and pioneer change

As in medicine, the best professionals continue to practice locally but also operate as system-level consultants, developing the practice of others. By strengthening professional collaboration, schools lead change and improvement for themselves, for example through collaborative school improvement plans, which set shared objectives across school networks for the inclusive teaching and learning.

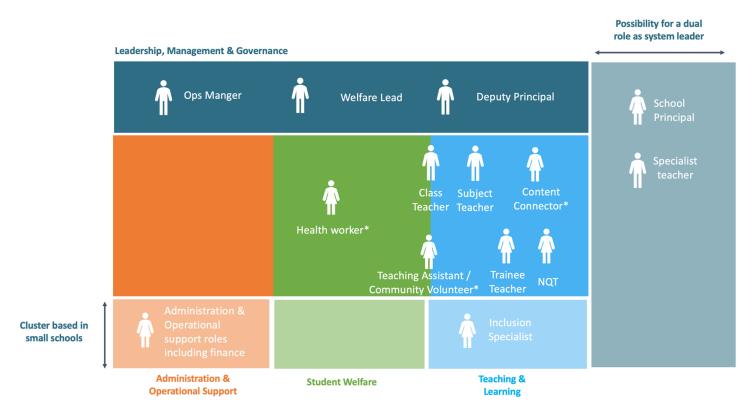
The best subject and pedagogic specialists in schools develop an outreach role, lending their expertise to other schools and providing professional development, leading to new roles such as advanced skills teachers.

School networks become the site of disciplined innovation through robust practitioner research. Teaching and learning teams exchange practitioner insights and collaborative discussions spark ideas for innovation and experimentation to continuously improve teaching and learning. Teaching and learning teams would be provided with the remit, resources and capacity to experiment with these innovative approaches and rigorously monitor their effectiveness. They would be supported by teacher training institutions or intermediary organisations who convene schools and teachers together to solve problems of practice or challenges in the locality.



Figure 9 – Future: Illustrative roles

Note that asterisked roles may be part or fully funded by entities other than the public education sector.



Annex 2 (Figures A5 and A6) outlines more detail for these illustrative roles, including how key functions and activities could be distributed across the school in the **Future**.

Future school level staffing and learning configurations

In the **Future**, it is anticipated that schools in lower and middle-income countries could be able to sustain a Pupil to qualified teacher ratio (PTQR) of 20 at primary and 15 at secondary⁵² (including specialist teachers). Every class of 25-40 students could have a qualified class teacher and there would be a range of subject teachers working across classes and grades (similar to the "mentors and masters" staffing model in Luminar schools). In comparison the **Next** phase, more content could be delivered through technology. Content could also be provided by content connectors. School networks would facilitate greater use of shared resources. Figure A11 in Annex 3 sets out a range of role configurations that might be found in schools in the **Future**.



The district workforce shifts to steward school-based expertise, aligning resources to tackle common challenges and ensuring equitable use of school-network expertise

As school capacity increases, school networks become the engine for professional growth, innovation and improvement, with schools exchanging expertise and support through collaborative networks. Many 'traditional' district functions will therefore be distributed across schools themselves. The district level workforce decreases in size, as school improvement activity is led by schools themselves.

This major shift in workforce capacity and organisation has important implications for the type of workforce needed at other levels of the education system, including district and state level. In highly networked public sector systems, new types of governance arrangements are needed which support these networks to flourish and serve beneficiary needs. A body of work over the last 15 years on collaborative governance and innovation in the public sector has made an important contribution to defining these functions.⁵³ It emphasizes the importance of 'enabling' functions which support high impact collaboration and learning systems, such as innovation leadership, knowledge mobilisation, brokerage services and quality assurance services. This section draws on this body of work to inform the design of a new kind of 'middle tier' or district level workforce.

Functions at the district level shift towards enabling and quality ensuring the work of school networks.

The district office develops a role as 'critical friend' to offer support, expertise and resources across collaborative networks, as well as to advocate for disadvantaged students and their communities. As schools increasingly work in networks, rather than fixed geographical areas, the administrative units supporting school networks may be more fluid than the fixed geographical district area, and reflect other definitions of 'localities' or communities.

New actors or intermediaries may become an important part of local education systems, including players such as not-for-profits, venture philanthropists, and networks of schools.^{54 55} This has implications for workforce design. Firstly, there are many possible role configurations within this landscape of new players. We propose indicative roles, covering the key functions which emerging evidence suggests will create learning systems and drive continuous improvement in student outcomes. Secondly, many of these roles are likely to be fluid: we will increasingly see the emergence of portfolio roles as the gap between practitioners and leaders closes.

Schools will largely lead their own improvement processes, supported by school peer evaluation.

New system leader roles (such as partnership or **school network managers**) will lead this peer school evaluation, which could be role progression for the best local professionals previously in district supervisor or school principal roles. **District leaders** will ensure there are clear protocols and standards for this school peer evaluation process to ensure it is a driver of improved teaching and learning outcomes.

Districts can continue to play a vital role, providing overall direction for area-wide school improvement and aligning efforts to tackle common local barriers to improved teaching and learning.

District leaders and managers will provide collaborative governance frameworks to ensure that shared targets and monitoring are in place to raise local standards of teaching and learning, and close gaps in student performance. School networks may lead the development of their own strategies for improvement, but district leaders will build consensus for area-wide priorities to align resources behind common challenges. District leaders will also be outward looking, forging partnerships with other actors in the system to drive outcomes and foster innovations e.g. with health, employers, private sector and NGOs.



District managers or school network managers can also play a resource brokering role to support the exchange of expertise across networks, so that all teachers and students benefit.

Districts can support strategic resourcing, helping to match supply and demand of expertise across networks, including brokering new school clusters, partnerships and networks to fulfil these needs in the most efficient and equitable way for the locality. They will also address strategic workforce issues, such as school principal succession planning.

As the school improvement workforce becomes more embedded within schools, the district workforce increasingly plays a role in facilitating peer to peer learning. ⁵⁶

Districts will play an important overall **quality assurance role** to ensure teaching standards are raised across the district and that poor practice is not recycled. The best school-based subject specialists and district-based pedagogical coaches from the **Next** stage of reform may take on system leadership roles such as **district subject leads.** In some systems these roles are called **advanced skills teachers** (for example in England) or **mentor teachers**. They provide frameworks for collaboration, such as standards and protocols for teacher peer learning. They will help to connect schools, facilitating learning and the exchange of practice. Importantly, these roles have accountability to their local school but also to the district for area-wide school improvement.

District subject leads will also play a more transformative leadership role by fostering a learning climate where school networks can be the site of disciplined experimentation, collaborative inquiry, and practitioner research, and by overseeing the scaling of innovative practices. Evidence shows that new skills and frameworks are needed to manage this process of inquiry, research and innovation,⁵⁷ and new functions will be required, such as expertise in the management of research and scaling promising innovations.

Policymakers at district level may forge close alliances with intermediary organizations in local education systems.

An intermediary is a "coordinating entity that brings together multiple school leadership teams to tackle common problems and work toward common aims". ⁵⁸ Intermediaries bring new expertise in innovation, new connections (for example to employers and new technologies) and new organizational capabilities in improving student outcomes and life chance. Recent research in the US on successful education innovation - where network models are already being used to raise student outcomes and close the achievement gap – shows that new intermediary organizations act as vital 'stewards of change' to help different players and actors drive better student outcomes. To be impactful, a new body of research suggests that these intermediaries bring new capabilities to local education systems including innovation leadership, knowledge management and partnership brokering.⁵⁹

Specialist expertise for inclusive education should remain a key district function.

Specialists in different areas of student need (such as visual impairment, speech and language therapy, learning disabilities, developmental disabilities etc.) can be identified across the district or beyond, with the district playing a coordinating role to ensure these reach students and teachers who need them. Districts will also build school and teacher capacity to diagnose needs themselves, and to proactively commission support from the district and other schools to meet student needs.

Data analysts will be in high demand. Much of this role will be automated, including complex analysis through machine learning. However, specialist skills in sophisticated analytics will be needed to draw insights about the local causes of underperformance and to explain these to the school workforce. These role holders will also play an important role in continuing to build data literacy at all levels, helping school networks to own data for



continuous school improvement. They will also work with state level teams and other intermediaries to mine data and feed insights into state level planning.

Career pathways are designed into the workforce structure

The detailed activities and functions which these illustrative new workforce roles at district level could carry out are detailed in Annex 2 (Figure A7). Diversification of teacher and school leadership roles at the school level, and alignment to instructional leadership roles at the district level will provide more diverse pathways for career progression for instructional staff, with teachers able to progress either along a managerial track. The career track could be extended beyond the school level to the network, district and state level. Enabling competency-based career progression is an important part of workforce strengthening (see strengthening paper). Figure 10 illustrates a possible career progression structure at the school level and into district or system leadership roles.

Figure 10: Career progression structure based on roles at the school and district level



System Leaders

New skills and competencies become important in a networked system, including collaborative leadership and skills in innovation management

Evidence shows that new skills and competencies become critical for success in highly networked and collaborative environments. ⁶⁰ Figure A8 in Annex 2 outlines some of the skills and competencies which would be required for high performance in the new proposed workforce roles.

