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Foreword

The COVID-19 pandemic has created an imperative to reconfigure the supply chain in capital projects by highlighting supply chain risks and disruptions. This offers an opportunity to transform how capital projects can be managed more effectively to deliver more value.

The COVID-19 pandemic has radically challenged project execution strategy to integrate supply chain, procurement and logistics during the planning process to achieve real-time visibility across the end-to-end supply chain and improve agility, productivity and stakeholder management. Hence, "Managing Supply Chain Risks and Disruption in Capital Projects" – discussed in this year's *Africa Construction Trends (ACT) Report* – has become more important now than ever to re-think the entire project value chain from a supply chain perspective.

At its core, the annual *Africa Construction Trends Report* tracks infrastructure and capital projects (I&CP) activity in Africa. The report contains continental, regional and sectoral trends and includes projects >US\$50m in value that have broken ground by 1 June each year. This report also shows who owns, who funds and who builds projects. The analysis is complemented by an economic context section, focusing on Africa's economic outlook.

This year's thematic section is focused on managing supply chain risk and disruption in capital projects – insights based on project owners' perspectives on their current COVID-19 supply chain transformation strategies and risk mitigation plans across the capital projects lifecycle.

The increased awareness of monitoring information flow, creating visibility of supply chain for data-driven decision making and analysing the trends between globalisation and regionalisation is compelling businesses to pursue innovative ways to leverage supply chain integration with their capital project team to achieve efficiency in project execution and create a competitive advantage.

The COVID-19 pandemic has raised questions around the resiliency of supply chain management and forced the realisation that the digital supply chain is the next frontier for organisations to optimise their capital project and operational value chains and improve supply chain performance. In today's globally connected and fast changing business world, supply chains have become more complex and intricate as organisations look for smarter ways to deliver their end-to-end supply chain to achieve capital, operational and financial efficiency, competitive advantage and customer centricity.

While managing risk and disruption in the supply chain can be complex, a successful outcome can be characterised very clearly and simply by:

- building a digitally enabled resilient supply chain to proactively identify and manage risk
- improving capital and operational efficiency through supply chain integration, while managing supply chain disruption
- aligning skills and competency with the future of work to improve value delivery
- re-imagining sustainability, local content upliftment and stakeholders' value to make an impact that matters.

Deloitte teams have advised on many of the world's largest and most complex infrastructure and capital projects and have extensive experience in taking clients through the digital supply chain journey. Our teams advise clients across the lifecycle of an infrastructure asset and other large capital projects, enabling investors, project developers, project owners and operators in both the public and private sectors to take every step with confidence. With a presence in 34 countries and service to 51 countries, Deloitte is well positioned and understands the nuances of doing business in Africa.

As a team we welcome your thoughts and considerations on this and future reports of this nature.

Mahendra Dedasaniya

Director & Deloitte Africa Infrastructure & Capital Projects Leader
Director: Digital Supply Chain

Africa construction in focus

Deloitte's 2020 edition of the *Africa Construction Trends Report* includes 385 projects with a total project value of US\$399bn.

On a year-on-year basis, the total number of projects in this report declined by 14.8%, while the total value of projects dropped by 19.8%. Once again, East Africa, with a 30.6% share, recorded the highest number of projects (118 projects), followed by Southern Africa, with 26.5% (102 projects) and West Africa, with 19.7% (76 projects).

In the East African region, Uganda, with 27 projects, and Kenya, with 26 projects, recorded the highest number of projects in the region. This keeps them among the top five countries in the continent in terms of number of projects.

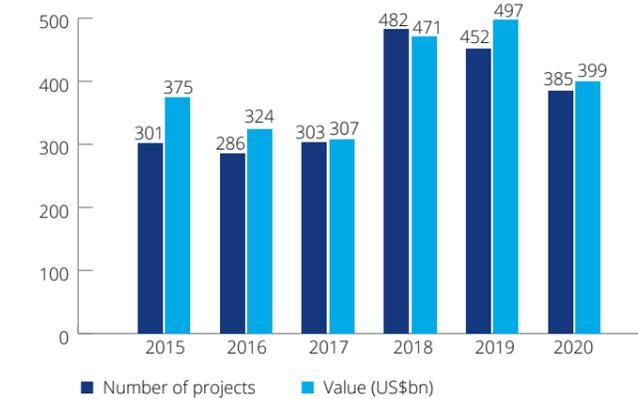
Egypt and South Africa both registered 40 projects, the highest number of projects on the continent. Egypt recorded a project value of US\$93.7bn (23.5% of the continental value). Meanwhile, Nigeria recorded the second largest project value of US\$52.4bn,

followed by South Africa, with a project value of US\$50.4bn, and Tanzania with US\$33.5bn.

In 2020, almost three in four projects (73.2%) were in the low value range of US\$50m-US\$500m (compared to 64.8% in 2019). An overall total of 46 projects were valued between US\$501m and US\$1bn. Seven projects were valued at above US\$10bn. Of these, the top three include Egypt's New Capital City worth US\$58bn, Mozambique's Offshore Area 1 Liquefied Natural Gas (LNG) project worth US\$23bn, followed by Nigeria's Centenary City worth US\$18bn. These three major projects account for a total value of US\$99bn, or 24.9% of Africa's combined project value.

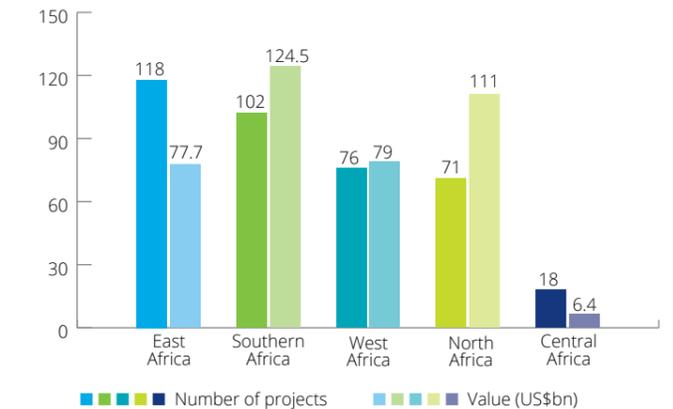
East Africa recorded the largest decline in number of projects and value of projects compared to 2019 figures. The number of projects in East Africa dropped by 35%, while the total project value dropped by 47%, inter alia due to the completion of several large projects. The number of projects in Southern Africa increased by 35.3%, the largest increase in the continent.

Continental statistics



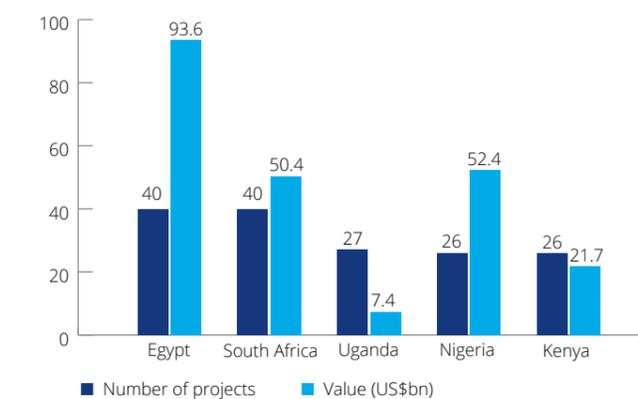
Source: Deloitte analysis, 2020

Regional split



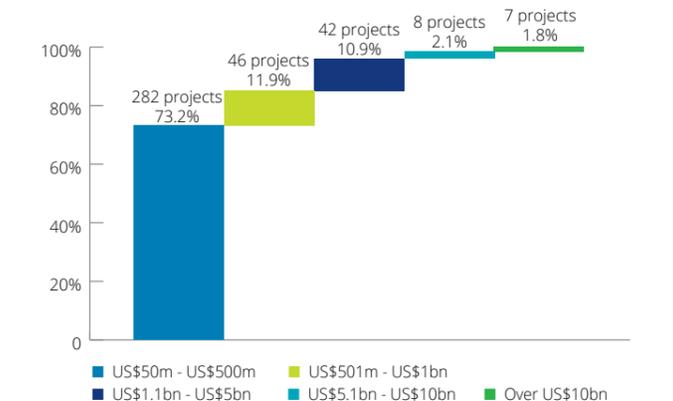
Source: Deloitte analysis, 2020

Top 5 countries by number of projects



Source: Deloitte analysis, 2020

Number of projects by value



Source: Deloitte analysis, 2020

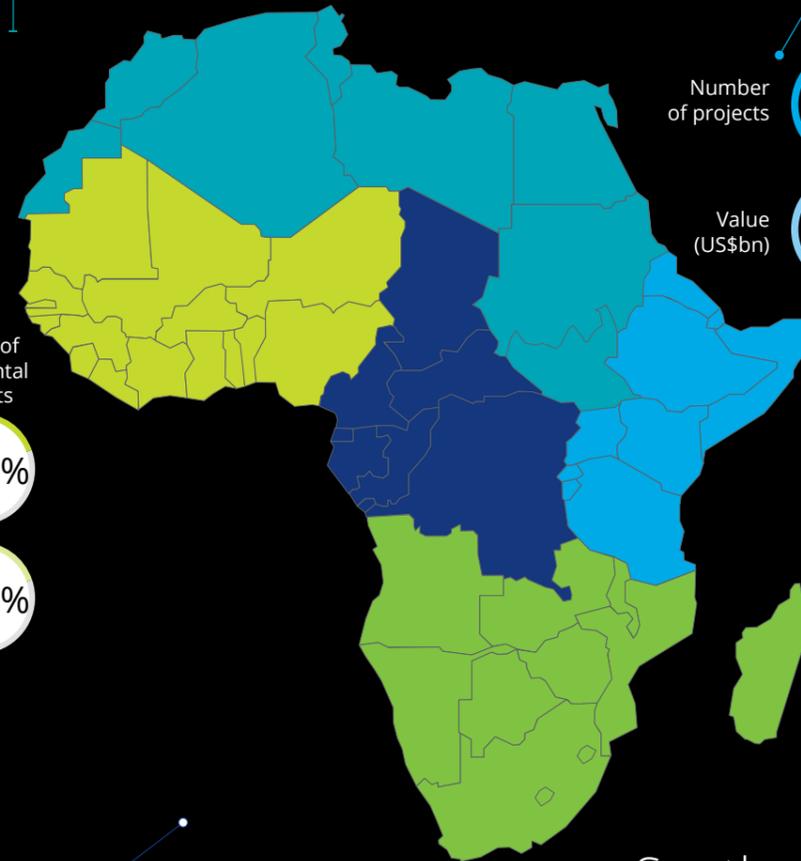
North Africa



East Africa



West Africa



Central Africa



Southern Africa



Projects by sector	Number of projects	Share of projects by number (%)	Change in number of projects from 2020 ⁱ	Value of projects (US\$bn)	Share of projects by value (%)	Change in value of projects from 2020 (US\$bn) ⁱⁱ
Transport 	160	41.6%	9	89.7	22.5%	-43.8
Energy & Power 	84	21.8%	7	90.7	22.7%	-20.4
Real Estate 	73	19.0%	-26	142.9	35.8%	51.9
Water 	26	6.8%	-1	6.7	1.7%	-0.1
Shipping & Ports 	23	6.0%	-15	30.5	7.7%	9.3
Oil & Gas 	6	1.6%	-8	36.1	9.1%	-44.1
Healthcare 	6	1.6%	-3	0.779	0.2%	-49.2
Social Development 	5	1.3%	4	0.764	0.2%	0.49
Education 	1	0.3%	0	0.410	0.1%	-1.2
Mining 	1	0.3%	-28	0.096	<0.1%	-0.3

Source: Deloitte analysis, 2020
May not total 100% due to rounding

ⁱThis is a difference in the total number of projects and is not equivalent to the number of new projects, as projects are completed and new projects are started.
ⁱⁱThis is a difference in the total US dollar value of projects and is not equal to the value of new projects, as projects are completed and new projects are started.

In terms of number of projects, the Transport sector accounted for 41.6% (160 projects) of projects, the largest share in the continent, followed by the Energy & Power sector with a share of 21.8% (84 projects).

The Real Estate sector registered the highest share value of projects on the continent, as more African countries spent increasingly on the sector, particularly Commercial Construction. The Real Estate sector accounted for 35.8% (US\$142.9bn) of the total project value. The Energy & Power sector came second in value terms, with a share of 22.7% (US\$90.7bn), closely followed by the Transport sector, accounting for 22.5% (US\$89.7bn) of the total project value.

