Transit-oriented development has great potential to address many urban problems that cities are facing. Given its major positive externality (public benefit), governments usually fund part of their investment costs, to different degree, depending on their fiscal strength.

This module explores the key elements involved in TOD investments: what elements must come together for successful TOD investment? As we will see, the key to operationalizing TOD is to make sure the public and private sector actors can find win-win solutions – they can do that by finding a “business model” that works for everyone.

Business models are not only needed for private sector investments. To deliver the TOD projects, it is important to develop a sound “business model” for two reasons: First, capital intensive TOD investment requires large and diverse sources of money. Second, investing in TOD requires careful coordination between different kinds of stakeholders and over long time periods, especially at the level of corridors. The business model helps public or private TOD project entity mobilize diverse stakeholders and their financial resources, clearly defining their roles and responsibilities as well as anticipated risks and expected profits.

The TOD “business model” presented today has been developed within the framework of the Financing Sustainable Cities Initiative, an initiative of the WRI Ross Center for Sustainable Cities and C40 Cities, funded by the Citi Foundation, focused on helping cities develop business models that can accelerate the implementation of sustainable urban solutions, such as TOD. It is here applied to TOD investments, but it can also apply to other kinds of urban investments.
The framework underpins the development of the Financing Sustainable Cities platform, which is created for improved access to knowledge on worldwide urban experiences in funding, financing, and delivering sustainable urban solutions.

Module Objective and Outline

**Objective:** At the end of this module, you will understand and identify the elements of a business model for sustainable investments in TOD projects that need to come together for a corridor TOD investment

**Outline**
- The TOD investment
- Business model approach for TOD
- The business model framework
  - Investment components
  - Delivery mechanisms
  - Funding sources
  - Financial products

At the end of this module, you will understand the elements of a business model for sustainable investments in TOD projects. You will be able to identify the elements that need to come together for a corridor TOD investment. You will understand the following aspects of business models for TOD investments:

1) Investment components: the nature of the assets that are the focus of the investment
2) Delivery mechanisms: who bears the responsibility and risk for the investment
3) Funding sources: how the TOD projects are paid for
4) Financial products: who finances TOD investments, and how they are financed

The module begins with an explanation of the business model approach developed to understand TOD investments. Then, the module explores each of the business model elements utilizing real world examples.

The examples used in this module will primarily focus on developed countries, where TOD has been implemented. However, the lessons learned from the strategies used to finance TOD in developed countries can be applied also to the developing world.
In many countries and cities, TOD is a relatively novel approach to urban spatial development. In this slide we present the key takeaways from the experiences of cities that have implemented corridor TOD, including complicating factors and solutions.

1. At the corridor scale, it can be difficult to structure manageable transaction sizes. This is because of the many elements involved in a corridor TOD investment. We will explore these elements in more detail later in this module.

2. Institutional and contractual frameworks are needed as a basis for productive commercial relationships and to guide decision-making. As we will see, these need to coordinate public authorities at local, regional, and national scales, providers of capital and suppliers of technology and infrastructure services.

3. For sustainable investments, it is important to unlock and capture funding sources to pay back investments, and to not purely rely on public budgets to fund infrastructure and services. This module will explore several ways in which cities have unlocked value they created through the investment.

4. Finally, third party finance is likely to be essential for the kind of capital-intensive, and upfront investments like TOD. In successful cases, there has been an evolution in the offering of financial products in the market towards financial products that are tailored to the characteristics of TOD investments, including payback period and risk profiles.

Despite these challenges, financing TOD in emerging cities is not impossible; indeed, emerging cities can benefit substantially from the insights that decades of history of TOD investments in developed cities can provide.
Image source: Spacecadetf/Flickr.
https://www.flickr.com/photos/68563927@N00/8123939998/sizes/l.
Before examining the various elements of a TOD investment, it is important to first understand exactly what a TOD investment is.

A TOD investment involves the allocation of resources by public, private, and other stakeholders that are expected to generate the range of benefits associated with the TOD project. In practice, TOD investments can take many forms. An important factor that can determine the extent of a TOD investment is the geographical scale at which the investment takes place. When carried out successfully, TOD investments at the station-area level, corridor-level, or regional-level can serve not only to improve infrastructure, but can also bring the desired social, economic and environmental benefits of TOD to a community.
To be clear, there are 3 main categories of TOD investments that need to be made.