Promoting an R&D culture and workforce professionalism at the state level

At state level, the boundaries between school, district and state workforce become more fluid, with the best school leaders contributing to state level functions as consultants or advisers, with career pathways into civil service roles.

At state level, officials would encourage the development of a research and development culture to transform learning outcomes, providing leadership for the experimentation and innovation expected at



school level. State research policy will use schools as the test site for robust investigations into ways of improving learning, collaborating with teacher training institutions as well as other sectors such as health and social services. At state level, universities and colleges could also build capacity in the science of learning, collaborating with other disciplines (such as neuroscience, organizational psychology and others) to build the evidence base for what works in classrooms. Local, national and international research findings would be mediated for practitioners. Policy would be informed by feedback and innovations from the frontline, lessons from robust national and international research, and the analysis of state-wide data sets. Insights from large data sets would be assisted through new technologies such machine learning. The state may need an explicit approach to build new capabilities in service design and innovation to lead this research and development culture.

The state would continue to play a role in setting professional standards for roles across the education workforce and encouraging evidence-informed professionalism. It would identify bright spots of high impact teaching and leadership across different districts and enable the codification of promising practice, to continuously drive up professional standards and aspirations.

The ability to partner- for greater education impact, resources and influence - will be a critical Future capability at the state level, as the education landscape becomes more complex and as innovations arise from different sectors and new thinkers. This includes greater cross-sectoral planning. The state level workforce will need to connect across government to partner with the health, social services and other sectors to develop policy solutions that enable inclusive student learning. It also includes alliances with other actors and innovators. Evidence from Brookings' *Millions Learning* report⁶¹ identifies education alliances as a critical factor in scaling education interventions in the **Future**. States should build the institutional and leadership capacity needed to govern partnerships for impact – such as commissioning, brokering, risk sharing- learning from recent analysis of innovative partnerships which have transformed learning outcomes, such as STIR Education's partnership with the Delhi government.⁶²

"Social change depends on alliances between what could be called the 'bees' and the 'trees'. The bees are the small organisations, individuals and groups who have the new ideas, and are mobile, quick and able to cross-pollinate. The trees are the big organisations – governments, companies or big NGOs - which are poor at creativity but generally good at implementation." ⁶³

In the Future there could be a shift from policy cascade to a lively public discourse about education transformation. The state could encourage a lively public discourse about school education through engagement both with the workforce and the media, civil society, business and parents, seeking to build a coalition for school transformation. Learning from high performing and rapidly improving systems, teaching would be promoted state-wide to **Future** teachers as one of the most important and respected professions.

There would be a shift to data analytics and behavioural insights – open data, the sharing economy. The state would increasingly need to build capacity in data analytics, to harness the power of big data to solve education issues. In some countries, new approaches such as behavioural insights are already being used to resolve education challenges.



Key Considerations for Policymakers

To meet SDG4, policymakers are being challenged to improve teaching and learning quality at an unprecedented pace. The education workforce roles proposed in this paper are designed specifically to deliver this goal and address equity and inclusion, based on the best available evidence on the workforce functions which can best respond to the learning needs of students in this century. The new design also seeks to address some of the current challenges identified by policymakers although recognises that reforms to strengthen the workforce are also needed, as well as those that help address system constraints and the political economy. The models also aim to improve the efficiency and effectiveness of education systems while allowing members of the education workforce more opportunities to grow professionally, to support education systems to leverage existing resources for change.

Every system has a unique context and will face different workforce opportunities and challenges. The workforce models proposed are therefore illustrative and are presented with a few caveats: 1) we do *not* believe there is one right model for an education workforce. Rather, we hope these models provide education systems with options for reform, and an opportunity to consider alternative approaches to their own workforce design; 2) we know that there are a range of roles that currently exist in education systems (i.e. teachers, supervisors, principals) and many of these roles will remain the same in some cases but in other contexts, the competencies required may need to change or the roles need to be implemented effectively; 3) any suggestions provided should not be viewed as an indication of the absence of such roles in some education workforce systems in different parts of the world.

To help policymakers make consider education workforce reform in their context, this section offers some guiding principles and key considerations for workforce reform. Policymakers may wish to use these principles and questions as a starting point to work through the process of evaluating their system needs and considering options that make optimum impact in their local context.

Underlying principles for workforce re-design

Below are key design principles which emerge from the evidence on effective education workforce re-design and our experience of applying it in this paper.

Design the workforce around learner outcomes	→	Structure the workforce around action needed to maximize learner outcomes , and which recognizes the diversity of students' learning needs Ensure there is explicit integration of equity and inclusion into the design and composition of the workforce roles at all levels, making equitable resource management and practices central to role design and competencies
2. Design workforce structure, skills and culture based on drivers of professional and	→→	Create a collaborative workforce with professional learning teams at all levels of the system, where teachers are supported by specialist staff within and beyond the school. Encourage use of evidence , data, innovation, reflection, and adaption

system-wide change	→ Design leadership roles and team configurations which build a culture of professional trust, shared responsibility and collective efficacy— the 'softer' elements of design are as important as the 'hard' wiring of structures and roles
	 Design structures which promote accountability and professional challenge, as well as support
	→ Design career pathways which motivate and retain professionals, including progression routes between school, district and state level roles
3. Design the workforce using robust data to inform feasibility and affordability	 → Acknowledge the resources available and the current capacities and capabilities in the system. Offset significant investment costs by building on existing strengths and structures and create a clear and manageable implementation road map. Ensure workforce design is based on evidence and data on the current workforce challenges and opportunities to inform feasibility and to ensure contextually appropriate solutions. Data is often lacking for roles beyond teachers, so put in place plans to collect new workforce data where required e.g. Future on workforce composition, levels of motivation → Reforms should be informed by a combination of local and international evidence of what works in that context

Key considerations for policymakers

Below we share a range of key considerations for policymakers to take into account as they move through their own workforce re-design process.

		Questions for consideration
1.	Take into account cultural, social, equity, and political	 → What are the needs of the education sector plan? What are the key functions needed to deliver those goals? → What is the size, scale and capacity of the state and district system? This includes distance (catchment size), connectivity (geographical and technological)? The larger the scale, the more scope there is to design
considerations		specialized roles. In smaller jurisdictions, there may need to be collaboration across districts to provide specialist support. Where there are remote areas, ratios of face-to-face staff may need to be higher as each role holder will have a smaller case load to allow time for travel.
		→ What is the language mix of the workforce? For example, this has implications for learner needs, and wider implications such as how teachers may use technology.
		 → What is the gender balance and diversity of the workforce? Which groups are underrepresented and at different levels of seniority? How will proposed reforms impact on gender equity and representation of minority groups? → What is the level of complexity of middle tier structures e.g. regional, district,
		 cluster and even smaller units of organization. → What is the cultural and political status of workforce roles? For example, school principal roles may be highly valued as outward facing community

	leaders, with no appetite for instructional leadership; investment in instructional leadership may be more impactful in Deputy Principals or Supervisor roles.
2. Be respectful of the maturity of the system and the pace of change desired	 → What are the current binding constraints or inefficiencies in the workforce model which affect education outcomes? For example, if a major limiting factor is the lack of mother tongue teachers to support foundational learning, then more investment in local Learning Assistants may be prioritized. If closing within-district achievement gaps is a major priority, then investment in data analysts and district managers may be prioritized. → What is the current capacity of the workforce – what is manageable vis a vis the pace of change desired? For example, if there is already a system or institutions for local in-service teacher training, the move to pedagogical coaching may be a manageable incremental step for the system. For other systems, the introduction of coaches may require a major workforce investment. Where capacity is lower, additional quality assurance and management may need to be considered, such as additional lead pedagogical coaches. → How decentralized are workforce accountabilities? The more decentralized the system, the more technical skills and accountabilities will need to be designed into workforce roles at school and district level. If the system is highly centralized and school principals have limited managerial authority to take school improvement action, then investment in Pedagogical Coaches may be a wiser investment than in Supervisors. → How can policymakers take a long-term view? Introducing new ways of recruiting teachers with the right dispositions and skills will take several years before it impacts student outcomes, and many years before they are consistent across a country.
3. Embed systems thinking into workforce re-design	 → How can workforce initiatives be aligned across system levels? For example, efforts to improve pedagogical coaching at district level will struggle if a culture of coaching and trust is not cultivated and modelled by leaders at state level. → What interdependencies might there be between workforce reforms and other policy initiatives including wider reforms across the workforce lifecycle? For example if pedagogical coaches are promoting particular teaching standards, are inspectors and supervisors using these in their accountability frameworks to send consistent messages to teachers? → Are the right systems in place to support the success of workforce roles? For example, if supervisors have a role in supporting school performance review,



	what systems are in place to ensure the review system is effective, such as incentives for performance?
	→ What wider policy choices are relevant to workforce reforms? For example,
	if a strong national or state level inspectorate is desired, this will impact on the priorities of the Supervisor role.
	→ How can workforce reforms benefit from cross-sectoral working?
3. Be mindful that a	→ What success measures and evaluation processes can be put in place for
workforce design	new initiatives to generate new local evidence on what works?
exercise is about	→ What are the key skills, behaviors and culture needed to make the
people and	workforce design successful? These should also be defined alongside new
change at scale,	roles.
not drawing new organisational charts	→ How can key roles be designed as champions for change? Workforce redesign brings opportunities to establish key roles, such as pedagogical coaches, as champions for change who can influence and motivate colleagues to work in new ways which have more impact on learning outcomes.
	→ How can policymakers build on bright spots in the system and existing strengths? For example, some localities have very high existing levels of parental engagement which could be leveraged to recruit community volunteers.