The Transport sector, which comprises road, rail, maritime and air transport infrastructure, is expected to support the recently launched African Continental Free Trade Area (AfCFTA) agreement.¹

Demand for efficient transport infrastructure and services in Africa is rapidly rising, compelling many African governments to invest more in transport infrastructure, to prepare for the facilitation of infra-African trade.

Real Estate	Number of projects	Value of projects (US\$bn)
Commercial Construction	52	118.8
Industrial Construction	12	21.6
Residential Construction	7	2.181
Cultural Real Estate	2	0.311

Source: Deloitte analysis, 2020

African Governments, accounting for an ownership share of 75.8%, remain the largest construction project owners in the continent. Private Domestic firms own 10.4% of the projects, while Consortiums own 7.8%.

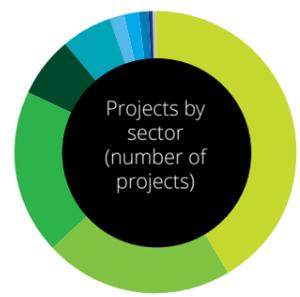
In terms of funding activities, Governments were responsible for funding most of the projects, particularly projects in the Transport sector (roads and bridges). Government registered a funding share of 27.5% (106 projects), followed by Consortiums, and China with funding shares of 15.1% (58 projects) and 13.5% (52 projects), respectively. Private Domestic firms (include firms headquartered in the same African country where the project is being constructed) were responsible for funding 11.7% (45 projects) of the projects in the continent, while African DFIs (development finance institutions) and International DFIs recorded a funding share of 9.6% (37 projects) and 8.8% (34 projects), respectively.

African Governments also contributed the largest value to funding projects. In value terms, Government accounted for 34.5% (US\$137.7bn). Private Domestic firms contributed the second largest value (US\$73.1bn) 18.3%, followed by China, which contributed US\$59.2bn (14.8%) towards funding of projects.

In the past years, China has established a significant presence in building Africa's infrastructure projects. In 2020, the country on its own was responsible for building 31.4% (121 projects). The continent's Private Domestic firms built 28.8% (111 projects), while Consortiums recorded a building share of 15.1% (58 projects).

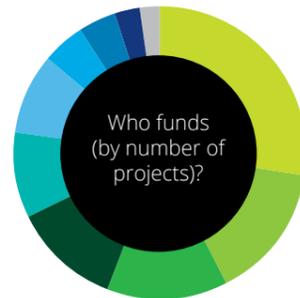
Projects by sector	Share of projects by number (%)			
	2017	2018	2019	2020
Transport 	36%	39%	33%	42%
Energy & Power 	19%	14%	17%	22%
Real Estate 	22%	23%	22%	19%
Water 	5%	5%	6%	7%
Shipping & Ports 	8%	8%	8%	6%
Oil & Gas 	4%	2%	3%	2%
Healthcare 	1%	3%	2%	2%
Social Development 	1%	1%	1%	1%
Mining 	3%	7%	6%	<1%
Education 	1%	0%	1%	<1%
Agriculture 	/	/	/	/
Mixed Use 	/	/	/	/
Other 	/	/	1%	/

Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 41.6% Transport
- 21.8% Energy & Power
- 19.0% Real Estate
- 6.8% Water
- 6.0% Shipping & Ports
- 1.6% Oil & Gas
- 1.6% Healthcare
- 1.3% Social Development
- 0.3% Education
- 0.3% Mining

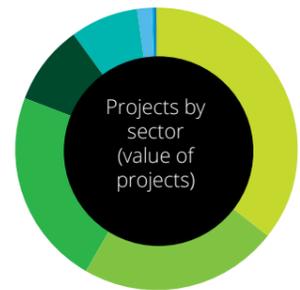
Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 27.5% Government
- 15.1% Consortia
- 13.5% China
- 11.7% Private Domestic
- 9.6% African DFIs
- 8.8% International DFIs
- 4.9% Other Asian Countries
- 3.9% EU Countries
- 2.9% Single Countries
- 2.1% Middle East Countries

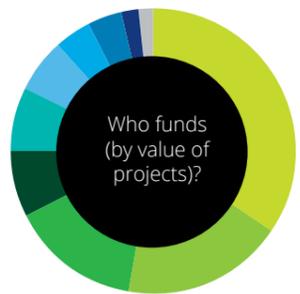
Other Asian Countries include India, Japan, Korea, Macau, and South Korea
EU Countries include the EU, Finland, France, Germany, Greece, Italy, Portugal and Sweden
Single Countries include Australia, Brazil, Russia, the UK and the US
Middle East Countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, Turkey and the UAE

Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 35.8% Real Estate
- 22.7% Energy & Power
- 22.5% Transport
- 9.1% Oil & Gas
- 7.7% Shipping & Ports
- 1.7% Water
- 0.2% Healthcare
- 0.2% Social Development
- 0.1% Education
- <0.1% Mining

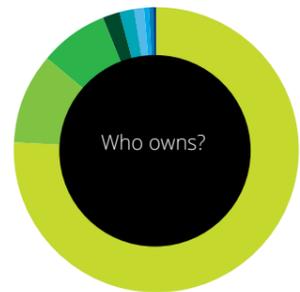
Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 34.5% Government
- 18.3% Private Domestic
- 14.8% China
- 7.3% African DFIs
- 7.3% Consortia
- 6.2% Single Countries
- 4.0% Middle East Countries
- 4.0% International DFIs
- 1.9% EU Countries
- 1.5% Other Asian Countries

Single Countries include Australia, Brazil, Russia, the UK and the US
Middle East Countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, Turkey and the UAE
EU Countries include the EU, Finland, France, Germany, Greece, Italy, Portugal and Sweden
Other Asian Countries include India, Japan, Korea, Macau and South Korea

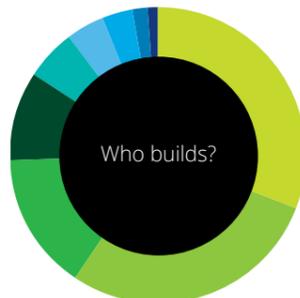
Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 75.8% Government
- 10.4% Private Domestic
- 7.8% Consortia
- 1.8% EU Countries
- 1.8% Single Countries
- 1.0% Middle East Countries
- 0.5% China
- 0.5% Other Asian Countries
- 0.3% International DFIs

EU Countries include France, Italy, Portugal and the Netherlands
Single Countries include Australia, the UK and the US
Middle East Countries include Bahrain, Israel, Kuwait and Turkey
Other Asian Countries include Macau and Singapore

Source: Deloitte analysis, 2020
May not total 100% due to rounding



- 31.4% China
- 28.8% Private Domestic
- 15.1% Consortia
- 9.9% EU Countries
- 5.5% Other Asian Countries
- 4.4% Middle East Countries
- 3.1% Single Countries
- 1.8% Government

EU Countries include Austria, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Portugal, Spain and Switzerland
Other Asian Countries include India, Japan, Korea, Macau and South Korea
Middle East Countries include Israel, Kuwait, Macau, Turkey and the UAE
Single Countries include Australia, Brazil, Russia, the UK and the US

Source: Deloitte analysis, 2020
May not total 100% due to rounding



Africa's economic stance

In 2020, the global economy was hit hard by the COVID-19 pandemic, resulting in both a humanitarian and an economic crisis. The pandemic led to economic lockdowns and worldwide closures of country borders, which were imposed to contain the spread of the virus.

With an inverse relationship between containment policies and economic activity, global GDP growth is expected to have contracted by -3.5% in 2020 from expanding by 2.8% in 2019² – a much larger contraction than seen during the 2008–09 global financial crisis. Despite this large drop in global GDP growth, a global rebound of 5.5% is forecast for 2021.³ This forecast will, however, be largely influenced by the intensity of the pandemic in the coming months, including subsequent waves of infections and the possible near-term rollout of a vaccine, as well as supply chain disruptions and volatile commodity prices.

In Sub-Saharan Africa (SSA), economic growth is expected to have dropped from 3.2% in 2019 to -2.6% in 2020 – the largest contraction for the region on record.⁴ Growth in SSA is projected to rebound in 2021 to 3.2%,⁵ assuming that the pandemic subsides. The major drop in commodity prices, particularly oil, is expected to result in fiscal and external account imbalances in most oil-dependent African countries, translating into increased public debt-to-GDP ratios in the short term. Public debt is expected to mount as countries seek additional resources to enhance their health system capacity and fight the socio-economic effects of COVID-19, especially as many countries respond to the pandemic through some form of fiscal stimulus package.⁶ This could be cushioned by an upswing in commodity prices in 2021.

Low commodity prices post the onset of the pandemic in 2020 are expected to have adversely impacted GDP growth in West Africa.⁷ The region is expected to contract by -2.5% in 2020, down from 3.6% in 2019. Nigeria and Ghana, which both depend on foreign exchange earnings, are expected to battle with fiscal sustainability. GDP growth in Nigeria is expected to have slumped from 2.2% in 2019 to -3.2% in 2020, while in Ghana it is expected to have declined from 6.5% in 2019 down to 0.9% in 2020. Côte d'Ivoire's growth is estimated to have slowed, from 6.5% in 2019 to 1.8% in 2020, with a forecast of 6.2% in 2021.

East Africa has been the fastest growing region in the past years. However, with the COVID-19 disruptions, GDP growth in the region is estimated to plunge from 6.9% in 2019 to 1.3% in 2020. The region's growth has been dampened by disruptions in several sectors such as the Tourism sector, supply chains as well as increased fiscal expenditure, all stemming from the impact of COVID-19.⁸ Debt distress is likely in several East African countries, including Kenya, which has been grappling with a rising

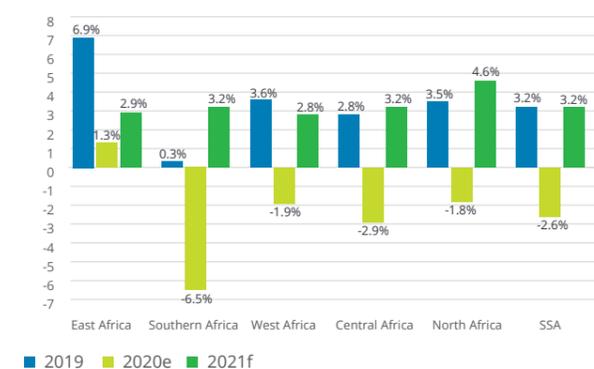
debt portfolio, and Ethiopia, which has had significant difficulties servicing its debts over the last few years.⁹

GDP growth in Southern Africa is expected to drop from an already meagre 0.3% in 2019, to -6.5% in 2020. Growth is forecast to rebound to 3.3% in 2021. South Africa, the region's largest economy, is expected to contract by -7.5% in 2020 from 0.2% recorded in 2019. Factors that were initially set to improve growth, such as the implementation of structural reforms and steady investment growth, are now more urgent than ever.¹⁰

The Central Africa regional GDP growth rate is expected to have dropped to -2.9% in 2020 and then rebound to 3.2% in 2021. The region is rich in minerals and oil and is highly dependent on the exportation of these commodities. The slump in commodity prices, as well as border and port closures, have negatively affected various Central African countries. The Democratic Republic of the Congo (DRC), which saw low growth of 1.4% in 2019, is expected to contract by -0.7% in 2020, while similarly Congo-Brazzaville is anticipated to see a further marginal drop to -0.5% in 2020. DRC added 32% towards the region's GDP in 2019, making it the largest contributor to regional economic output that year.¹¹

In North Africa, GDP growth is anticipated to have dropped from 3.5% in 2019, to -1.8% in 2020. GDP growth in the region was heavily impacted by travel bans, disruptions in transport and distribution, and tourism. Egypt and Morocco are expected to see growth drop from 5.6% in 2019 to 3.5% in 2020 and from 2.2% in 2019 to -6.9% in 2020, respectively.

Weighted annual regional real GDP growth (%), 2019-21f



Source: Deloitte Africa analysis based on IMF WEO October 2020 data and January 2021 update

Supply chain disruptions pave the way for intra-continental trade

The COVID-19 outbreak adversely affected various sectors of African economies. Numerous countries urgently set out restrictions, such as port and border closures, travel bans, production shutdowns, as well as supply chain disruptions in an effort to contain the spread of the virus and protect human life.