Transit infrastructure refers to the capital costs for a new metro rail, light rail, or BRT line, including the guideway, stations, and any required real-estate acquisition. This is usually the largest category of investment needed, and is usually undertaken by the public sector.

Street infrastructure & public realm refers to improvements in the local street networks and associated sidewalks (pavements), bicycle lanes, and other public spaces. Related decoration, lighting, and street furniture would fall into this category. This is either paid for by the public sector or covered by developers in cases where the market is strong and government can place more demands on the private company.

Real-estate development / housing construction refers to the new buildings which form the core of a TOD district/neighborhood. Depending on the economic strength of the area and demand for real-estate, as well as the need for affordable housing, government may need to subsidize if developer interest is weak, using tax breaks or direct loan/grant assistance.
To better understand the process of TOD financing, a business model approach will be used throughout this module. A business model can be defined as the elements that make it possible for an investment to generate a return; a financially viable business model is one that allows an investment to at least break even (i.e. to cover its own cost), if not to generate a profit greater than its original cost. A financially viable business model must support an investment through all its phases.

As applied to this module, a TOD business model includes all those elements that allow a TOD investment to generate a return. As mentioned on the previous slide, TOD investments are expected to generate not only financial returns, but also the additional social, economic, and environmental benefits associated with TOD.
Why is the business model framework an appropriate tool for understanding TOD finance and TOD investments?

The business model framework can help build and create:

- **Capacity**: Systematic understanding of options
- **Dialogue**: Common language for stakeholder dialogue
- **Innovation**: Creation of context-specific approaches

Why take a business model approach to TOD investments?

The business model approach can provide a systematic understanding of TOD investments, as the model is designed to help break down the complexity of real world investments into discrete elements. Because the business model framework provides a system of classification for TOD investment, it can improve stakeholder capacity by providing better understanding of TOD financing.

The business model framework can also facilitate informed stakeholder dialogue on TOD investment and policy change. Based on enhanced capacity, the framework opens up avenues for dialogue on a level playing field of information. The framework can provide a common reference point and provide a common language for diverse stakeholders, who otherwise might not have the opportunity to interface on a level playing field.

Finally, the business model framework can also spur innovation for context-specific approaches. The framework allows stakeholders to develop context-specific TOD investment approaches due to improved understanding of successful TOD financing. By deconstructing how investments are structured, it can also provide inspiration to critical stakeholders involved a TOD investment process, particularly for those stakeholders attempting to implement TOD in developing cities.
This slide illustrates the basic structure of the TOD business model framework. The first level of this framework consists of four different elements: investment components (here marked in yellow), delivery mechanisms (here marked in blue), funding sources (here marked in green), and financial products (here marked in red). These four elements, can be viewed as the basic architecture of any TOD investment. They address the following questions:

**For investment components:**
- What are we investing in?
- What are the various assets and processes that generate cost and revenues over the course of a TOD investment?

**For delivery mechanisms:**
- How to structure implementation?
- What commercial, contractual, and institutional frameworks exist to distribute the responsibilities and risks of a TOD investment?

**For funding sources:**
- How to pay for the investment?
- What revenues and other non-reimbursable monetary support can be used to repay the costs of a TOD investment?

**For financial products:**
- How to mobilize investment capital?
- What options exist for mobilizing investment capital for a TOD investment?
An important distinction that the framework makes is between “funding sources” and “financial products” (Kim, 2016; Long Finance et al., 2015; WBCSD, 2015; PwC, 2014; (World Economic Forum, 2014). The distinction is that the latter is a financial service provided with the expectation of repayment (in interest, coupons, dividends, or other fees), while the former is non-reimbursable value channeled towards the cost of the investment (whether upfront, as in the case of a monetary grant, or over time, as in the case of investment proceeds).

Each of these four elements of TOD investments will be examined in detail in the following slides.
The first element of TOD investment that will be discussed in this module are investment components.