Annex 1 – Extended evidence review: what we know works to improve access, learning, equity and inclusion

This annex explores evidence of the impact of the education workforce on global education goals by looking at the functions necessary for access, learning, equity, and inclusion at different levels in the system. It explores evidence on teachers who are at the heart of the learning process but also other roles that are important for supporting, leading, and managing teaching and learning to achieve SDG 4. This evidence was used to inform and shape the design of the workforce proposed in the Next and Future visions, recognizing that further research is needed in most areas.

Classroom functions critical to access, learning, equity and inclusion

The most effective interventions to improve student learning rely on teachers. Evidence shows that teachers who can improve student outcomes have good subject and pedagogical knowledge and the skills and motivation to ensure all students can learn.⁶⁴ They are able to support learners from diverse backgrounds and with special needs, are aware of standards of professional knowledge and practice, and know how to effectively assess student learning.⁶⁵ There is moderate evidence that teacher management of the classroom and its climate – e.g. teachers' expectations around behavior and effort, and teachers' abilities to make efficient use of time, resources and space – has an impact on student outcomes.⁶⁶

The most effective interventions to improve outcomes for those furthest behind rely on approaches to strengthen teaching.

Where education workforce capacity and support are low and students' foundational skills are not well established, teachers often struggle to fulfil the critical classroom functions. In those cases, support for assessment, instructional guidelines, technology targeting foundational skills, and differentiated teaching roles have played an important part in helping to ensure core functions are met to improve learning outcomes.

Training teachers to conduct formative and ongoing assessment in support of differentiated teaching can be very impactful. ⁶⁷ Helping teachers better understand their students' abilities and knowledge level can help them target teaching at student level. In Liberia and Malawi, interventions that supported teachers to better evaluate their students were effective, especially when combined with training and additional materials. ⁶⁸ And in Singapore, screening tests are administered at the beginning of grade 1, and those who are identified as behind in reading receive additional support daily. ⁶⁹ However, teachers must have the tools and capacity to respond effectively based on the feedback and the motivation to do so given that teaching students at multiple levels is challenging.

Where teaching capacity is very low, instructional guidelines can be effective in supporting teachers to improve classroom practice and inclusion strategies. These can be in the form of videos or simplified, structured lessons and work best when they are not overly scripted or too prescriptive. Teachers in English In Action (EIA) in Bangladesh were guided by short videos of simple teaching techniques, available on their mobile phones, and supported by reflecting and sharing with peers. After a year, students' ability to communicate using a basic level of English rose from 36 to 70 percent. In Ethiopia inclusive multi-media lesson plans with explicit scripted instructional accommodations delivered via apps on smartphones successfully changed

teachers' foundational classroom practices aimed at including students with visual and hearing impairment.⁷¹ The role of a teacher in these instances is quite different to those in contexts where foundational skills are established and teacher capacity is highly developed. This should be a temporary measure used only when teaching capacity is very low and alternative support is not available; otherwise, this type of intervention could serve to undermine the continued professionalization of teachers.

Technology can support teachers to deliver critical interventions when used appropriately. While evidence on computer-assisted instruction is inconclusive, in some cases new technologies offer promising ways to support teaching at the right level. In urban India the Mindspark program, a technology-aided after-school program in middle-school grades provides students with personalized instruction. It uses both an **adaptive computer-assisted learning** software with a set of games, videos, and activities that pull from a database of over 45,000 questions to test students and provide explanations and feedback. A key feature of the software is its ability to use data to identify the learning level of every student, deliver customized content targeted at this level, and dynamically adjust to the student's progress. The program also includes small group instruction, during which teaching assistants cover core concepts that were not customized to each student's learning level. The program improved performance in both math and Hindi across multiple grade levels. Where teacher-pupil ratios are high and it is difficult for teachers to provide students with personalized instruction, this type of technology can help provide additional support for teaching at the right level to individual students.

Differentiated teaching roles have emerged alongside classroom teachers to support teaching and learning, especially in low capacity contexts. Examples from around the world exist of professionals and semi-professionals working alongside teachers in strategic interventions known to improve outcomes, such as remedial education focusing on foundational skills and teaching at the right level. These have included education community workers, learning support staff, specialist staff or health and welfare staff.

- Community workers. In Ghana, the Teacher Community Assistant Initiative (TCAI) utilized local high school graduates as community assistants (through the existing National Youth Employment Program) to lead in- and after-school remedial classes for small groups of students in primary school with significantly improved skills in literacy and numeracy on average. A teacher-led treatment to teach at the right level was also a component of this initiative and the combination of teacher-led intervention and community assistant provision resulted in the highest learning gains.⁷³ Similarly, Pratham's Balsakhis Program in India hired tutors from the community with at least a secondary education to take children in 3rd and 4th grade who had not achieved basic competencies in reading and arithmetic out of the regular classroom and provide instruction that followed a special curriculum tailored to the students' current level of learning. The program showed gains in learning for the most marginalized children.⁷⁴ A similar program run by the Naandi Foundation in India recruited local community volunteers with at least a 10th grade education to provide remedial education for two hours a day after school to children in a randomly selected set of villages. The content covered that of the curriculum and was tailored to students' learning.⁷⁵
- Learning support staff. In a review of literature on learning support staff, the Organisation for Economic Cooperation and Development (OECD) concluded that these roles can have a positive impact on student achievement through both direct and indirect channels. From freeing time for teachers to focus on teaching to providing individualized learning support for students to facilitating inclusion. Learning support staff can be used in schools to reduce teachers' non-teaching workload, thus freeing time for teachers to focus on teaching tasks. By undertaking some routine duties and administrative tasks (e.g. prepare lessons and materials or take attendance) as well as assist with classroom and behavior management responsibilities, learning support staff can enable teachers to concentrate on the tasks



they are more skilled for or specialists in, which contributes to a more effective use of human resources in schools and to a reduction in the amount of time teachers dedicate to non-teaching tasks.⁷⁶ In one study from England and Wales, teachers reported positive views about the direct contribution of support staff to student learning and behavior, nothing that their presence can provide students with greater opportunities for individualized attention and differentiated learning support and improved attitudes and motivation to learn.77 Although the evidence is limited, teaching assistants that provide general administrative or classroom support do not show impact on academic achievement on average, but where teaching assistants support individual pupils or small groups using a specified approach they have been trained to deliver there are positive benefits.⁷⁸ The OECD review also suggests that learning support staff can contribute to inclusion, ensuring that all students- no matter their circumstances- are able to participate in the experience of schooling with equal opportunities.⁷⁹ One study undertaken on an inclusive education program for children with disabilities in Zimbabwe⁸⁰ showed that one of the key factors to the project's progress was the engagement and retention of classroom assistants in schools. Classroom assistants were seen as an additional resource for schools in supporting children with disabilities and for teachers in helping them with the extra needs of the class. Results showed a positive trend of teachers and headteachers gaining additional confidence in their knowledge, attitudes and practices around inclusion of students with disabilities.81

Complementary roles have been shown to support improved outcomes where teachers are overwhelmed with complex instructional roles or expected to take on additional non-instructional responsibilities.

- Specialist teachers. Specially trained teachers have a crucial role to play in supporting inclusion in mainstream classrooms. For example, they can support students with special needs by offering individualized attention in the classroom and provide practical advice to classroom teachers on educational inclusion strategies. This could include different types of guidance ranging from providing suggestions on the best position for a child in the classroom to transcribing tests from Braille into text to sharing information on basic eye health.⁸²
- Health and welfare staff. Students' relationships with their teachers in the school environment are consistently predictive of a broad range of health and well-being outcomes.⁸³ However, teachers often have heavy workloads and diverse responsibilities and are incentivized to prioritize work directly related to core school functions. Moreover, several research articles have highlighted incongruence between the power imbalance within a teacher–student relationship and the dynamics required to address health and well-being-related issues, with staff other than classroom teachers, such as school nurses, potentially playing important roles in connecting students to their school and supporting well-being.⁸⁴
- Volunteer mentors. The Making Ghana Girls Great program includes after school Wonder Woman clubs with life skills such as financial literacy, gender norms, and interviews with local role models. Camfed's Learner Guides (see Case Study 1) young women mentors from the community- deliver specialized curricula, including a life skills and wellbeing program. Learner Guides help children (girls and boys) build their confidence, learn more effectively and set goals. In Malawi, where HIV/AIDS has had a particularly devastating effect, and taboos often prevent girls from learning about their bodies, Learner Guides provide vital sexual reproductive health information, working to prevent HIV/ AIDS and keep girls safe from exploitation.⁸⁵

Where there is a lack of qualified teachers or providing access is difficult, alternative models of delivery have proven successful. Leveraging differentiated teaching roles and a wider range of stakeholders supported by technology can help reach the most marginalized.