As a result, several sectors have been severely impacted. For example, the Healthcare sector suffered a shortage of pharmaceutical ingredients (mostly sourced from China and India), as well as other medical supplies.¹² Food supply chains too were affected, leaving most African countries vulnerable in terms of food security.

Similarly, the Construction sector encountered challenges such as a lack of access to skilled personnel, shortages of construction materials, equipment and Personal Protective Equipment (PPE) supplies, as well as disruptions to the delivery of construction materials. These difficulties have delayed some construction activities in the continent throughout the past months and are expected to continue slowing down the sector's recovery compared to other regions.¹³

In recent years, China has stood out as Africa's largest trading partner and its largest financier, mainly in the Construction sector. Travel restrictions, together with border closures imposed by some of the continent's largest trading partners, including China, have had a dampening effect on Africa's access to industrial components.¹⁴ China-Africa trade contracted by 14% in the first quarter of 2020,¹⁵ while China-bound exports from Africa declined by 17.5%.¹⁶

The COVID-19 pandemic has thus further exposed Africa's cross-border challenges and its reliance on foreign trade with key trading partners, which leave the continent vulnerable to unforeseen trade shocks. With the disruptions in African economies and industries, the pandemic has strengthened the need for intra-Africa trade and regional integration. Presently, Africa's share of intra-regional exports is the lowest in the world, when compared to other regions.¹⁷ It is therefore imperative that the implementation of AfCFTA, which was launched on 1 January 2021 after some delays on account of the pandemic, should be a priority for Africa as part of the continent's efforts to recover from the economic effects of COVID-19, and build regional and more resilient supply chains.¹⁸

Infrastructure development as a catalyst for growth recovery

As policy makers look at tools to stimulate growth and build resilient economies, infrastructure investment is essential in boosting economic growth.

Infrastructure development has been proven to play a major role in improving output, economic growth and employment in the short term, as well as laying the foundation for productivity and growth in the long term.¹⁹ Several African countries have seen large spikes in unemployment as a result of the COVID-19 pandemic. For example, in Kenya, unemployment increased to 22.6% in June 2020, from 14.3% previously recorded in March 2020.²⁰ South Africa also saw a large unemployment spike, with about 2.2 million jobs lost between April and June, and the narrow definition of unemployment reaching a record high of 30.8% in the third quarter of 2020.²¹

Well-targeted infrastructure spending programmes could play an important role in improving poor economic performance and boosting economic transformation. In the short term, governments should prioritise infrastructure upkeep, with available skills and resources directed towards the maintenance and upgrading of existing infrastructure.²² Additionally, governments should focus on pre-approved, planned infrastructure projects, accelerate those that are already under construction and create a pipeline of bankable projects. As governments seek to mobilise increased infrastructure spend, it is essential to ensure that adequate planning is brought forward for African economies to reap the benefits of infrastructure spending efforts.

Infrastructure investment is a cornerstone of the economic recovery plans of South Africa, Nigeria and Kenya. South Africa, for example, where infrastructure investment as share of GDP has been 18% over the past few years,²³ has introduced an *Economic Reconstruction and Recovery Plan* which seeks to promote job creation and improve economic growth, mainly through infrastructure investment and delivery in network industries. Several initiatives are already in place, with the country having introduced a state Infrastructure Fund, which is expected to provide financing worth R100bn (US\$6bn) over a decade.²⁴ While small in size, the fund is anticipated to "crowd in private-sector finance and expertise to support infrastructure delivery".²⁵

The country also plans to fast-track infrastructure projects that are already under construction, as well as those already pre-approved.²⁶ This will be overseen by an Investment and Infrastructure Office in the Presidency, with an emphasis on planning, coordination and developing bankable pipeline opportunities, fast.²⁷

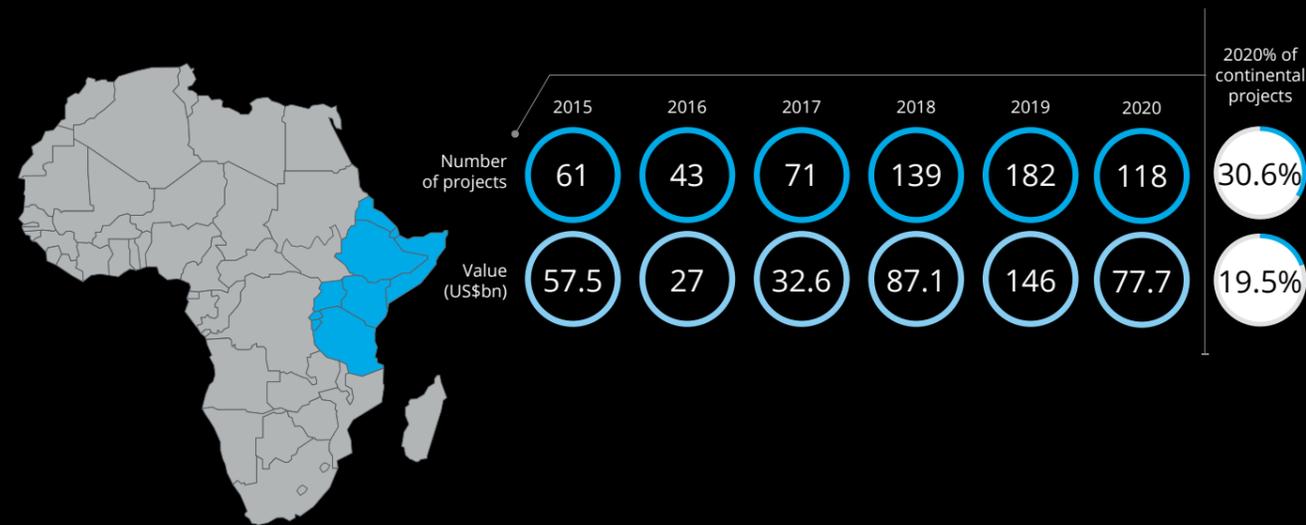
Nigeria's *Economic Sustainability Plan* includes objectives such as introducing infrastructure investment in roads, bridges, solar power and communications technologies to enhance growth and create jobs. One of the government's proposed key projects is an extensive Public Works and Road Construction Programme for urban and rural roads, prioritising the use of local material such as cement, granite and limestone. This approach hopes to maximise the country's use of local inputs and reduce the cost of importing previously used material, such as bitumen or asphalt.²⁸

Resilient infrastructure investment across the African continent will go a long way to spurring on economic development on the continent, creating a more globally competitive enabling environment by reducing operating costs, enhancing productivity and the competitiveness of firms, as well as creating local employment opportunities.²⁹ This has become more urgent now given the impact of the COVID-19 pandemic, which has further exposed the continent's challenges, many of which are underpinned by the comparatively poor infrastructure of the region.³⁰



Regional construction in focus

East Africa



The East African region comprises Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Seychelles, Somalia, Tanzania and Uganda.

East Africa's infrastructure projects have been on a steady rise for the past few years. This increase came on the back of increased regional investment in infrastructure development by local governments, private entities and foreign investors.

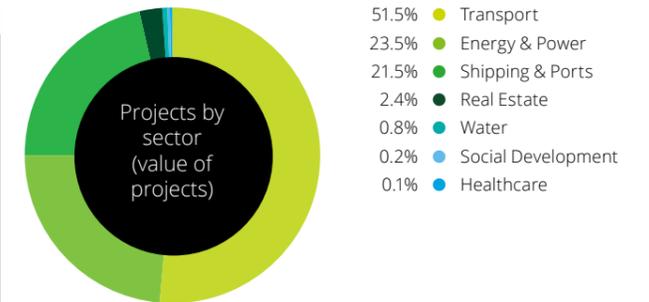
However, the total number of projects in East Africa declined by 35.2% between 2019 and 2020, with the region currently recording 118 projects under construction, down from 182 in 2019. The total value of construction projects declined by 47% between 2019 and 2020, from US\$146bn to US\$77.7bn. The sizable drop in the number of projects and project value largely resulted from the completion of several big projects in the region, such as the Grand Renaissance Dam in Ethiopia (US\$4.8bn), as well as the suspension of other projects. In addition, the region's inability to meet financing costs due to the effects of COVID-19 has also contributed to the sizable drop. One example of financing cost issues is the Ethiopian government's interest in renegotiating payment schedules for the Addis Ababa-Djibouti Railway and Addis Ababa-Sebeta-Mieso-Dewale Road Project, which has led to declined financing for smaller projects.³¹

The economic slowdown as a result of the COVID-19 pandemic is expected to affect infrastructure projects in the region going forward. Governments' infrastructure projects could stall due to a shortfall in revenue collections, as well as the reallocation of development expenditure towards the COVID-19 response.

East Africa accounted for 30.6% of projects across the continent and 19.5% of the value in 2020. Uganda recorded 27 projects, the highest number of construction projects, followed by Kenya with 26 projects, Ethiopia with 25 projects and Tanzania with 23 projects. Although the number of projects in Tanzania was lower than in other countries in East Africa, the country contributed 43.1% towards the region's total project value in 2020 – the largest share in the region. This is predominantly due to large projects such as the Bagamoyo Mega port and the Tanzania-Rwanda-Burundi Railway Project. Kenya recorded the second largest project value in East Africa with a share of 27.9%, followed by Ethiopia with 13%.

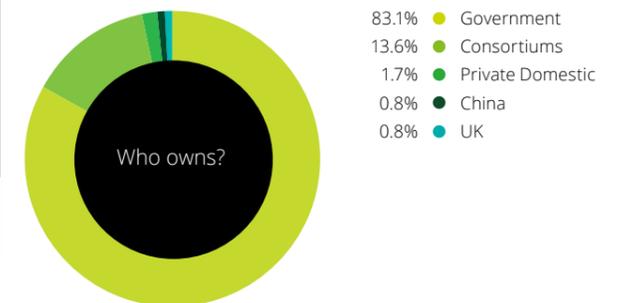
Projects by sector	Share of projects by number (%)					
	2015	2016	2017	2018	2019	2020
Energy & Power	30	26	23	18	22	25
Transport	51	47	52	45	38	56
Real Estate	1	11	14	17	21	8
Water	8	/	6	6	6	5
Mining	2	/	/	4	4	/
Oil & Gas	3	2	1	1	1	/
Shipping & Ports	/	9	3	7	6	5
Social Development	5	/	/	/	/	1
TMT	/	/	/	/	/	/
Healthcare	/	5	/	2	1	1
Education	/	/	1	/	/	/
Other	/	/	/	/	2	/

Source: Deloitte analysis, 2020
May not total 100% due to rounding



Source: Deloitte analysis, 2020
May not total 100% due to rounding

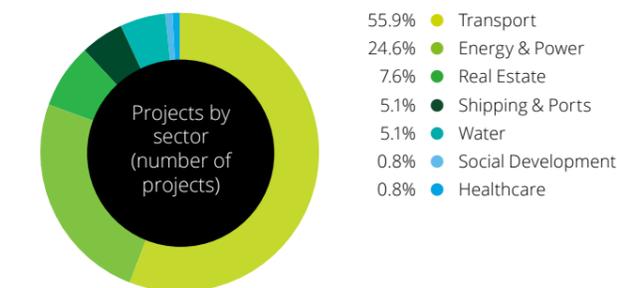
Similar to other regions in Africa, construction projects in East Africa are predominantly owned by Governments. East African governments own 83.1% of projects underway, followed by Consortiums with a share of 13.6% and Private Domestic companies with a share of only 1.7%.