**Investment components** are the basic ingredients of a TOD investment: they include the parts of a TOD investment that shape its performance and contribute to the investment’s cost and revenues over the course of the planning, implementation, operation, and maintenance stages.

There are three different types of investment components: **tangible assets, intangible assets, and processes**. All three components types are essential to TOD investment, and will be examined in greater detail in the next slide. We have already discussed these elements in other modules of this course, but they will be briefly present here as part of the TOD business model.
Investment components are the basic ingredients of a TOD investment; these components include the **physical/tangible assets**, **intangible assets**, and **processes** needed to implement TOD.

**Physical assets** include the types of infrastructure, technology, and equipment that need to be manufactured, bought, built, and installed over the course of a TOD investment. The exact physical assets required by a TOD investment vary; however, TOD investments typically involve such physical assets as:

- **Land**
- **“Horizontal” infrastructure**, such as roads and street networks, transit stations, and utilities
- **“Vertical” constructions**, including buildings that are for public, residential, and commercial use

Another type of investment component crucial for TOD investment are **intangible assets**. An intangible asset can be defined broadly as a non-material resource that creates a benefit; more specifically for TOD investments, intangible assets are those non-material assets that need to be part of the TOD investment to achieve desired economic, environmental, and social benefits. To create successful TOD, such intangible assets as resource efficiency (high-density and mixed-use development), accessibility, inclusiveness, safety, and cultural preservation must be financed. These intangible assets have implications in terms of both costs as well as benefits arising from the investment.
Finally, a TOD investment must also include the component of **processes**, which represents the various procedures and actions that generate costs over the course of an investment. Expenses on processes vary according to different the phases of investment; there are different costs and revenues associated with the planning, implementation, operation, and maintenance phases of TOD.

The specific components utilized in a TOD investment can vary, and can be determined by a variety of factors, including the geographical scale at which the project occurs. Whatever elements are included in a TOD investment, different components have different financial implications for an investment; as such, each investment component included in a TOD project must be carefully considered by stakeholders.
Let’s review now the investment components of a TOD project at the corridor level. When TOD investments occur at this scale, a variety of investment components must be involved to achieve successful TOD. This slide summarizes the tangible assets, intangible assets, and processes that can be involved in a TOD investment at the corridor-level.

**Accessibility and inclusiveness** – TOD investments place emphasis on both processes (through community participation in urban development) as well as the outcomes of urban development processes. An important aspect is the availability of transit options including non-motorized (e.g. pedestrian and cycling), mass transit options (e.g. bus, rail), and measures to control the use of private vehicles. In addition, TOD investments often include affordable housing for lower income households and amenities that cater to different income levels (i.e. high end, as well as lower end, shops and amenities).

Though each of these types of physical assets are important to TOD implementation, land acquisition plays a particularly crucial role in TOD investment. In areas where land ownership is fragmented, transaction costs can increase; methods used to achieve land consolidation, including land readjustment and eminent domain, can make TOD implementation possible, but can cause additional costs. The type of land on which TOD investments occur, such as greenfield, brownfield, or infill land, also have important financial implications that must be taken into consideration by stakeholders.
The next element of a business model for TOD investment are **delivery mechanisms**. We have already discussed this topic through a different perspective as part of the “institutional arrangement building block” in Module 3.

In the context of the business model, **delivery mechanisms** are the contractual, legal, institutional, and commercial relationships and framework that structure interactions between stakeholders over the course of a TOD investment. Through an investment’s delivery mechanisms, the benefits of the investment are realized, payments and repayments take place, and risks are managed.

Though different TOD investments combine different delivery mechanisms, the type of delivery mechanisms selected have great implications for a TOD investment. How delivery mechanisms align interests and structure relationships can affect how funding sources are targeted at investment components. Delivery mechanisms also affect which financial products are available for stakeholders seeking to invest in TOD, and how risk and reward are allocated between stakeholders. A key challenge of TOD investment is, therefore, for the many stakeholders involved to coordinate their efforts using delivery mechanisms to effectively deliver all investment components.