Several case studies illustrate this, including the Amazonas Media Center initiative in Brazil, the JAAGO program in Bangladesh, the Sistema de Aprendizaje Tutorial model in Central and South America, and the Making Ghana Girls Great program in Ghana, with all demonstrating improved learning outcomes.

The Amazonas Media Center initiative in Brazil is a model of secondary school that "aims to address the disparity in education access between Amazonas' urban and rural areas using videoconferencing technology to broadcast lessons live via satellite television from a Media Center studio in Manaus, Amazonas'

capital city, to up to 1,000 classrooms, with 5 to 25 students each, located throughout the riverside communities. Amazon's cornerstone innovation of the Media Center's model is its bidirectional interactivity, where students not only view lectures from the teacher in the studio, but their interventions are streamed as well. Teachers have two roles: As specialized 'lecturing teachers' located in the studio, and as generalist 'tutoring teachers' on-site. one classroom. The studio teachers are free to develop their own lesson plans—within state guidelines-and the tutoring teacher helps students pay attention and provide assistance with difficult parts of the classwork, which is aligned with the national curriculum but adapted to the local context and taught on a block schedule."86

The JAAGO program (see Case Study 2) is an example of a program that mobilizes a wide range of adult stakeholders to support the delivery of education for students in the most remote districts. Recent graduates, local moderators, psychologists, and internet companies as well as corporate entities all work together to support and deliver education.

Case Study 1: Use of volunteer support staff from the local community to support inclusivity and welfare

Campaign for Female Education, Camfed, is an NGO supporting girls' access to, and retention in, education. Camfed uses Learner Guides, or female peer mentors, to provide pastoral support to marginalized girls in rural secondary schools in Africa.

Unlike teachers posted from outside the area, learning guides are local volunteers with experience of poverty challenges. They act as a missing link between school and community, especially on health and welfare issues. As insiders, they can build trust and offer psycho-social support.

In schools Learner Guides lead in-school sessions in an innovative pastoral curriculum materials. Sessions cover self-esteem, financial literacy relationships and acknowledge barriers beyond school. Boys are also involved in some sessions.

Evaluation shows increased confidence and questioning of gender norms for boys and girls and retention and engagement for marginalized girls. Pupils in participating schools demonstrated increased in their math and English scores.

In return for 18 months' support in school, volunteer guides receive a package of social benefits and have a chance to learn through resources linked to a vocational BTEC certificate, potentially a route to teacher training.



An example at the secondary level is the **Sistema de Aprendizaje Tutorial** (SAT) model in Central and South America which utilizes **tutors** to offer an alternative secondary school experience for students in remote regions who are economically disadvantaged. Students are able to stay in their communities and continue with their livelihood activities while studying a specific curriculum that is flexible and relevant to their needs and is supported by tutors who stay with the same students for six years. Tutors are positioned as co-learners with their students and their job is not confined to guiding the learning process—tutors are expected to learn

Case Study 2: Utilizing a diversified team supported by technology to deliver education in remote areas

JAAGO, a Bangladesh-based NGO provides quality teaching to a group of 12 remote online schools (3000 pupils) in 12 districts out of the Dhaka teacher center. The aim is to improve access to quality teaching for the poorest children in the most remote districts at free JAAGO funded schools. Video lessons are led by English speaking graduates with at least one-year teaching experience in collaboration with **local class moderators**.

Local class moderators must have a higher secondary degree and some teaching experience in a formal or non-formal setting and basic understanding of English. They facilitate group work and class management and are ready to take over if there is a connectivity problem. The professional development package for moderators covers training on conducting primary classes using digital content and tools, induction and preparation time to go through the syllabus. Quality monitoring is through supervision, visits and software to observe classes.

Learners with multiple deprivations receive lessons in purpose-built technology equipped classrooms. Families receive **community officer** support and central expertise includes a **psychologist** to support learning difficulties and poverty related issues of violence and early marriage. A local project officer provides **operational IT support.** Evaluations show that from a low base, 100% of those attending JAAGO primary schools passed and at junior high 93%.

alongside their students and engage them in a variety of practical learning projects in the community to help build a bridge between theory and practice. Children in SAT villages in Honduras had test scores 45 percent better than children in neighbouring government rural schools.⁸⁷

The *Making Ghana Girls Great* (MGCubed, see Case Study 3) initiative leverages the skills of **specialist teachers** who broadcast literacy and numeracy lessons to rural schools where **class teachers** facilitate the remedial lesson together with a life skills program. This helps the local teachers improve their teaching, provides a way of addressing the challenges of expert teacher shortages and teacher absenteeism while promoting girls' education in remote districts.

While there is little evidence on the changing role of the teacher, there is a move toward greater involvement

of students in their learning which suggests it will be important for the teacher to take on a more nuanced role, including acting as a facilitator. Technology will also increasingly exert a greater influence on learning and teachers will need to integrate not only new tools but new models of learning into their teaching practice.

One of the most well- known alternative models of schooling is the Escuela Nueva model from Colombia which uses **multi-grade classrooms and shifts in the role of teachers** to support instruction at the right level. Students of different ages learn together through group discussions and projects which has the teacher taking on a **facilitator role**. Students work at their own pace, showing that they can have agency over their learning and can be at the center of the learning process. The use of demonstration schools in the Escuela Nueva model enables teachers to see and experience innovations complemented by peer coaching from the demonstration schools.

At the Lumiar Institute in Brazil, there are no "traditional teachers" – instead, one half of the **pedagogical staff work as advisors, mentors, and coaches**, monitoring the students' progress and supporting them to select three or four projects that they work on every term. The other half of the staff are 'masters' of a particular set of skills, such as engineering, who work part-time designing and facilitating projects that equip students with these skills.⁸⁸

Increasingly we are seeing digital tools that foster and enable greater collaboration, knowledge sharing, and data collection and analysis. Already within learning spaces, "when implemented systematically, technology has been shown to support a wide range of educational innovations including tailored instruction (see Mindspark example above), inverted classrooms, and peer-to-peer teaching."89 The African School for Excellence serving low-income families in South Africa, operates a "rotational" model in their classrooms students rotate between teacher-facilitated lessons, small group peer learning activities, and individual work on computers. This model places the teacher in the role of the

Case Study 3: Technology enabled sharing of expert teachers across multiple school sites

From a studio in Accra, the Making Ghana Girls Great (MGCubed) program delivers quality distance-learning video lessons to marginalized girls in 88 rural schools in the most deprived communities. Using satellite digital technology, the literacy and numeracy lessons are delivered by **expert teachers** in Accra and supported in the rural classrooms by **trained local facilitators**, often the class teachers. **Local technical officers** support connectivity challenges. The facilitators lead remedial tuition in numeracy and literacy either in or after school according to local teacher shortages and needs.

Harnessing the expertise of master teachers and combining that with the training of high school graduates as facilitators in a context of high unemployment and early marriage provides new status and a professional pathway. The facilitators reinforce positive attitudes and are closely involved with the school committees. An unintended consequence of the training and lesson observations has been the impact on the professional development of teachers in the schools and wider area. For example, teachers leading training for other colleagues and developing reading resources for whole school literacy. Districts have also used the materials for wider in-service training and shared sessions on monitoring data and child safety.

External evaluations show improvements in English and Math scores, with Math as especially significant, and out-of-school rates reduced

facilitator supported by technology. To date, there hasn't been serious consideration of the way technology might fundamentally change the role of the teacher.

School functions critical for access, learning, equity, and inclusion

Strong school-level leadership can facilitate teacher learning for improved student outcomes.

Research suggests that school leadership can greatly influence student achievement⁹¹ with 60 percent of learner impact due to combined teacher and principal effectiveness.⁹² International evidence suggests that that improvement at school-level rarely occurs in the absence of effective leadership and that school leadership accounts for up to 27 per cent of variation in students' learning achievement, second only to classroom teaching.⁹³ A study of headmasters in India and several other countries found that a one point increase on scoring of school management practices was associated with around a ten percent increase in student performance.⁹⁴ Results from research that has estimated individual principals' contributions to growth in student achievement indicated that highly effective principals raise the achievement of a typical student by between two and seven months of learning in a single school year; ineffective principals lower achievement by the same amount.⁹⁵

A review of school leadership policies and practices by UNESCO concluded that leaders are now expected to be more than good managers and administrators—effective school leadership that can provide instructional guidance and foster continuous improvement is the key to successful, large-scale and sustainable education reform. This happens most powerfully when leaders support a culture of teacher learning and motivation. The school is a support a culture of teacher learning and motivation.