Source: Deloitte analysis, 2020
May not total 100% due to rounding

Infrastructure projects in East Africa were predominantly financed by Consortiums (26.3%), followed by Governments (18.6%), and African DFIs (16.1%). China, which has been leading in financing East Africa's infrastructure, dropped from 20.9% in last year's analysis to 13.6%. This drop in infrastructure financing stemmed from various factors, including the completion of several Chinese-financed projects in the region, such as the Xinhua Tower Project in Kenya.³² Other factors expected to have affected (or will still likely affect) China's funding activity in East Africa include its own growth outlook for 2020, which could hamper investment in Belt and Road Initiative projects – a number of which link to East Africa.³³

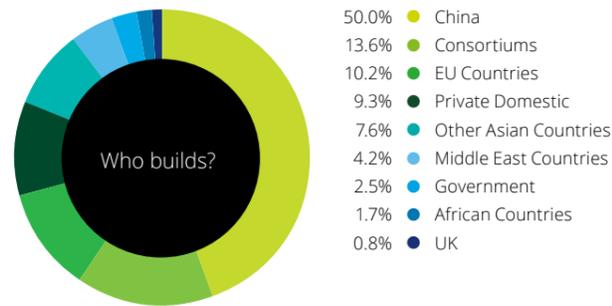
Similarly, East African countries have experienced increasing foreign debt burdens in light of the COVID-19 pandemic. This too has triggered China to rethink African countries' debt repayments in 2020, with some financing commitments reduced as a result, leading to projects being stalled.³⁴ Arguably, there has also been increased scrutiny of China-funded infrastructure projects in the region, given a greater focus by African governments on financial sustainability. This too has contributed to a decline in China's



Source: Deloitte analysis, 2020
May not total 100% due to rounding

In the region's sectoral breakdown by value, the Transport sector accounted for 51.5% (US\$40bn) of the region's total projects, followed by the Energy & Power (23.5%) and the Shipping & Ports (21.5%) sectors. In recent years, East Africa has prioritised improving its cross-border and local transport infrastructure. The region's commitment to boosting the sector is evident with the Transport sector recording 66 projects (55.9%), the highest number of projects. The Energy & Power sector recorded 29 projects, making it the second largest number of projects in the region, followed by the Real Estate sector with nine projects.

funding involvement in East African infrastructure projects.³⁵ China's share in East Africa's construction activities has continued to strengthen. China accounted for 50% of the construction projects in East Africa, again leading as the largest builder in the region. Consortiums constructed 13.6% of all projects under construction, while European Countries constructed 10.2% and Private Domestic companies 9.3%.

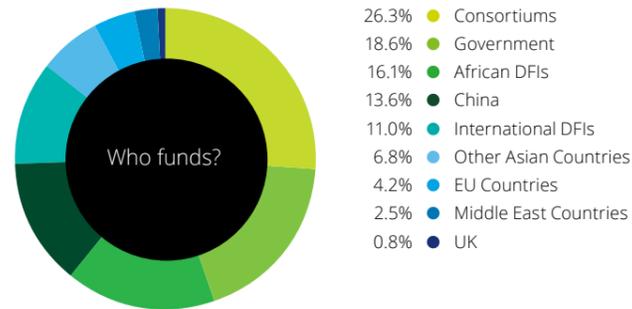


EU Countries include Austria, Denmark, France, Italy, Norway, Portugal, Spain and Switzerland
Other Asian Countries include India, Israel, Japan, and South Korea
Middle East Countries include Turkey and the UAE
African Countries include Egypt and South Africa

Source: Deloitte analysis, 2020
May not total 100% due to rounding

The most valuable project in East Africa is the Bagamoyo Mega Port in Tanzania. The project, worth US\$10bn, is expected to be one of the largest government infrastructure projects in the country and the largest port in East Africa.³⁶ The project has, however, been delayed due to unfavourable investor conditions and demands. Some of these demands have included a 99-year lease of the port as opposed to government's offer of a 33-year lease; tax-free operations, special rates for water and electricity and no government approval required when China decides to start running any new business within the port's facilities.³⁷

East Africa's top 10 projects contributed 66.4% towards the region's overall project value and amounted to US\$51.7bn. Tanzania registered four projects in the top 10 projects, amounting to 55.5% of the top 10 projects. All top 10 projects are either Transport or Energy & Power sector projects.



Other Asian Countries include India, Japan and South Korea
EU Countries include Finland, France, Italy, Portugal, Sweden and the EU
Middle East Countries include Oman, Saudi Arabia and the UAE

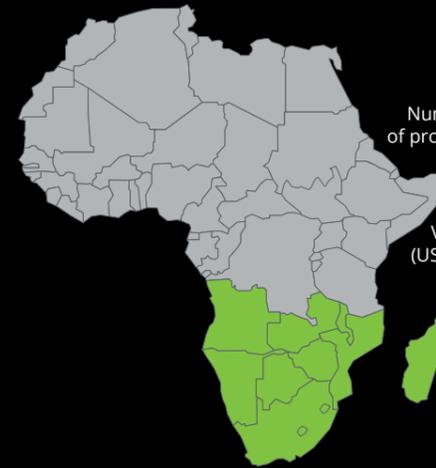
Source: Deloitte analysis, 2020
May not total 100% due to rounding

Top 10 projects (by value)

	Country	Project	Sector	US\$bn
1	Tanzania	Bagamoyo Mega Port	Transport	10
2	Kenya	Kenya-Uganda-Rwanda-South Sudan Rail Project	Transport	9.8
3	Tanzania	Tanzania-Rwanda-Burundi Railway Project	Transport	7.6
4	Tanzania	Dar es Salaam-Mwanza Standard Gauge Railway Line	Transport	7.5
5	Kenya	Lamu Port Project	Transport	5.0
6	Tanzania	Stiegler's Gorge/Rufiji Hydropower Project	Energy & Power	3.6
7	Ethiopia	Koysha Hydroelectric Dam	Energy & Power	2.8
8	Uganda	Ayago Hydropower Plant	Energy & Power	2.0
9	Ethiopia	Awash-Mekele Railway Project	Transport	1.7
10	Uganda	Karuma Hydropower Plant	Energy & Power	1.7

Source: Deloitte analysis, 2020

Southern Africa



Number of projects



Value (US\$bn)

The Southern African region comprises Angola, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe.

The Southern African region increased its infrastructure project activities for 2020. The region recorded 102 projects with a total project value of US\$124.5bn. The number of projects increased by 10.9% to 102 in 2020, from 92 projects in 2019. This increase has been due to a number of new projects appearing in the project list, such as the Mauritius Light Rail Transit (LRT) Line, which is expected to reduce traffic congestion in the country.³⁸

The region's project value also saw an increase of 5.2% in 2020, from US\$118.2bn to US\$124.5bn. The rise in project value was fuelled by several large projects under construction in Mozambique, such as the construction of the Offshore Area 1 LNG project in the Rovuma Basin, as well as the Mphanda Nkuwa Hydropower Plant Project. The region accounted for 26.5% of projects across Africa, and 31.2% of the value.

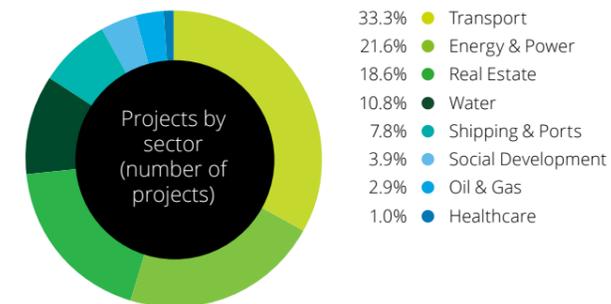
Projects by sector	Share of projects by number (%)					
	2015	2016	2017	2018	2019	2020
Energy & Power	34	25	25	11	12	22
Transport	27	20	23	32	26	33
Real Estate	7	31	29	25	22	19
Water	8	7	5	9	11	11
Mining	12	5	4	9	13	/
Oil & Gas	3	5	5	2	/	3
Shipping & Ports	/	7	8	10	10	8
Social Development	4	/	/	2	3	4
TMT	2	/	/	/	/	/
Healthcare	2	1	1	1	1	1
Education	1	/	/	/	/	/
Agriculture	/	/	/	/	/	/
Mixed Use	/	/	/	/	/	/

Source: Deloitte analysis, 2020
May not total to 100% due to rounding

South Africa recorded 40 projects (39.2%), the largest share of projects in Southern Africa. Mozambique came second with 14 projects (13.7%) under construction. Not only did South Africa have the largest number of projects, but the country also recorded the largest project value of about US\$50.4bn in 2020, followed by Mozambique with a project value of US\$29.8bn. These large project values are mainly explained by the number of new projects in the countries, as well as a number of large projects already underway in both countries, such as Mozambique's LNG project and South Africa's Kusile coal-fired power plant and Medupi power station.

In light of the adverse economic impact of COVID-19, South Africa's President has expressed the government's commitment towards infrastructure investment in efforts to boost job creation and economic growth. Some of the priorities mentioned in the government's October 2020 *Economic Reconstruction and Recovery Plan*³⁹ include improving the country's network infrastructure, such as ports, roads and rail, to boost the economy's competitiveness, attracting private sector investment in efforts to build broad-based Public Private Partnerships (PPPs), as well as improving infrastructure planning and fast-tracking the country's project pipeline.

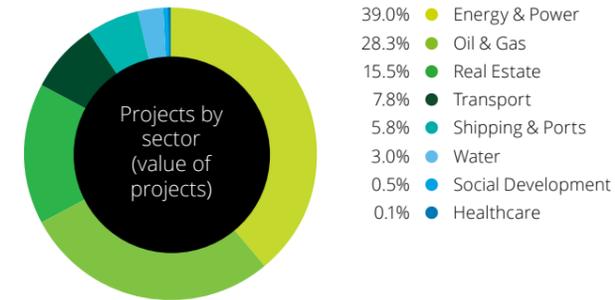
The government has taken active steps towards these initiatives, with an Investment and Infrastructure Office formed in the Presidency and an Infrastructure Investment Fund set up for the next decade.⁴⁰ This Infrastructure Fund aims to bring together private sector financing and expertise to support infrastructure delivery in South Africa. This is expected to help build the country's capabilities for infrastructure and to develop combined financing models.⁴¹



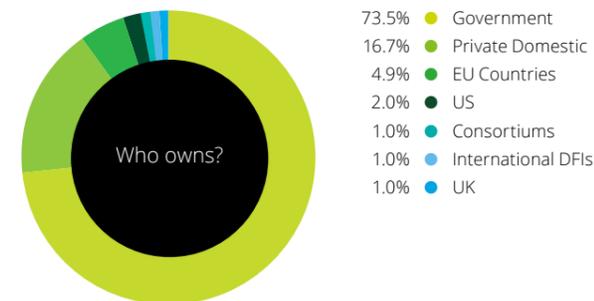
Source: Deloitte analysis, 2020
May not total 100% due to rounding

The Energy & Power sector (39.0%) recorded the largest project value, followed by the Oil & Gas (28.3%) and the Real Estate (15.5%) sectors. Although the region only recorded three Oil & Gas sector projects, the sector has the second largest project value, due to the size and scale of these projects. Southern Africa is comparatively ahead with its road network, and the region continues to invest relatively more than other regions in improving

its Transport sector. The Transport sector recorded the largest number of projects (33.3%) out of all the sectors, followed by Energy & Power (21.6%) and the Real Estate sectors (18.6%).



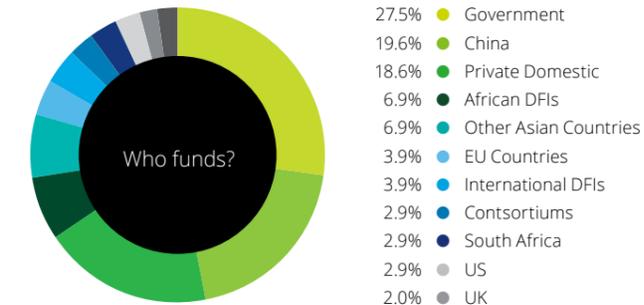
Source: Deloitte analysis, 2020
May not total 100% due to rounding



EU Countries include France, Portugal and Italy
Source: Deloitte analysis, 2020
May not total 100% due to rounding

The majority of construction projects are owned by Governments in the region, at 73.5%. Private Domestic firms own 16.7% of the projects.

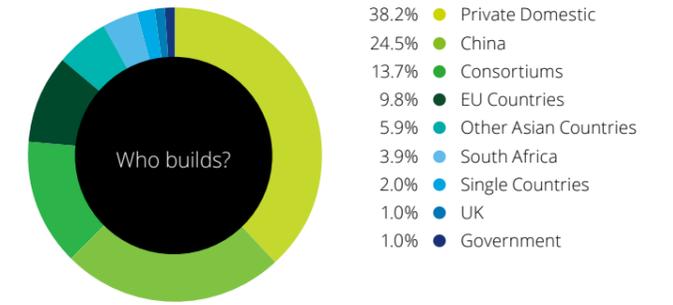
Construction projects in the Southern African region in 2020 were largely funded by Governments, with most of these Government-funded projects being Transport projects (particularly road projects) and Energy & Power projects. China, the second largest financier, continued to play a major role in funding Southern Africa's construction projects. The country on its own financed 19.6% of all projects in the region, signalling Southern Africa's continued infrastructure financing dependence on China.



Other Asian Countries include India, Japan and Korea
EU Countries include France, Italy and Portugal
Single Countries include Brazil and Russia

Source: Deloitte analysis, 2020
May not total 100% due to rounding

The region also engaged more private firms in construction activities. Private Domestic firms built 38.2% of projects in the region. These firms include privately owned African construction firms headquartered in the same African country where the project is being constructed; for example, projects in South Africa being built by South African owned firms. South African firms that are responsible for building projects in other Southern African countries (excluding South Africa) recorded a building share of 3.9%. China, having registered a building share of 24.5% in 2020, remained second in position, while Consortiums recorded a building share of 13.7%.



EU Countries include France, Germany, Italy and Portugal
Other Asian Countries include India, Japan, and South Korea
Single Countries include Brazil and Russia

Source: Deloitte analysis, 2020
May not total 100% due to rounding

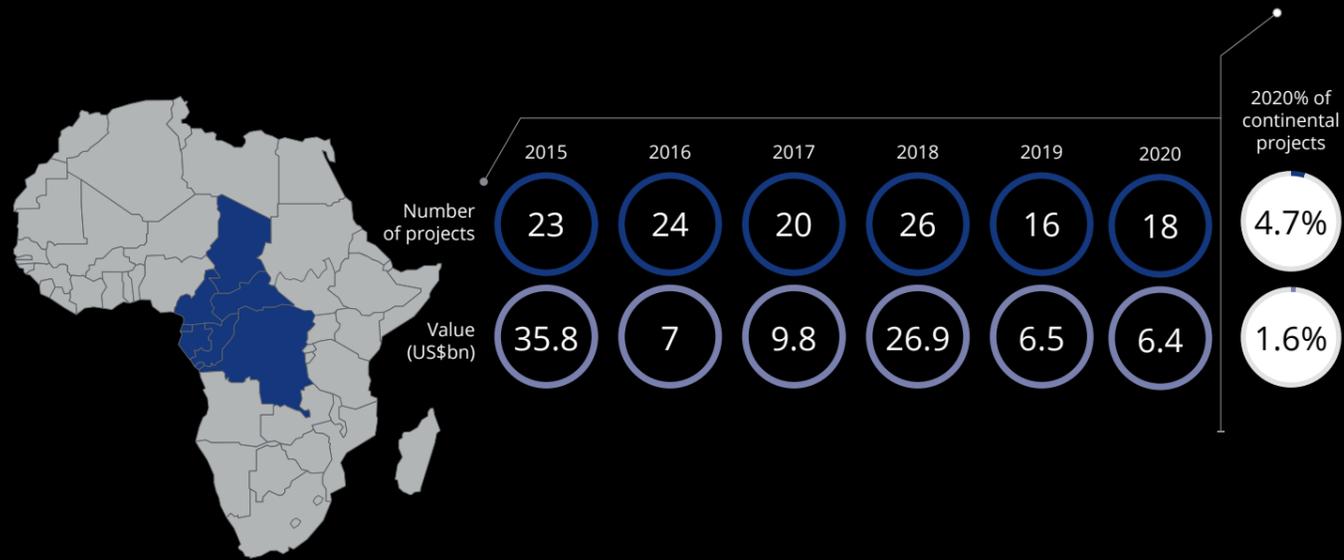
The top 10 projects in Southern Africa in 2020 amounted to US\$92.1bn, making up a large share (73.9%) of the total value of projects in the region. This is due to large investments and ongoing projects in the Energy & Power and Oil & Gas sectors in the region. Southern Africa's most valuable project, Offshore Area 1 LNG Facility project in Mozambique, is expected to transform that country through the development of reliable and affordable energy in the form of liquefied natural gas (LNG).⁴²

Top 10 projects (by value)

	Country	Project	Sector	US\$bn
1	Mozambique	Offshore Area 1 LNG Facility	Oil & Gas	23
2	South Africa	Kusile Coal-Fired Power Plant	Energy & Power	15.2
3	South Africa	Medupi Power Station	Energy & Power	13.2
4	Angola	Namibe Refinery Project	Oil & Gas	12
5	South Africa	Waterfall City Development	Real Estate: Commercial Construction	6.8
6	South Africa	Steyn City Development	Real Estate: Commercial Construction	4.7
7	Angola	Caculo Cabaca Hydropower Project	Energy & Power	4.5
8	Angola	Lauca Hydropower Project	Energy & Power	4.5
9	Namibia	SADC Gateway, Port of Walvis Bay	Transport	4.3
10	Mozambique	Mphanda Nkuwa Hydropower Plant	Energy & Power	4.0

Source: Deloitte analysis, 2020

Central Africa



The Central African region is made up of Cameroon, the Central African Republic (CAR), Chad, the Democratic Republic of the Congo (DRC), Equatorial Guinea, Gabon, Congo-Brazzaville (the Republic of the Congo) and São Tomé and Príncipe.

In this year's report, Central Africa recorded 18 projects, amounting to US\$6.4bn. Between 2019 and 2020, the total number of projects increased by 12.5%. Despite the increase in number of projects, the region saw a slight decline of -1.5% in the total value of projects. This drop can be attributed to the completion of projects, such as the Zongo 2 power plant in DRC worth US\$360bn, and the addition of projects with lower project values.

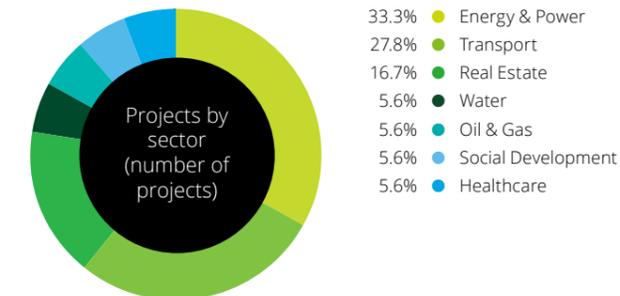
Cameroon registered 11 projects, the highest number of projects in the region, out of the 18 projects. The country also recorded the largest share of project value at 66.1% (US\$4.2bn). In this analysis, the DRC had the second most projects, with five projects noted, while Congo and Gabon both recorded only one project each.

Projects by sector	Share of projects by number (%)					
	2015	2016	2017	2018	2019	2020
Energy & Power	19	29	20	4	6	33
Transport	65	42	30	19	19	28
Real Estate	4	8	15	19	25	17
Water	4	4	/	4	/	6
Mining	4	8	15	38	25	/
Oil & Gas	/	/	/	4	/	6
Shipping & Ports	/	4	10	4	6	/
Social Development	4	4	5	/	6	6
Education	/	/	5	4	6	6
Healthcare	/	/	/	4	6	6

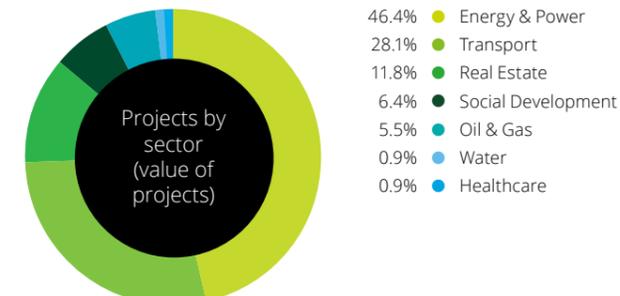
Source: Deloitte analysis, 2020
May not total 100% due to rounding

The Energy & Power sector recorded the largest project value (US\$2.9bn) of all sectors. This high project value stemmed from the region's two large projects, the Nachtigal Falls Hydroelectric Plant in Cameroon and the Busanga Hydropower Station in DRC, currently under

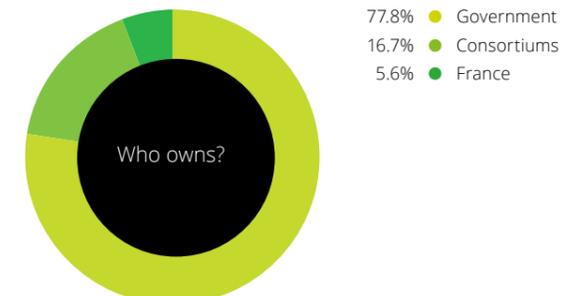
Central Africa has been battling with rather poorly integrated and poor quality air and road infrastructure.⁴³ One of Central Africa's top development priorities is improving transport infrastructure in the region. This is evidenced by the Transport sector recording the second largest project value of US\$1.8bn or a 28.1% share of projects by value in the region, second to Energy & Power. The Real Estate sector registered a project value of US\$757m.



Source: Deloitte analysis, 2020
May not total 100% due to rounding



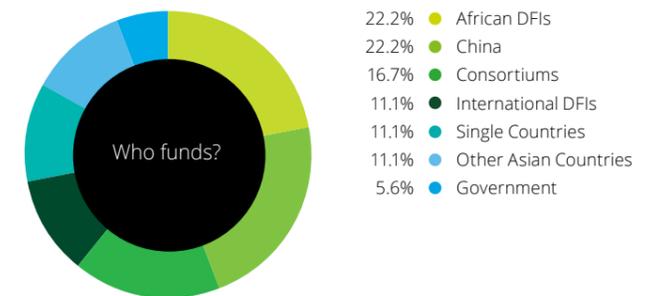
Source: Deloitte analysis, 2020
May not total 100% due to rounding



Source: Deloitte analysis, 2020
May not total 100% due to rounding

Governments own 77.8% of the projects, while Consortiums own 16.7%, with a small share of projects owned by French project owners.

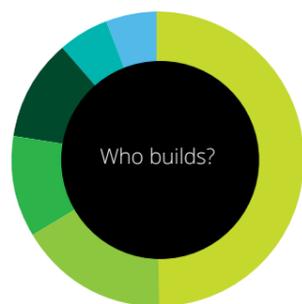
China and African DFIs took the number one spot in financing construction projects in Central Africa, both recording a financing share of 22.2%. Consortiums financed 16.7% of the projects under study, while Single Countries, including Italy and Turkey, financed 11.1% of the projects.



Single Countries include Italy and Turkey
Other Asian Countries include India and South Korea

Source: Deloitte analysis, 2020
May not total 100% due to rounding

China recorded a building share of 50%. EU Countries, which include France, Italy and Spain, were responsible for a building share of 16.7%, while Consortiums were accountable for building 11.1% of projects. South Africa was the only African country with a building share in Central Africa, accounting for 5.6% of the overall projects in 2020. As reflected in the graph, no Private Domestic firms were responsible for building infrastructure projects.



50.0% ● China
 16.7% ● EU Countries
 11.1% ● Consortiums
 11.1% ● Other Asian Countries
 5.6% ● South Africa
 5.6% ● Turkey

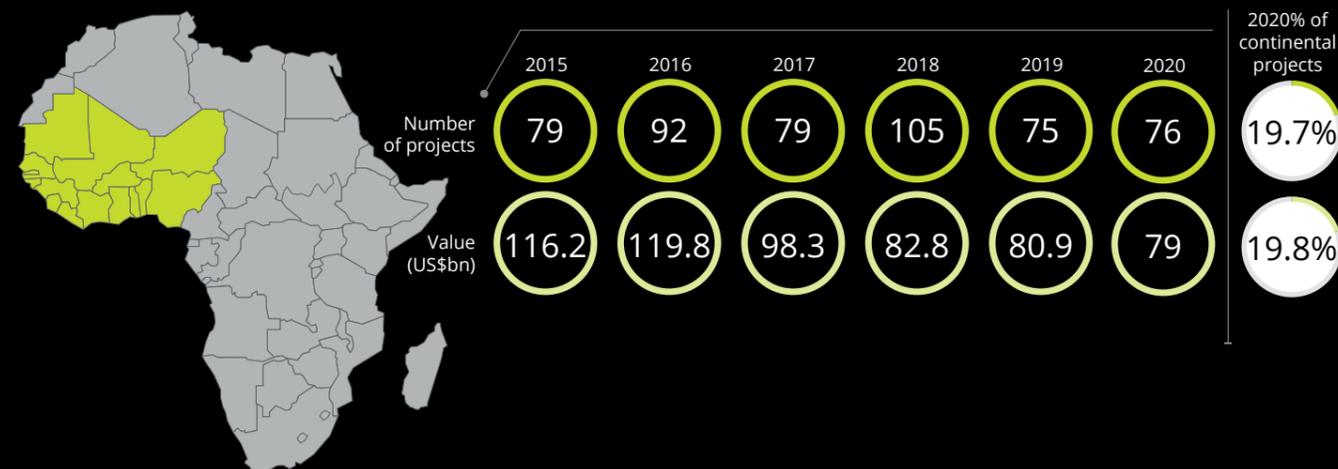
EU Countries include France, Italy and Spain
 Other Asian Countries include India and South Korea

Source: Deloitte analysis, 2020
 May not total 100% due to rounding

In this analysis, the most valuable project in Central Africa is the Nachtigal Falls Hydroelectric Plant in Cameroon. Worth US\$1.4bn, the project is expected to be commissioned by 2023 and will be Cameroon's biggest hydroelectric dam.⁴⁴

Central Africa's top 10 projects contributed 83% of the region's overall project value. The top 10 projects in Central Africa amounted to US\$5.3bn. These projects are based in Cameroon (6), the DRC (3) and Congo-Brazzaville (1). The Energy & Power sector registered five of the top 10 projects, while the other top three projects are in the Transport sector.