School leaders are most effective when they have sufficient autonomy and support in decision making, dedicate time to instructional leadership, and create a culture of collaboration and shared responsibility. This can include supporting teacher professional development through mentoring and coaching as well as facilitating peer learning, ensuring that teachers do not work in isolation from one another but work collaboratively to facilitate improvement in instructional practices and encourage a focus on shared goals. 101

One example of an alternative model to school leadership that allows for a focus on instruction is the Promoting Equality in Africa Schools (PEAS) schools in Uganda which have **split administrative and instructional leadership into two distinct roles**—a school director and a head teacher. The head teacher oversees teaching and learning, which includes Continuous Professional Development (CPD), monitoring learning progress, managing learning resources, timetabling, student discipline and child protection. The head teacher reports to the school director who has responsibility for the School Improvement Plan and mediates between the school and the community, managing both the Parent Teacher Association (PTA) and the Governors. Relative to other private and public schools, management in PEAS schools is good, resulting improved student outcomes.¹⁰²

The **school-based mentor role** implemented in Rwanda involves specialist teachers acting as pedagogic advisers working within or across schools to mentor teachers with the aim of improving teachers' knowledge of English and pedagogical classroom practices. Despite some challenges around stakeholder buy-in such as school administrators not providing time in the daily schedule for mentors to meet with teachers, the mentors were viewed positively by teachers. In addition to improving the English proficiency of teachers, the learner-based approaches that these mentors introduced also contributed to the improvement of students' literacy and proficiency levels with parents noting the changes in literacy skills they observed in their children.¹⁰³

School clusters can facilitate sharing of professional knowledge, especially in rural areas, and strengthen school leadership for improved performance.

In addition to school leadership, **collaboration between schools** has been shown to improve low performing schools when structured meaningfully.¹⁰⁴ Supporting new leaders, distributing innovation, transferring professional knowledge more readily, and greater efficiency in the use of resources have been identified as key benefits of school clusters.¹⁰⁵ In Ethiopia, clusters supported by cluster resource centers have increased teacher motivation and improved practices.¹⁰⁶ Particularly in rural areas, school clusters can support the sharing of pedagogical innovations and good practice where traditional teaching and learning methods are not generally adapted to the context. The Escuela Nueva model, which started with rural schools in Colombia, supports groups of teachers to meet regularly to share innovations and work together on projects. Pedagogical leadership and supervision at the cluster level allows for close-to-school support, where a supervisor can have a more inside view of the issues faced by cluster teachers and head teachers than a district or regional supervisor might.¹⁰⁷

In Kenya, India and Rwanda, the Education Development Trust has been strengthening school leadership using an approach that identifies high performing school principals in a locality and supports them to drive improvement in other local schools, in addition their own. In proof of concept pilots in Kenya and India, there have been rapid and statistically significant improvements in the leadership competence of mentors and their



ability to give quality feedback. Teaching quality in the mentees' schools also increased by 20%, based on a standardized teaching quality instrument¹, and school leaders reported substantial changes at their schools in relation to their school improvement priority supported by evidence.

Peer learning can spread best practices and improve motivation among teachers. Evidence from Japan and Canada supports the assertion that exchange of practice among teachers in a school is a core strategy in high-performing systems. ¹⁰⁸ Professional learning communities of teachers that reflect on students' work and data on students are linked to school improvement and also contribute to increasing a sense of agency and development of trust among teachers. ¹⁰⁹

District functions critical to access, learning, equity, and inclusion

There is very little comparative evidence on the role of the district on learning outcomes in low income countries, this could be because core district level functions - such as teacher training and school improvement – are often delivered through programs led by other actors such as NGOs, donors and private sector organizations, understanding the evidence from these effective programmes does provide some useful insight however. Studies from high income contexts show that districts can play a transformational role in inclusion and improving school and teaching and learning quality¹¹⁰ so investing in the district level of the workforce - the layer that supports teachers – could be very powerful. Districts can be leveraged to facilitate collaboration, provide instructional leadership and specialist support, and promote better use of data, especially for addressing inequalities.

The district was identified as a key driver of the success behind the English in Action program in Bangladesh¹¹¹ which focused on **facilitating collaboration between teachers and district staff for instructional support**. Collaboration with district staff (Upazila staff) and other education officers not only strengthened learning outcomes at the classroom level but improved technical skills at the district level. Upazila staff and teacher facilitators (high performing teachers selected to support teachers and lead cluster level sessions) working together to support teachers at the cluster level through meetings and forums was a particularly powerful exchange and cultivated a new sense of understanding and value between school and Upazila level actors. In the STIR model, giving district level officials the time and ability to conduct **developmental classroom observations** of teachers in between network meetings led to the rate of teacher classroom practice change doubling and in some cases tripling across 70 districts.¹¹²

Curriculum support officers in Kenya's TUSOME program make regular classroom visits using tablets to provide instruction support and upload data on student reading progress and teacher practice, this allows district offices to generate an aggregate picture of their progress compared with other districts, as well as comparative data on their own schools. This is a degree of classroom-level monitoring, support and data collection that is unprecedented in Kenya, and is a shift in prevailing norms under which teachers and education officials typically work in Sub-Saharan Africa. In a coaching pilot study in South Africa, classroom observations show that teachers in two coaching groups (one assigned to receive on-site coaching and the other to receive virtual coaching) were more likely to keep on track with structured lesson plans than the comparison group and were also more likely to meet with their 'head of department' in their school on a regular basis, suggesting that the existence of a **pedagogical coach** (whether on-site or virtual) prompts in-school mentors – who themselves are often busy – to provide more regular follow-up. Both interventions also resulted in strong, significant increases in learning.¹¹³ In Education Development Trust's "Let All Girls Succeed" program in Kenya, in which coaching in primary schools was a key component, a 0.53SD improvement in girls' learning outcomes was found over and above a control group.¹¹⁴



In an evaluation of STIR's work the **dispositions and competencies** of the district level workforce was found to be critical to motivating teachers to improve their practice, including their ability to challenge the status quo, provide skilled feedback and coaching, and to foster a learning culture.¹¹⁵

In some cases, the district has been able to help schools **identify the most struggling students**, as was done in a recent reform in Rio de Janeiro: "Data was analyzed at every level of the system down to individual students. 28,000 individual students in Grades 4–6 were identified as being "at risk" in terms of their literacy and a highly successful catch-up program was put in place." ¹¹⁶ Specialist roles at the district level can also provide support for inclusion. In Uganda Sightsavers supports the training of itinerant teachers (one type of specialist teacher) who teachers perform a range of functions, from identifying children with disabilities who are not in school to teaching Braille to students with vision impairment.¹¹⁷

District roles such as **supervisors** can also improve teaching and learning outcomes. A recent rigorous evidence review suggests that the process can be effective when supervisors undertake specific functions such as: supporting school self-evaluation, building school capacity and ensuring schools have access to improvement resources, and providing feedback in a respectful and constructive manner¹¹⁸.

State functions critical to access, learning, equity, and inclusion

Although state level roles are beyond the scope of this paper, a growing body of research exists relating to civil service effectiveness and reform and highlights areas for state level action. There is concern about overly technocratic approaches to education delivery, and the need for **institutional capacity in change leadership and adaptive policy making** which responds in an agile way to the complexities of implementation. ¹¹⁹ Evidence shows that rapid improvements in teaching and learning quality, and in closing the achievement gap for marginalized students, are almost always achieved where there is clear change leadership. To shift from bureaucratic administration towards the development of management relationships that are coherent for learning and to be able to support large-scale instructional change, states need to conduct rapid cycles of planning, action, reflection, and revision. Crouch and DeStefano (2017) identified three core functions that education systems must operationalize to make this happen: 1) setting and communicating expectations, 2) monitoring and guaranteeing accountability for meeting those expectations, and 3) intervening to ensure the support needed to assist students and schools that are struggling. ¹²⁰

Additionally, there is a need to **improve policymakers' use of evidence** and capacity to mediate research findings for busy frontline practitioners. Emerging evidence suggests that rapid school improvement requires a strong feedback loop from the frontline – through data, insights, consultation - on what is working and why. This means policymakers must move beyond data consumption to strategic data use which entails understanding what data is available, interpreting it and linking to the where it can be leveraged in the system.

New evidence also demonstrates the criticality of **partnership and coalition-building** for successful education reforms - in jurisdictions as diverse as Ho Chi Minh City in Vietnam, London in the UK and Rio de Janeiro in Brazil - which have closed the gap in student achievement.¹²⁴

System functions critical to access and learning and equity and inclusion

In strong education systems, the elements, actors and relationships at all levels align with a coherent, shared vision to enhance the learning experiences and outcomes of all students. The strength of a system depends not only on the effectiveness of individual elements and actors within it but on the fundamental interplay among these elements and the accountability relationships that exist between. There is no "one-size-fits-all" model

for the system level– each system starts from a different point, faces different expectations, and operates in different social and political contexts.¹²⁷

Lessons from other public service systems and emerging evidence from education suggest that a team-based approach at all levels of the system supported by networks could improve delivery and outcomes at scale.

The health sector has responded to the increasing complexity and specialization of medical care, global workforce shortages, increases in disease, aging populations as well as financing constraints, with a multidisciplinary team-based approach (also known as interprofessional team models). In health care it is generally believed that collaboration yields better health services¹²⁸ and researchers have found that teamwork in the health sector actually does reduce the number of medical errors and increases patient safety. 129 Health provides an example of how a multi-disciplinary team-based approach underpinned by skill analysis to enable task shifting and in some cases role creation can lead to more efficient use of available human resources in public service delivery. For example, a rural health clinic

Box A1: An innovative school network to support a skilled system

New Tech Network (NTN) is a 20 -year- old network of schools in the United States that adheres to a highly defined school model. The aim of the network is to create a community of learning, in which teachers are connected to a wider educator community that spans geography and institutional structures.