West Africa



Top 10 projects (by value)

	Country	Project	Sector	US\$bn
1	Cameroon	Nachtigal Falls Hydroelectric Plant	Energy & Power	1.4
2	DRC	Busanga Hydropower Station	Energy & Power	0.66
3	Cameroon	RN15 Batchenga-Ntui Road Upgrade Project	Transport	0.65
4	DRC	Sombwe Hydroelectric Plant	Energy & Power	0.45
5	Cameroon	Edea-Kribi-Lolabe Motorway Project	Transport	0.44
6	Cameroon	Ketta (Republic of Congo)-Djoum (Cameroon) Road Corridor	Transport	0.41
7	Congo-Brazzaville	University of Denis Sassou-N Guesso	Social Development	0.41
8	Cameroon	Limbe-Douala-Edea-Yaounde Hydrocarbon Pipeline Project	Energy & Power	0.35
9	DRC	Katende Hydropower Plant	Energy & Power	0.28
10	Cameroon	Olembe Sports Complex	Real Estate: Industrial Construction	0.28

Source: Deloitte analysis, 2020

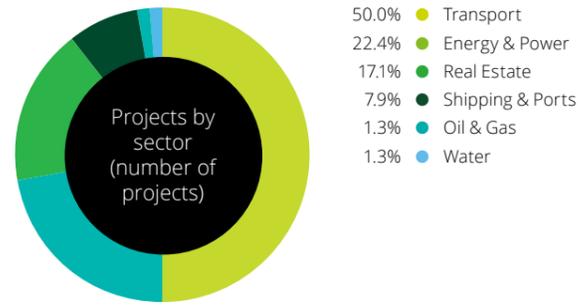
West Africa includes Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

West Africa recorded 76 projects worth the value of US\$79bn. The region's total number of projects in 2020 increased by 1.3%, while the total value of the overall projects declined by 2.3%. Nigeria, which is the region's largest country, registered the highest number of projects at 26, followed by Ghana with 16 projects and Côte d'Ivoire with 10 projects. Most projects in Nigeria are in the Transport sector, particularly roads and bridges. Nigeria also recorded the largest project value in the region at US\$52.4bn, followed by Ghana with a total project value of US\$15.5bn.

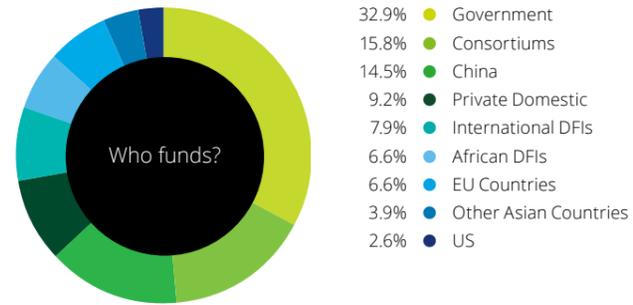
The Transport sector in the region included 38 projects, followed by the Energy & Power sector with 17 projects. The Real Estate sector registered 13 projects in total. Although the Transport sector registered the most projects in the region, the sector with the largest project value was Real Estate, with a total of US\$41.7bn. This was largely boosted by the construction of the Centenary City in Nigeria, worth US\$18bn, as well as the Dangote Refinery project worth US\$14bn. The Transport sector had a total project value of US\$18.3bn, followed by the Energy & Power sector with US\$13.1bn.

Projects by sector	Share of projects by number (%)					
	2015	2016	2017	2018	2019	2020
Transport	30	34	43	50	44	50
Energy & Power	23	18	13	11	20	22
Real Estate	8	22	19	17	16	17
Shipping & Ports	/	12	11	9	8	8
Oil & Gas	14	3	3	1	3	1
Water	10	2	4	5	/	1
Mining	9	2	4	3	7	/
Social Development	4	1	1	1	/	/
Healthcare	2	3	3	4	3	/
Education	/	2	/	/	/	/
Other	/	/	/	/	/	/

Source: Deloitte analysis, 2020
 May not total to 100% due to rounding



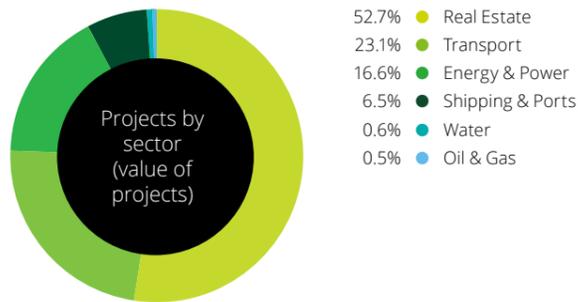
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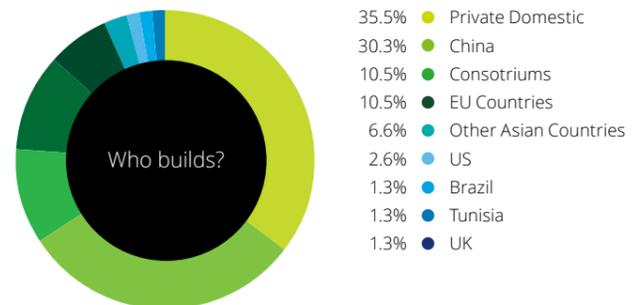
EU Countries include France, Germany, Greece and the EU
Other Asian Countries include India, Macau and Turkey

Source: Deloitte analysis, 2020
May not total 100% due to rounding

Private Domestic firms accounted for a building share of 35.5%, the largest building share in the region. China, which has had a large building presence in previous years, recorded a building share of 30.3%, followed by Consortiums and EU Countries, both with a share of 10.5%.



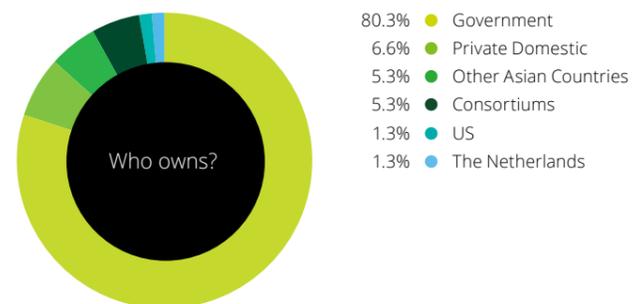
Source: Deloitte analysis, 2020
May not total 100% due to rounding



EU Countries include Denmark, Finland and France
Other Asian Countries include India, Macau and Turkey

Source: Deloitte analysis, 2020
May not total 100% due to rounding

The most valuable project in West Africa is the Centenary City in Nigeria. Worth US\$18bn. The project is expected to create 250,000 jobs and house 140,000 residents.⁴⁵ The top 10 projects in the region contributed 68.5% of the region's overall project value. Nigeria registered seven (and with that the most) projects in the top 10, while Ghana registered only two projects. Most projects in the top 10 are in the Transport sector, followed by Energy & Power and Real Estate project



Other Asian Countries include Israel, Macau, Singapore and Turkey

Source: Deloitte analysis, 2020
May not total 100% due to rounding

In West Africa, Governments own 80.3% of the projects under study, while Private Domestic firms own only 6.6% of the projects. West African Governments had a considerably large representation in funding projects. Government funded 32.9% of the projects, followed by Consortiums with a funding share of 15.8% and China, which funded 14.5% of the projects. Private Domestic firms were responsible for funding 9.2% of projects.

Top 10 projects (by value)

	Country	Project	Sector	US\$bn
1	Nigeria	Centenary City	Real Estate: Commercial Construction	18.0
2	Nigeria	Dangote Refinery	Real Estate: Industrial Construction	14.0
3	Nigeria	Eko Atlantic	Real Estate: Commercial Construction	6.0
4	Ghana	Ada Estuary Tidal Power Plant	Energy & Power	5.7
5	Ghana	Have-Hohoe-Jasikan Road Project	Transport	2.0
6	Nigeria	East-West Road Project	Transport	2.0
7	Nigeria	Lagos-Badagry Expressway Expansion Project	Transport	1.8
8	Nigeria	Lagos-Kano Railway Line Modernisation Project	Transport	1.6
9	Nigeria	Lekki Deep Seaport	Transport	1.5
10	Guinea	Souapiti Hydroelectric Project	Energy & Power	1.5

Source: Deloitte analysis, 2020

North Africa



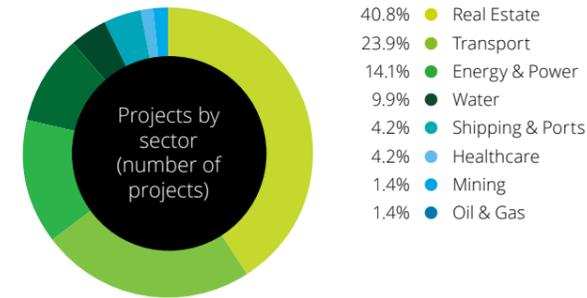
North Africa – made up of Algeria, Egypt, Libya, Morocco, South Sudan, Sudan, Tunisia and Western Sahara – recorded 71 projects in 2020, with a total value of US\$111bn.

The total number of projects in North Africa declined by 18.4% between 2019 and 2020, while the total project value dropped by 23.3%. These declines were largely due to the suspension of several projects, including the Thenia (Boumerdes)-Bordj Bou Arreridj Double Rail Line in Algeria.

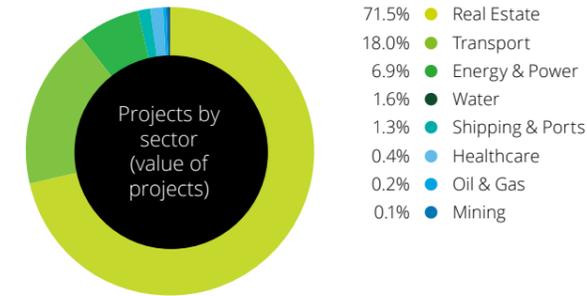
Egypt continued to record the highest number of projects in the region with 40 projects, followed by Morocco with 19 projects. Egypt also recorded the highest value of projects at US\$93.7bn, contributing 84% to the region's overall project value. Morocco registered a total project value of US\$6.6bn, followed by Tunisia with US\$4.6bn.

Projects by sector	Share of projects by number (%)					
	2015	2016	2017	2018	2019	2020
Energy & Power	28	10	12	16	17	14
Transport	41	43	28	30	25	24
Real Estate	7	26	33	34	32	41
Water	7	5	5	3	3	10
Mining	/	/	/	4	1	1
Oil & Gas	8	12	12	3	5	1
Shipping & Ports	3	5	10	6	13	4
Social Development	3	/	/	/	/	/
Healthcare	/	/	/	4	3	4
Education	/	/	/	1	/	/
Other	3	/	/	/	/	/

Source: Deloitte analysis, 2020
May not total 100% due to rounding



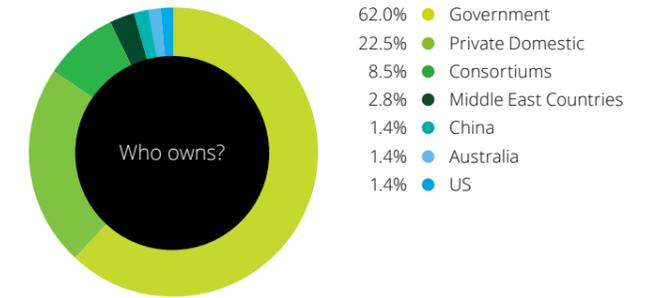
Source: Deloitte analysis, 2020
May not total 100% due to rounding



Source: Deloitte analysis, 2020
May not total 100% due to rounding

The total share of project value for the Real Estate sector in 2020 was 71.5%, making it the largest share in the region and registering 29 projects. This large contribution by the Real Estate sector mainly resulted from Egypt's new administrative city in Cairo, worth US\$58bn, as well as the Tunis Financial Harbour Project in Tunisia, worth US\$3bn.