NTN's pedagogical approach uses big blocks of time and teamtaught classes to create the conditions for teacher collaboration. Teachers also use collaborative protocols to provide constructive feedback, and share the leadership of the learning community with their student

Not surprisingly, NTN leverages technology extensively for learning. Students access a learning management platform designed to support personalized, project-based learning and can direct their learning without the need for teacher-to-class instruction. Teachers also benefit from the platform, gaining access to an extensive library of course resources, exemplar projects, project plans, assignments and instructional resources, all of which they can adapt. Students and teachers can track progress on this platform with teachers able to make targeted interventions for groups of students or single individuals. The platform also allows schools to more easily exchange best practices, collaborate in real time, connect and share projects, and develop cross-school projects for students.

NTN schools consistently outperform national comparison groups in key achievement indicators, including graduation rates and college persistence as well as higher order thinking skills.

might employ a nurse practitioner or physician assistant with expanded responsibilities and other certified roles, such as a certified nurse-midwife available at least 50 percent of the time the clinic operates, and a health extension or mobile health worker to support additional need.

Evidence from the health sector suggests that enablers of interprofessional and collaborative practice include at the team level- members' knowledge of one another's roles; the scope of practice; mutual trust and respect amongst the team members; commitment in building relationships; willingness to cooperate and collaborate and at an organizational level; the presence of leaders and champions; administrative and institutional supports; mentorship and learning; a shared vision and mission; and, lastly, an enabling built environment.¹³⁰

In education, multidisciplinary categories of professionals already exist to varying extents at different levels in education systems. These include staff in finance and administration; student welfare; leadership and management; and of course, teaching and learning; however, there is little literature around if or how these groups of professionals work together toward the shared goal of providing quality education. Most approaches for team-based collaboration in education are found at the school level between teachers. Evidence around inschool collaboration suggests teachers who are in a school with high social capital, that is around others who

are collaborating effectively, are able to support better student outcomes. In a large scale study conducted in New York City public schools students showed higher gains in math achievement when their teachers reported frequent conversations with their peers that centered on math, and when there was a feeling of trust or closeness among teachers. In other words, teacher social capital was a significant predictor of student achievement gains above and beyond teacher experience or ability in the classroom indicating that the effect of teacher social capital on student performance was powerful.¹³¹ In the United States, Arizona State University are piloting a new model based on a team of educators "each with specific roles who as a team possess the full set of knowledge, skills, and dispositions we expect of single teachers today." Through this new model professional teachers manage the team of other educators supporting student learning. This ensures that despite more children in a learning environment, children have multiple adults to lean on for their learning and it reduces the burden on a single teacher to be the sole provider of knowledge and support for the diverse needs of their students.¹

Fullan and Hargreaves argue that education should focus on growing a skilled system in which the collective capacity of people to create and pursue an overall vision is enhanced as opposed to the traditional approach of developing the skills of individuals to do their work better. In their conception of professional capital 132 the human capital aspect is not as important as social capital – in order to reduce variation in teaching in a school or between schools in a network, they suggest targeting social capital as a lead strategy to make change happen—'use the group to change the group'. As suggested by Fullan and Hargreaves, the value of social capital extends beyond in-school collaboration - networks of schools and educators have been shown to productively organize the diverse expertise needed to solve complex educational issues. Some organizational scholars have suggested that the types of novel interactions and information exchanges in network improvement communities make them suitable for innovation because they can work to surface and test new insights with diverse sets of individuals working in highly varied circumstances and they can enable more fluid exchanges across contexts and institutional boundaries. 133 In a review of how innovative student-centered learning models that have had significant impact on student outcomes are successfully scaling across the United States, Innovation Unit explored several case studies in which school networks went beyond knowledge transfer to actively engage in knowledge exchange for improved learning, often scaffolded by sophisticated professional learning strategies that leveraged technology (see Box A1 on New Technology Network). 134

Building a skilled system underpinned by networks requires evidence to be used strategically at all levels in the education system. Actors at each level require access to robust data that is relevant to their needs and the data they generate must feed into the decisions of other actors in the system.¹³⁵

Annex 2 – Detailed descriptions of new workforce functions and roles

Figure A1 - Next: School level functions and illustrative roles

	Leadership, Management & Governance			Teach	ning and Learnin	ng		Student Welfare				Administration & Operational Support	
	Instructional leadership	Leverage broader community engagement	Lesson planning & preparation	Teaching	Student assessment	Professional development & team learning	Inclusive approaches	Managing student behaviour	Attend to student physical & mental health	Coordination with care givers	Extra-curricular activities	Resource management to promote learning, equity & inclusion	Ensuring compliance with regulations
School Principal	Develop strategies to improve learning as part of school improvement plan Report to district Teacher performance management	Lead Parent- Teacher Association Collaborate with School Mgt Committee			School-wide data analysis to understand causes of student performance	Teacher observation & coaching Oversee and facilitate CPD		Develop strateg improvement pl	ies to improve wel an	fare capacity as ¡	part of school	Human resource management based on learner needs Ensure optimal mix of learning resources	Ensure regulatory compliance in relation to teaching and learning
Deputy Principal	Support Principal with instructional leadership Supervision and monitoring of teachers	Manage community volunteers		ing & learning teams oven gelanning and prepara		Oversee CDP of sub-group of teachers	• Commission cluster-based specialist support for inclusive education	Set behavioral standards & procedures & ensure student welfare needs are addressed lead safeguarding policy & implementation Escalate referrals to health and social care			udent welfare		
Ops Manager												Manage facilities Manage learning resources Manage timetabling Manage records & data	• Ensure regulatory compliance - employment, finance, health and safety, data etc.
Teaching & Learning Specialist			Prepare, identify & source of learning resources	Act as a source for subject expertise & subject content knowledge	Design periodic assessments Advise team on learning strategies based on assessment data	Diagnose teacher CPD needs and sets targets for improvement Observe practice and provides ongoing feedback Set up & role model teacher peer learning							
Teacher			Design program / scheme of work Lesson planning	Deliver lessons Direct learners to content & instructional materials	Integrate multiple forms of assessment into classroom instruction Give formative feedback and advice to students Use assessment data to inform teaching	Peer learning and mentoring of trainees and newly qualified teachers	• Ensure strategies for addressing special needs are implemented	• Raise concerns for referral	• Raise concerns for referral	Coordinate responses to home- related special needs			
Trainee Teacher			• Set up equipment • Make materials	Deliver parts of lessons under supervision from teacher Facilitate learning	Mark student work against a mark scheme Listen to children's reading		• Provide support to learners with special needs according to						
Learning Assistant				activities • Help students understand the task & engage • Ensure learners are on task	• Feedback to teacher		guidance from teacher	• Ensure students abide by school rules			 Facilitate school clubs & extracurric ular activities 	Manage & maintain teaching & learning resources Administration e.g. checking student attendance	
Inclusion specialist teacher				• Lead extraction classes	Assess special learning needs	Deliver coaching & team training on inclusion	• Develop strategies to address special learning needs		Liaison with health & social services	 Liaison with caregivers 	Design and supervise extra- curricular activities	• Manage Learning Assistants	
Community Education Worker									Student mentoring Coordination with community health teams	Communication with caregivers & community	š.		
Tech based			 Access lesson planning materials 	ICT content sources & aps Video link to off site specialist	Assessment data generated by apps	Online training (MOOCs etc) Distance coaching & social-media based learning communities	• Assistive devices						

Figure A2 – School level skills and competencies

The following skills and competencies will be critical to the success of school level roles:

School principal	→ Setting a strong school vision
	→ Data literacy and data-driven decision making
	→ Building a culture of shared responsibility for raised teaching and learning standards
	→ Building a coalition with parents and local community
	→ Coaching skills, including skills in constructive challenge, feedback and objective setting
	→ Facilitation skills, including facilitation teacher-led communities of practice
Teacher	→ Received the requisite training in pedagogy and content expertise (i.e. early childhood, general education, science, maths) to deliver instruction to students.
	→ Data literacy, including skills in assessment for learning
	→ Received a teaching certification through an accredited teacher training program.
	→ Ability to manage the work of teaching assistants and Newly Qualified Teachers
	→ Skills in the use of technology to assist teaching and learning
	 Skills in collaboration and peer support, to enable effective engagement in professional learning communities
Specialist teachers	→ Strong specialist expertise e.g. in subject specialism, area of inclusive education
(subject specific or	→ Skills in building the capacity of wider teaching staff
inclusive education)	→ Diagnostic skills – ability to diagnose professional development needs of wider teaching staff and the learning needs to students
	 Coaching and facilitation skills, including skills in constructive challenge, feedback and objective setting, and in facilitating peer learning communities
Teaching assistant	→ At least a secondary school diploma
-	→ May bring additional skills in mother tongue language
	→ Proficiency in key pedagogical tasks e.g. small group facilitation, student engagement and task
	clarification, behaviour management techniques



Figure A3 – Next: District functions and illustrative Roles

		Leadership, Management & Governance	Teaching & Learning	Student Welfare	Administration & Operational Support
	District Functions	Area strategy & policy Stakeholder management Equitable resource management Data-driven performance monitoring	Instructional leadership to build school capacity Teacher CPD & supporting teacher collaboration Special education expertise & advocacy	Student health School feeding Safeguarding policy & management	Financial planning & management Data analysis & reporting HR & workforce management School property & student transport
İ	District Leader	Establish a shared sense of commitment to excellent teaching & learning Translate national policy for local context and influence upward on behalf of local interests	Set high standards & expectations for leadership, teaching and learning Ensure alignment of standards and initiatives Champion the rights of all children to access & learning	Oversee district approach to student welfare and safeguarding Lead strategic partnerships with health and social services	* Oversee budgeting and reporting
	District Manager	Phase initiatives to build momentum for change Lead data-driven planning & monitoring with focus on causes of inequality & underperformance	Lead participatory planning & review of area- wide progress against targets, involving school leaders from across the district		Oversee the equitable distribution of district resources
	Supervisor	Evaluate & monitor school & teacher performance against targets & provide feedback and model good practice	Build school capacity to use data for school improvement planning Diagnose & support school principal professional development needs		
	Pedagogical Coach (Subject Specialist)		Diagnose teacher CPD needs and sets targets for improvement Observe practice and provides ongoing feedback Set up & role model teacher peer learning		
ķ iņ	Inclusion Specialist	Ensure a broad definition of inclusion Advocate for the student and for inclusive practices to district and school workforce	Proactively work with schools to diagnose the causes of exclusion Propose solutions including inclusive pedagogy & school practices	Co-ordinate with health and social services to enable access & learning	Ensure data on equity is used by district officials for strategic, operational and financial planning
4	Data Analyst	Lead analysis & reporting of performance data against local & national benchmarks Share and publish performance data with stakeholders including scorecards or other visualisations	Build data literacy of school and district staff to integrate the causes of student underperformance		Collate performance data including equity metrics

Figure A4 – Next: District level skills and competencies

District leaders and	→ Ability to build a shared vision across a range of stakeholders
managers	→ Ability to challenge the status quo and raise local aspirations
	→ Strong data literacy skills
	→ Ability to manage conflicting priorities across stakeholder groups and build
	coalitions
	→ Strong problem-solving skills
	→ Ability to build a culture of continuous improvement
Supervisor,	→ Technical expertise in subject area
pedagogical coaches,	→ Needs diagnosis – data literacy and evidence analysis
inclusion specialists	→ Coaching and facilitation skills, including skills in constructive challenge,
_	feedback and objective setting
	→ Relationship building – trust building, openness, reflection, finding common
	ground
	→ Capacity building and advisory skills
Data analyst	→ Technical expertise
	→ Data literacy and ability to communicate complex information to non-
	specialists
	→ Skills in building the capacity of senior staff



Figure A5 – Future: School level functions and illustrative roles

	Leadership, Management & Governance	Teaching and Learning	Student Welfare	Administration & Operational Support
	Instructional leadership Leverage broader community engagement	Lesson planning & preparation Teaching Student assessment Professional development & team learning Inclusive approaches	Managing student behaviour Attend to student physical & mental health Coordination with care givers Extra-curricular activities	Equitable and efficient resource management Ensuring compliance with regulations
Class Teacher		Ensure access to comprehensive set of learning resources and activities Direct learners to content & instructional materials across the curriculum Mentor students on learning strategies Review individual learning from multiple sources of assessment data across subjects Use assessment data to inform student learning strategies monitoring new	Mentor students regarding behavior Raise concerns for referral Coordinate responses to health-related special needs Raise concerns for referral Communication with family units Coordinate responses to home-related special needs	
Subject Teacher		Design lessons and other learning experiences Deliver lessons Integrate multiple forms of assessment into classroom instruction Analyse assessment data Give formative feedback and trialing of innovation		
Specialist Subject Teacher		Preparation, identification & sourcing of learning resources Act as a source for subject expertise & subject content knowledge Design periodic assessments Advise team on learning strategies based on assessment data Deliver coaching & team training in subject pedagogy Update teams on new research		
Teaching Assistant		Facilitate learning activities Insure learners are engaged & on task Mark student work against a mark scheme Feedback to teacher Provide support to learners with special needs Peer learning	Ensure students abide by school rules facilitating school clubs & extracurricular activities	
Inclusion specialist teacher		Lead extraction classes Assess special learning needs and develop strategies to address special learnin needs Deliver coaching & team training on inclusion Update teams on new research Peer learning	Liaison with health & social services Liaison with caregivers Design and supervise extra-curricular activities	Manage Learning Assistants
Content Connector		 Provide students with access to specialist teaching and learning content and knowledge, and skills training e.g. from business, other sectors 		
Tech based		Access lesson planning materials ICT content sources & aps Use of gaming Video link to off site specialist Assessment data generated by apps e.g. use of adaptive learning software Online training (MOOCs etc) Distance coaching and social-media based learning communities Assistive devices	Regular updating caregivers on student progress	Timetabling Automated systems capture and report monitoring data (e.g. student attendance)



Figure A6 – Future: School leadership level functions and illustrative roles

	Leadership, Management & Governance	Teaching and Learning	Student Welfare	Administration & Operational Support
	Instructional leadership Leverage broader community engagement	Lesson planning & preparation Teaching Student assessment Professional development & team learning Inclusive approaches	Managing student behaviour Attend to student physical & mental health Coordination with care givers Extra-curricular activities	Equitable and efficient resource management Ensuring compliance with regulations
School Principal / Deputies	Develop strategies to improve learning as part of school improvement plan Report to district Teacher performance management Oversee and facilitate CPD Self evaluation and commissioning of support from school peer networks External relationship building Leading Parent-Teacher Association & collaboration with the School Management Committee		Develop strategies to improve welfare capacity as part of school improvement plan	Human resource management and allocation based on learner needs Ensuring optimal mix of learning resources Ensuring compliance with regulations relating to teaching and learning
Managing Teacher	 Instructional leadership of several learning teams Coordinate teacher professional development Systematic supervision and monitoring of teachers Management of community volunteers Management of inputs from content connectors 			
Ops Manager				Ensure facilities are maintained and developed in ways that promote learning, and are accessible to all Manage of learning resources Lead data collection & analysis for school improvement Ensuring compliance with regulations relating to attendance, employment, finance, health and safety, data reporting etc



Figure A7 – Future: District level functions and illustrative roles

	Leadership, Management & Governance	Teaching & Learning	Student Welfare	Administration & Operational Support
District Functions	Area strategy & shared priorities Shared accountability frameworks Strategic partnerships Protocols for school peer evaluation Supporting formation of clusters	Targeted coaching for principals Quality assurance of CPD Knowledge sharing across networks Piloting & scaling innovations Facilitating school collaboration Inclusive culture & area strategy	Student health School feeding Safeguarding policy & management Links to vocational services and employers	Financial planning & management Data collection & analysis School property & student transport Strategic workforce management Brokering & strategic resourcing for efficiency and equity
District Leader or Commissioner	Set area strategy & shared priorities Set protocols for school peer evaluation Support formation of clusters & networks Lead participatory planning and review of area-wide progress against targets, involving school leaders from across the district Shared accountability & evaluation frameworks for school networks, learner outcomes & equity	Set protocols for collaborative school improvement planning	Lead strategic partnerships with local actors (e.g. business, NGOs), community, health and social services	
School Network Manager (School Principal System Leader)	Lead school peer evaluation across networks	Lead targeted coaching for new principals or struggling schools Lead collaborative school improvement plans for sharing expertise		 Lead strategic workforce management including school principal succession planning Lead strategic resourcing for efficiency & equity, matching skills with local needs, and signposting expertise
District Subject Lead (Teaching System Leaders)	Lead knowledge sharing across networks Facilitate school-to-school collaboration	Deliver quality assurance of peer-led CPD for schools and teachers – including standards setting and review Support piloting & scaling of innovations		
Intermediaries	Connect and convene, linking entrepreneurial individuals, organisations and other actors Build narratives, giving school networks an identity and building collective experiences to create new knowledge Lead network health - processes for assessing and strengthening the network's health and impact	Support ideas generation ideas & manage innovation – providing funding & opportunities to spark ideas, de-risking innovation by reducing barriers to entry & supporting prototyping & testing Translate knowledge into action – capturing knowledge of impactful practice, evidence evaluation, creating knowledge assets		Talent development – building capacity and bringing fresh skills and practices into the education system
Inclusion Specialist	Build an inclusive management culture Set locality inclusion strategy, with proactive measures to improve inclusive learning Advocate for the student and for inclusive practices to district and school workforce	Build school capacity to diagnose and implement inclusive teaching and learning	Co-ordinate with health and social services to enable access & learning	• Ensure data on equity is used by district officials
Data Analyst	Lead analysis & reporting of performance data against local & national benchmarks Share and publish performance data with stakeholders including scorecards or other visualisations	Build data literacy of school and district staff to integrate the causes of student underperformance		Collate performance data including equity metrics