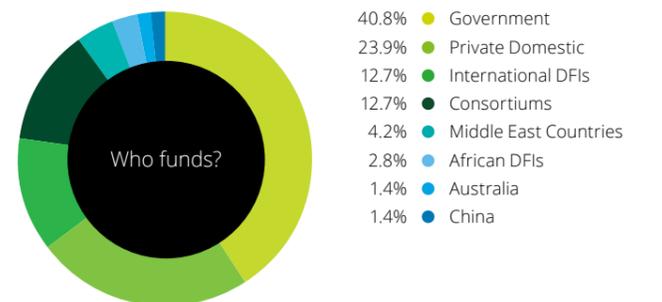
Transport infrastructure in North Africa is a large source of investment and business opportunities. North Africa's logistics developments are taking off and the region's ambitions include expanding the conventional transport networks. Several transport projects are currently underway, such as Egypt's Cairo Metro Line 3 Project and Algeria's Saida-Tiaret Railway Line Project. Algeria plans to reach a rail network of 12,500km by 2030.⁴⁶ In this analysis, the Transport sector in North Africa accounted for 18% of the project value and a total 17 projects. This is followed by the Energy & Power sector with 6.9% of the region's project value and 10 projects.



Middle East Countries include Bahrain and Kuwait

Source: Deloitte analysis, 2020
May not total 100% due to rounding

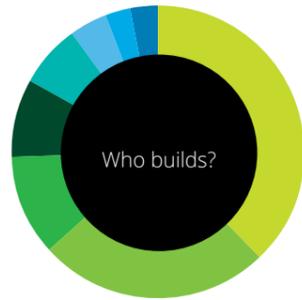
Governments own 62% of the projects in the region. Government-owned projects are mainly in the Transport and the Energy & Power sectors. Private Domestic companies own 22.5% of the overall projects, with most of these projects in the Commercial Construction industry. Middle East Countries own 2.8% of the total projects, while China, Australia and the US each only own 1.4% of all projects.



Middle East Countries include Bahrain and Kuwait

Source: Deloitte analysis, 2020
May not total 100% due to rounding

The majority of projects in North Africa were financed by Government. Governments registered a funding share of 40.8%, followed by Private Domestic firms with 23.9%. International DFIs and Consortiums each financed 12.7% of the projects under study.



- 38.0% Private Domestic
- 25.4% Consortiums
- 11.3% Middle East Countries
- 8.5% China
- 7.0% EU Countries
- 4.2% Single Countries
- 2.8% Government
- 2.8% US

Middle East Countries include Kuwait, Turkey and the UAE
 EU Countries include Germany, Italy, Luxembourg, the Netherlands and Spain
 Single Countries include Australia and Japan

Source: Deloitte analysis, 2020
 May not total 100% due to rounding

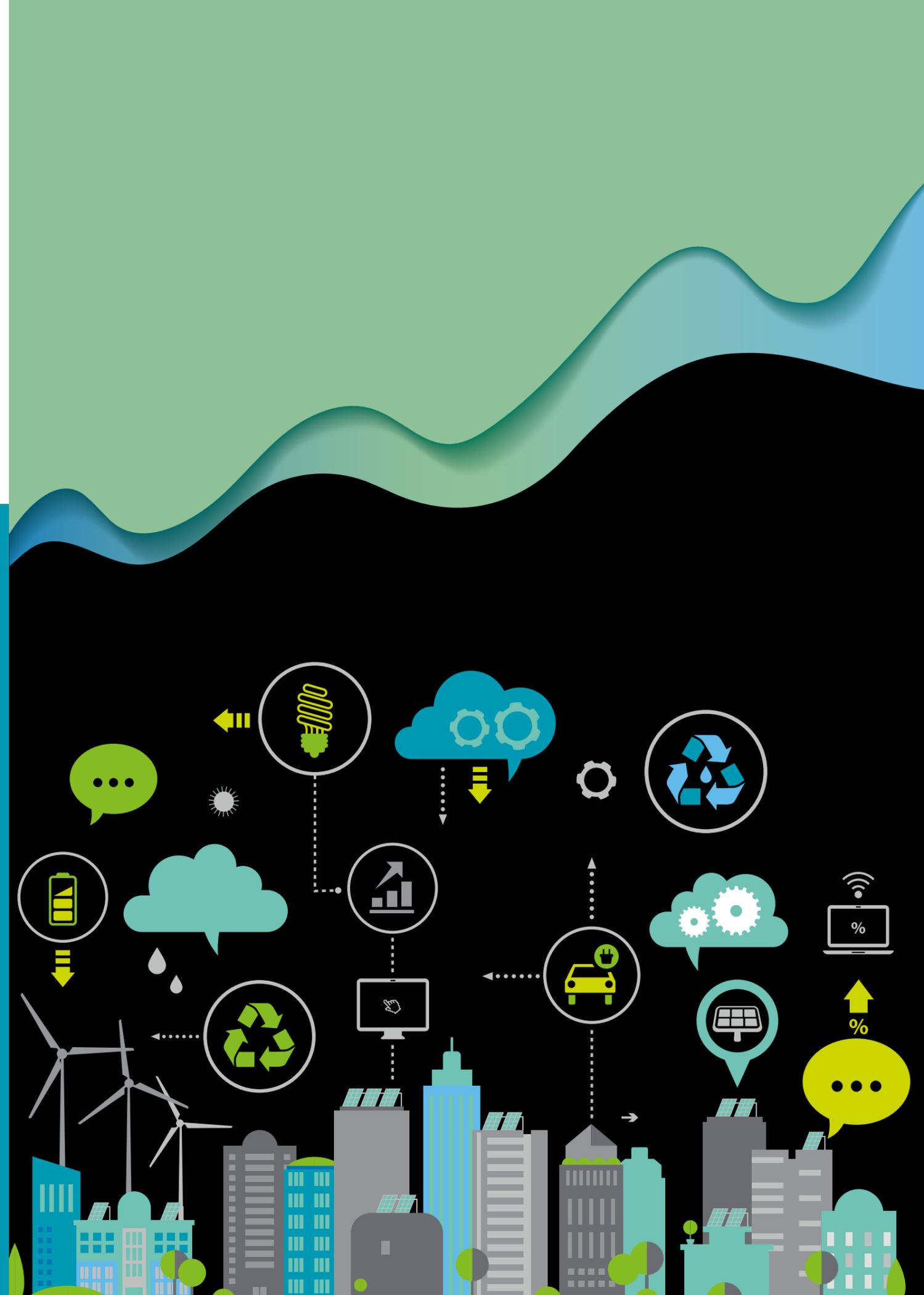
Most projects were constructed by Private Domestic firms (38%), with the majority of these based in Egypt. Consortiums were the second largest building contributor with a building share of 25.4%. Middle East Countries had a building share of 11.3%, followed by China (8.5%).

The New Administrative Capital City Project in Egypt is the most valuable project in North Africa, with a total project value of US\$58bn. The new capital city is expected to accommodate about five million people and will be both the new financial as well as administrative capital of the country.⁴⁷ In the top 10 projects, the eight projects in Egypt contributed 72.9% towards the total project value of US\$111bn.

Top 10 projects (by value)

	Country	Project	Sector	US\$bn
1	Egypt	New Capital City (Administrative Centre) Project	Real Estate: Commercial Construction	58
2	Egypt	Cairo Metro Line 3 Project	Transport	5.8
3	Egypt	East Cairo-New Administrative City Monorail project	Transport	4.5
4	Egypt	King Salman Bridge (Saudi-Egypt Causeway)	Transport	4.5
5	Tunisia	Tunis Financial Harbour (TFH) Project	Real Estate: Commercial Construction	3.0
6	Egypt	Samalout Thermal Power Plant	Energy & Power	2.9
7	Algeria	Roullier Phosphate Fertilisers Plant	Real Estate: Industrial Construction	2.2
8	Egypt	Port Ghalib Integrated Community Project	Real Estate: Commercial Construction	2.0
9	Egypt	Uptown Cairo Project	Real Estate: Commercial Construction	1.7
10	Egypt	Assiut Refinery Naphtha Upgrading Project	Real Estate: Industrial Construction	1.5

Source: Deloitte analysis, 2020



Managing supply chain risk and disruption in capital projects

Capital projects delivery can be subject to various challenges that may result in time and cost overruns. Such challenges include risks ranging from insufficient upfront planning, to the contracting strategy, from poor management of contractors, to risks associated with end-to-end supply chains – all risks which may result in project value leakage.⁴⁸

Research⁴⁹ has found that some of these challenges are anchored in the organisational structure of capital project owners, specifically regarding the role and competencies of the procurement or supply chain function.

As a starting point, procurement or supply chain teams need to understand how the organisation's objectives of constructing infrastructure and creating value are impacted by the complexities in the supply chain, and then how to manage different risks that the supply chain poses to capital projects (i.e. how the flow of the integrated information between various internal and external functions and how stakeholders such as design and engineering, procurement, suppliers and contractors, scheduling, quality and inspection, and logistics and warehouses are managed). This requires an understanding of procurement complexity across four broad areas: external, internal, digital and talent complexity.⁵⁰

Effective procurement also requires an understanding that supplier risk ultimately intertwines with the quality value chain of a project. To avoid destroying value, collaboration with other departments (capital buying with the project team, finance, legal, etc.) is crucial. This should be overlaid with a stringent governance process to make sure that value is extracted and not eradicated.

While the supply chain function might be involved in a due diligence examination of suppliers and contractors, risks such as the financial health of a contractor, productivity of their resources, current workload, leadership quality and past experience of the contractor can also impact a capital project. Another challenge is that procurement and supply chain teams are not always at the coalface of projects, limiting their understanding of what is required in the construction and built project environment, which poses the risk that they will not be able to choose the right project delivery or contracting model.

For any capital project, these risks are further compounded by risks in the external environment. These can be country or geography dependent and span factors like political instability, policy uncertainty, bureaucracy, customs, taxes, IT, transport and logistics, overall regulatory risks, and many others.

As such, risk management in capital projects has become a priority for most organisations.

Supply chain risks and disruption with COVID-19

The COVID-19 pandemic has exposed additional risks in capital projects. In various parts of the world, significant efforts have been made to contain the rapid spread of the COVID-19 virus. The imposition of hard lockdown restrictions and prohibited global movement of people and goods have disrupted economies and industries.

Subject to altered manufacturing capabilities and manufacturing lead times during lockdowns, global supply chains have also encountered disruptions, including plant closures and supply shocks. These disruptions have shaken several key industries, ranging from construction and retail, to tourism and manufacturing.

Social distancing measures have also directly impacted project delivery for infrastructure capital projects. Restrictions on the size of the team on site have led to a reduction in the number of labourers working on a capital project, thus increasing the cycle time of a project.⁵¹

The reliance on global sourcing for specific inputs or specialised parts has also somewhat impacted capital projects. In recent years, global sourcing has become a major part of organisational strategy. This practice is largely used to gain competitive advantage and to capture broader benefits such as access to new technology from advanced countries and proximity to raw materials that cannot be sourced locally, to name a few.⁵²

However, with disruptions due to COVID-19, an increased reliance on global supply chains has resulted in organisations experiencing other shortcomings, such as concentration risk, the length of the supply chain and risks related to just-in-time global sourcing. In response, organisations globally are looking at mitigation mechanisms, including shortening supply chains, earlier purchase and delivery of materials and equipment with storage near job sites,⁵³ as well as investing in and developing local sources of supply.⁵⁴

In any business strategy, building resilient supply chains has become increasingly important to mitigate risks. This includes a better balance of cost and process efficiency with resilience, while creating real-time visibility. Resilient supply chains not only seek to reduce risks, but are also used for quick adjustment and recovery from any unanticipated supply chain disruptions.⁵⁵ Evidence shows that when all these risks and challenges are well managed and dealt with, capital project cost and time overruns, as well as quality issues, can be minimised.⁵⁶

Mitigating supply chain risks in capital projects – a South African view

According to research in the South African market,⁵⁷ building resilient supply chains has the potential to improve project delivery time by up to 30% and reduce project cost by up to 15-20%. With resilient supply chains and effective project governance systems in place, time saved in project delivery and project cost could improve the project return on investment (ROI) by up to 20-30%.

Although some companies have expertise in identifying risks in supply chains, there is a need for strong mitigation strategies to offset some of these risks. At every stage in the capital project value chain (including the supply chain), the risk must remain with the stakeholder who can best manage it, hence a strategy of risk transfer and management during the procurement phase is a vital element to achieve project performance.

COVID-19 has given a renewed focus to a number of these risks. Some of the capital project supply chain lessons learnt and proposals to mitigate these supply chain risks in South Africa are summarised and outlined below.

Building resilient supply chains has the potential to improve project delivery time by up to 30% and reduce project cost by up to 15-20%.



Mitigating supply chain risks through proper upfront planning

The planning stage of a capital project is the most critical stage of a project, determining the success of subsequent stages. Adequate time spent planning by involving the capital procurement function early on in a capital project helps mitigate risks in the supply chain.

Projects are more likely to fail when the procurement function is not involved from the early planning stage or not closely enough to the capital project process overall. In this light, procurement and supply chain teams benefit from being involved as early as in organisations' capital project strategies.

Adequate time spent planning by involving the capital procurement function early on in a capital project helps mitigate risks in the supply chain.

Supply chain complexity in capital projects



External Complexity

Everything outside the four walls of the organisation that supply chain must acquire and manage to serve its internal stakeholders.



Digital Complexity

Technology and process issues that both mediate the other three complexity areas and fuel digital transformation efforts.



Internal Complexity

The challenges of managing interfunctional relationships and aligning procurement and supply chain with broader business objectives.



Talent Complexity

People, organisational models, and how procurement and supply chain teams execute their business plans.



Source: Deloitte Global CPO Survey, 2019



Mitigating supply chain risks by working with long-term and trusted partners

While choosing suppliers cannot only be relationship based (as this can quickly exclude more capable suppliers and can also destroy value once complacency creeps in, as well as result in concentration risk), supply chain risks may be mitigated by working with long-term and trusted suppliers. This is particularly the case where procurement and supply chain management is not the core business of the capital project owner, but where it is a strength of the supplier. This can also help mitigate risks where the supply chain is longer due to global sourcing.



Mitigating supply chain risks by working across departments

In capital projects, there is a need for various departments and business units to work closely with procurement and supply chain to identify and mitigate risks relating to suppliers. For example, capital buying, finance, project execution and engineering, legal, quality and marketing information/business intelligence departments should not work in silos. Even before supplier contracting takes place, teamwork and cross-collaboration are needed across these departments.

While from a governance perspective the differentiation of these departments remains, these departments also need to come together via a stringent governance process to make sure that value is extracted and not eradicated. Arguably, the closest collaboration that should take place is between three key teams/departments: capital buying, project execution and engineering, and information management.

There is a need for various business units to work closely with procurement and supply chain to identify and mitigate supplier-related risks. The closest collaboration should take place between capital buying, project execution and engineering, and information management.



Mitigating supply chain risks by having the right contracts in place

A key emphasis in mitigating supply chain risk is placed on having the right contracting strategy, as well as legally 'tight' but balanced contracts in place. This also includes a focus on quality and how quality is verified in the contract. There is a school of thought that contracting strategy should shift from 'contracting negatively' to 'contracting positively'; i.e. moving from contracting for penalties to contracting for success.

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Incentivising suppliers and contractors to deliver on time and in budget, or even ahead of time, and sharing in the benefit of early project delivery – and thus delivering more value jointly – will help mitigate risks. This could be done by better aligning value systems of organisations in the contracting phase and legal documentation.



Mitigating supply chain risks by expanding the role of procurement

While the primary functions of procurement teams are to procure the best product or service at the best price, to maximise the value of a project, to mitigate risks in the supply chain, and to impact project performance positively, there are augmented functions that procurement teams could undertake or support to optimise value created through capital procurement.

For example, broader responsibilities could include market scanning of the next evolution of products and services with a focus on boosting efficiency, as well as bringing in new technologies and driving down costs. While often performed by a business intelligence or market information department, there is a need for more proactive market intelligence and research in procurement. This could include expanding the focus of the procurement function from

There is a need for more proactive market intelligence and research in procurement. This could include expanding the focus of the procurement function from an operational and more transaction-based one to a strategic one.

a tactical, operational and more transaction-based one to a strategic one that helps to make the right procurement decisions throughout the project value chain.

Still, the role that procurement plays often depends on leaders and organisational maturity, the skills and competency of the team and ability of other functions to collaborate strategically with procurement.



Mitigating supply chain risks by managing supplier performance

Having the right supply chain supervision and oversight structures in place may also contribute to reducing supply chain risks. After understanding the risks of what is being bought, who this is being bought from, and what risks could derail a project from being on schedule, managing a supplier once on board, together with the quality of that supervision and management, is important to mitigating delivery risks in the supply chain.

This includes understanding how processes and activities of suppliers work end-to-end, for example, understanding how a supplier constructs or manufactures. This should be evidence based, with no assumptions made. Delivery will be a function of how well contractors are managed end-to-end, after a proper due diligence and onboarding process has been done.

Supply chain teams need to understand that having the right supplier capabilities and competencies, coupled with the right mindset and value set, will go a long way to mitigating risks in the supply chain.

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Mitigating supply chain risks by sourcing local content

Localisation, which refers to sourcing local content such as skills, expertise and resources (including labour and materials) to execute capital projects, has become part of company strategy for achieving on-time and in-budget project delivery. This strategy can be used to mitigate unforeseen global supply chain disruptions through shorter lead times, greater predictability of delivery, lower costs, stronger relationships with local suppliers and better management of suppliers. In addition, localisation can have positive socio-economic and social impacts on local communities.

There are, however, several key barriers that may impede local sourcing. For example, capital projects may require various kinds of digitally enabled technical material and mechanical equipment which cannot be sourced locally. In such cases, companies may be forced to reach out to other countries for locally scarce or unavailable equipment. For the latter, the challenge remains that sourcing even select items abroad may result in project delays.

In instances where the employment of local contractors takes place, another challenge that may arise is limited local skills and local experience to execute certain parts of the project. This may force companies to source expertise from abroad, which may result in increased costs.



Mitigating supply chain risks through effective leadership skills

Successful supply chains are dependent not only on good supply chain management skills, but also on effective leadership. Supply chain management generally includes the ability to manage supply chain disruptions, capital project delivery and business performance. Yet, managing these factors requires unmatched leadership skills that contribute towards building ecosystem partnerships that drive project performance and maximise value delivery. This may be achieved by supply chain leadership including suppliers in, for example, the innovation and research and development (R&D) journey of the organisation.

To achieve this, some of the key competencies required of supply chain leaders include understanding risk management and project management, knowledge of local policies, tax laws of various countries and understanding all stakeholders.

Beyond the above-mentioned attributes, it is essential to remember that supply chain is a network of people, entities and resources between an organisation and its suppliers to deliver a specific product to the final buyer.⁵⁸ People play a crucial role in the supply chain of capital projects, as, in any given project, there is involvement of several parties such as procurement

An effective local sourcing strategy can mitigate unforeseen global supply chain disruptions, while also having notable positive economic and social impacts on local communities.

Supply chain leadership may contribute towards building ecosystem partnerships that drive project performance and maximise value delivery.

teams, suppliers, labourers and operating digital systems, all comprising of people. It is crucial for supply chain leaders to have good interpersonal skills, as well as the ability to lead diverse teams and create an organisational culture that improves project performance.



Mitigating supply chain risks by leveraging integrated digital systems

Capital projects are subject to vast challenges such as project delays, increased project costs and misaligned communication. These challenges are largely compounded by disjointed systems, where different teams and contractors involved in a particular project use varying project control systems with rather limited correlation and integration.

Because of this, it may be difficult to steer clear of project issues such as misaligned communication and project delays, often caused by the imbalances identified in resource demand and uncertain supply of products. Balancing demand and supply in capital projects requires an integration of various functions of the project, such as demand and supply planning, engineering consultant and contractors' performance, inventory, financial intelligence and analytics.

Aligning material demand with supply also requires adequate and agile planning, as well as ensuring that all stakeholders are being included in decision making, and that all parties agree with what is being concluded. In order to mitigate these risks, many functions and stakeholders in capital projects need to be effectively integrated. Key is the need for less disjointed and more coordinated systems/ platforms for mitigating risks and challenges.

Such platforms can also be used for managing the quality of products at multiple levels, requesting quotations from suitable suppliers, finding the best suppliers in the market, deploying people in different departments and identifying which best process to use to ensure effective collaboration between and within teams.

Balancing demand and supply in capital projects requires an integration of various functions of the project, such as demand and supply planning, contractors' performance, inventory, financial intelligence and analytics.



Mitigating supply chain risks through digital innovation and technologies

Supply chains play a vital role in increasing visibility, agility and productivity in project value chains. The optimisation of supply chains lies in transforming traditional linear supply chains to digital supply networks (DSNs), where functional silos are broken down, increasing connectivity of the entire supply network.⁵⁹ Advances in digital systems have been beneficial in improving efficiency and productivity and lowering costs, with cost and productivity benefits typically targeted at a 10-20% improvement.⁶⁰

Digital systems present opportunities to forge close relationships between project stakeholders, promote knowledge sharing, improve performance and mitigate risks.⁶¹ Technologies such as data analytics and artificial intelligence can be used to capture and analyse large amounts of data to be used in decision making, schedule planning, administrative processes and collaboration between project managers and suppliers. By applying technology to these processes, digital innovation has the potential to establish timely product delivery, optimise networks on how to get products when needed and improve efficiency in capital projects.

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In times of uncertainty and crisis, digital supply networks can be built to forecast disruptions and reconfigure themselves to mitigate any form of negative impact. Companies must leverage digital innovation in supply chains and ensure that the construction industry is more productive and profitable, while also improving customer value creation in the construction phase through resilient supply chains.⁶²



Methodology

The annual Deloitte *Africa Construction Trends Report* monitors the progress of capital-intensive infrastructure on the continent. To qualify for inclusion, infrastructure construction projects are required to be valued at over US\$50m. For this year's edition, projects must have broken ground, but not yet been commissioned by 1 June 2020.

The analysis of construction trends focuses on projects that are physically under construction, with construction crews on-site at the annual cut-off date. The successive annual reports track the value of construction projects underway as at 1 June of each year, so the numbers should not be read as reflecting the total value of projects constructed during a 12-month period.

In this edition, we were able to draw comparisons across five years of data, both from a continental and regional perspective, drilling down into the sectoral, project ownership, project funder, and project builder landscape.

Categorisation of regions covered in this report followed that of the African Development Bank (AfDB). Data collected was limited to publicly available information and informed the *Deloitte Africa Construction Trends Report 2020* dataset. All graphics displayed in this report, unless otherwise indicated, are based on this dataset.

Definitions:

- African DFIs – Development Finance Institutions headquartered in Africa, such as the African Development Bank (AfDB), Trade and Development Bank (TDB), Development Bank of South Africa (DBSA)
- Consortiums – two or more construction companies or governments holding an equal split of a project's ownership, building activities, or funding activities
- EU Countries – member states of the EU involved in project's ownership, building activities, or funding activities
- Government – Governments or government departments within the African continent
- International DFIs – Development Finance Institutions headquartered outside of Africa, such as the World Bank, International Monetary Fund (IMF), International Finance Corporation (IFC), Japan International Cooperation Agency (JICA), and United States Agency for International Development (USAID)
- Private Domestic firm – an African construction firm headquartered in the same African country where it is constructing a project
- Single Countries – countries that could not be grouped together according to a common or shared geography. These countries do not make up a significant portion of project ownership/funding/building activities on their own and have thus been grouped together under this title.

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