Figure A8 – Future: Network leadership skills and competencies

All network leaders e.g. Network managers, school principals, subject experts	 → Leading with moral purpose – setting a vision for improvement across a group of schools and cultivating collective responsibility → Connecting – ability to find common ground on complex issues and negotiate shared understanding to anchor collective efforts towards a goal → Brokering – ability to leverage resources and broker new relationships to sustain collaboration or facilitate the sharing of resources → Commissioning skills – ability to diagnose school improvement issues and be able to commission in the right expertise from across school networks → Influencing and advocacy – ability to forge and nurture relationships to progress collective efforts, and influence stakeholders who are not within direct management control → Systems thinking – ability to understand complex causes and solutions of educational issues → Challenge – ability to challenge the status quo and the issues that keep problems in place → Working with ambiguity – ability to work in complex environments, including comfort with loosely defined roles and remit → Portfolio management – ability to understand and set priorities in a complex stakeholder environment
Intermediaries	 → Horizon scanning and foresight → Creativity and openness to learning and new perspectives → Beneficiary or user focus → Knowledge mobilisation skills – ability to translate evidence and curate key content for the benefit of wider audiences



Annex 3 – Scenarios

Figure A9 - Next: School workforce scenarios

Small (360 students across 6 grades) rural primary school in a low-income country with challenges around access and foundational learning

The staffing might include:

- → School principal
- → Deputy Principal with responsibility for welfare and managing teaching and learning
- → Qualified teachers (1: 35-40 students)
- → Teaching assistants and trainee teachers (1: 60 students)
- → Access to specialist literacy and numeracy teachers (shared with 3-5 other schools as in the school-based mentor model in Rwanda, or through video and social media as in MG cubed)
- → An inclusion specialist teacher who also teaches 60% of their timetable or a full-time role which is based off-site as a cluster-based resource for several schools
- → A community education worker
- → An operations and administration manager overseeing education support personnel (maintenance, security, catering etc.)

Teachers (including newly qualified teachers), trainee teachers and teaching assistants could work in teams of 2-3, each led by an experienced teacher, to coordinate teaching and learning across each grade, with input from the inclusion specialist and literacy and numeracy specialists that are shared resources. Teachers could be expected to have 80% of the school day for teaching, and 20% for team planning and other tasks. In instances where having a minimum number of teachers has not been met, the addition of specialist teachers may be less of an emphasis. In terms of content expertise, specialized teachers at different schools could be rotated within a cluster of schools to provide specialized subject content.

The Deputy Principal and the inclusion specialist could have smaller teaching loads, combining their leadership/ specialist roles with part-time teaching roles. The student welfare lead could work as a team with the lead teacher from each grade, the inclusion specialist and the community education worker.

Large (1200 students across 6 grades) urban primary school in a lower middle-income country

In a large urban primary school, the staffing would be similar to the above with the following variations:

- The numeracy and literacy specialists might be based at the school.
- The inclusion specialist and Deputy Principal might have little or no teaching commitments so that they can devote their time to their specific functions.
- There might be more full-time administration and operational staff (for example, finance officer, maintenance officer, librarian/ learning resource officer)

Secondary school in a lower-middle income country

In secondary schools, the staffing would be similar to the above but with a lower ratio of pupils to qualified teachers (1:25-30).

Teaching and learning teams would be based around subjects rather than grades (such as a head of science), as is already common practice in many secondary schools which have subject based departments.

Large secondary schools may need to split roles further, for example sharing the tasks of the school principals with deputy principals. It might be possible to have a teaching and learning team for each subject in the curriculum, and to have specialist teachers for core subjects (such as Maths, English and Science) based at the school.

In small secondary schools some teaching and learning teams might need to be grouped (e.g. arts, sciences) and some specialist teachers will be off site. One individual might have to cover multiple roles. In the case of very small, remote schools (less than five staff), these might need to operate as satellite schools under a Deputy Principal who reports to a school principal at a larger school.

Teaching assistants would be more focused on providing individual support and less on facilitating group learning activities, so there might be proportionately fewer than in primary schools. There would be additional administrative and operational roles (laboratory technician, librarian/ learning resource officer) which might need to be shared/ part time for smaller secondary schools.

Figure A10 – Next: District workforce scenarios

Middle-income country, urban or peri-urban setting

In some middle income countries, there may be a strong existing cadre of supervisors, who have significant experience of school leadership and strong routines in visiting schools and teachers. Meanwhile, the instructional leadership capacity of school principals may be weak, with little local cultural appetite to change the function of this role given its tradition as a figurehead and community leader. In this scenario, countries may choose to build on the strengths of existing supervisor roles, asking them to combine instructional oversight with a pedagogical coaching role for teachers.

In this example, an illustrative variation on the model could be:

- → Supervisor role 1:15 schools (Literacy & Numeracy)
- → Pedagogical coach ratio included in the Supervisor role
- → Reforms to school principal role instructional leadership is undertaken by the supervisor role Example: In Jordan¹³⁶ Subject Specialist Supervisor roles are being trained and deployed to use Education Development Trust's Evidence-Based Supervision model to coach the teachers of Syrian refugee children.

Very low-income country, rural setting

In very low-income settings, the existing district infrastructure may be weak, with few existing roles. Policymakers may choose to focus on re-orienting existing supervisor roles to pedagogical coaches. Geographical constraints may prohibit regular face-to-face pedagogical coaching and policymakers may be able to take advantage of technology for greater reach.

In this example, as a variation on the model:

- → Pedagogical coach (remote support facilitated by technology) 1:100 schools (termly face-to-face visit + bi-weekly phone call)
- → Supervisor support to school principal provided by pedagogical coach
- → Reforms to school principal role investment in school principal to support pedagogical coaching in school District Leader 1 per 2-3 districts, which could be the program lead for the pedagogical coaching program

Example: In Brazil the Ceará programme used remote pedagogical coaching through web-based technology. In some jurisdictions, the remit of supervisor roles has shifted to become more focused on pedagogical coaching, rather than having both roles in place at district level.

Lower-middle income country

Where systems are confident of 'bright spots' of strong existing instructional leadership at school level, they may choose to invest in the best school principals as district-wide instructional leaders. These 'system leaders' could take the lead role in providing school-based coaching and supervision to peer school principals, rather district-based supervisors. If in-school instructional leadership is strong, policymakers may choose to invest in school principals as pedagogical coaches, rather than in district-based roles. In this example, as a variation on the model:

- → Pedagogical coach fulfilled by school principals, and nomination of a Subject Specialist in each school
- → Supervisor –this function is delivered by the best school principals as system leaders
- → School principal (as system leaders)– 1:5 schools

Example: In Rwanda, the strongest 15 school principals in each district are taking on an instructional leadership role, providing coaching to peer school principals on school improvement, as system leaders. In turn these school principals are taking an active role in overseeing teacher-led peer professional learning.

Primary and secondary school considerations

Large secondary schools may have existing subject leadership roles in place who could be trained to be inschool Pedagogical Coaches, negating the need for additional roles at district level.

Other considerations

Where countries have strong school principal capacity in instructional leadership and/or an effective state level inspections agency, the Supervisor role may not be required, or may be combined with the Pedagogical Coach.

Figure A11 - Future: school workforce scenarios

Small (360 students across 6 grades) rural primary school in a lower middle-income country

The staffing might include:

- → School principal
- → Deputy Principal with responsibility for welfare
- → Deputy Principal with responsibility for leading teaching and learning
- → Class teachers, (ratio 1:40 students) including one that also covers the role of student welfare lead
- → 3 specialist teachers (inclusion, literacy, numeracy), with 60% teaching load
- → Subject teachers (ratio 1:50 students) covering subjects such as creative arts, science and technology, social science, skills for sustainable development with some potentially shared across school network
- → Formally qualified learning assistants and volunteer (unqualified or trainee) learning assistants
- → Apprentice teachers
- → An operations and administration manager overseeing a small number of part time/ contract staff (maintenance, security, catering etc.)
- → An ICT technician (part time or shared with another school)



Additional input to the teaching and learning team would come from content connectors and to subject teachers, linked to the school through social media and video. Additional input to the work of the welfare team would come from the health and social care sectors.

As teaching and learning becomes more technology based, the ICT technician role becomes increasingly important, even for small rural primary schools. The establishment of more formal school networks would enable technician roles to be shared across school networks.

Large (1200 students across 6 grades) urban primary school in a lower-middle-income country

In a large urban primary school, the staffing would be similar to the above with the following variations:

- → There could be two managing teachers (lower and upper primary)
- → 3 onsite specialist teachers (inclusion, literacy, numeracy) with minimal teaching loads (up to 30%) and other specialist teachers shared across the school network (for example: creative arts, technology, science, social science, skills for sustainable development)
- → More full-time administration and operations staff including one or more full time ICT technicians

Secondary school in a lower-middle-income country

A secondary school would have a similar structure to the above but with a higher ratio of subject teachers (1: 30 students) and would draw on more content connectors from the world of work.

If not available through coordinated health services, a secondary school or network of secondary schools may need to employ a professional counsellor to meet student mental health needs.

As with **Next**, additional administrative and operational roles (laboratory/ workshop technician, librarian/ learning resource officer) which might need to be shared/ part time for smaller secondary schools. Compared to **Next**, the librarian role would be more involved in curation of computer-based learning resources (on line and off line), and less in the curation of hard copy books.

It would also include more online learning, so would need more ICT technician support than at primary school level.



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