Three different types of delivery mechanisms are used for TOD investments; these are **contracts, legal entities & structures, and institutional frameworks**.
Contracts are determined at the level of individual transaction and define how the revenues and costs that arise from investment components will be distributed. Typical transaction-level contracts used in TOD investments include leasing agreements, service agreements, and concession agreements.

Legal entities & structures are another delivery mechanism used in TOD investments. These can be arrangements created specifically to carry out TOD investments. Examples of implementation vehicles include, public or private transit agencies, public or private housing and town development corporation, diverse forms of public-private partnerships (PPPs) often involving special purpose vehicles, various land value capture schemes such as Rail + Property arrangements used by the Mass Transit Railway (MTR) in Hong Kong, Land Adjustment and Urban Redevelopment schemes by Tokyu Corporation in Tokyo and business improvement districts by many cities in the United States.

Institutional frameworks are also a key delivery mechanism by which TOD investments are made possible. Through institutional frameworks, public sector stakeholders at the local, regional, and national level can create enabling framework conditions to ensure successful TOD investment. These enabling conditions can include such strategies as inclusionary zoning, upzoning, and development of designated intervention areas. As depicted on this slide, the River District Urban Renewal Area in the Pearl District of Portland, Oregon, was one such area to benefit from its status as a designated intervention area. Implementing an upzoning model, the River District Urban Renewal Area was able to qualify for a range of technical and financial public support programs targeting mixed uses and upgrades to road
networks, mass transit and public parks, allowing for the development of a vibrant, transit-oriented neighborhood.

In practice, a single TOD investment will combine a patchwork of these three different types of delivery mechanisms, and different stakeholders (public, private, and non-profit) will select different delivery mechanisms based on their interests. Stakeholders involved in a TOD investment must carefully determine the delivery mechanisms that will work best for a specific investment.
As with any investment, a vital element of the business model is the revenues and other non-reimbursable monetary supports used to repay the costs of investment components.

It is important to distinguish the non-reimbursable resources for the project from those that need to be repaid (Kim, 2016; Long Finance et al., 2015; WBCSD, 2015; PwC, 2014; (World Economic Forum, 2014). Only the former will actually repay the investment cost. The latter incurs cost for the financial service – for example, borrowing money from a bank involves paying interest, on top of the loan amount. Here we only focus on non-reimbursable sources. We cover financial products at a later stage in this module.

The business model framework identifies three different types of funding sources for TOD investments: these are investment revenues, investment incentives, and own source revenues. In practice, these three types of funding sources are often combined within a single TOD investment in order to cover the various costs that arise from the investment’s components. An additional important feature of funding sources is the timing at which they are available: some materialize over the lifetime of an investment, and are difficult to mobilize upfront, while some sources can be unlocked in the earlier stages of a project.
Let’s look at funding sources in more detail. As mentioned previously, there are three different types of funding sources used for TOD investments.

**Investment revenues** are the revenues generated by the TOD investment itself, in the form of direct payments received in return for products and services. In the case of TOD, investment revenues can include the revenues returned from service charges, land value increments, and air right sales.

**Service charges** are revenues obtained from charges applied to the use of transit services and from charges related to real estate assets. Transit services can obtain income from farebox revenues, or transit-use charges. This revenue is typically used to cover the costs of operation and maintenance of transit infrastructure. Real estate leasing and/or real estate management are another forms of service charge that can provide a more stable and predictable source of revenue.

As depicted on the slide, the TOD project of Plaza Alfonso López, located in Manizales, Colombia, collected service charges to fund the investment. Using funds from **betterment levies**, an additional form of end user charge in which taxes or fees are levied as a charge on those who will benefit from public investment. It is important to note that betterment levies are linked to the beneficiaries of public investments – the extent to which particular individuals are able to use new public space, roads, etc. Even when they are calculated to reflect expected increases in the value of land of a property owner in the area, unlike other land value capture mechanisms they are not usually directly linked to the increases in the
value of property.
An additional form of investment revenue typically harnessed by TOD investments is land value capture. These are revenues gained by capturing some of the land value created through public sector interventions such as FAR increase or changes in land use or regulation, and through public or private investments. A public authority or private transit agency can capture increases in the land value in the precinct of transit stations or corridor. It takes place through various mechanisms including land readjustment, urban redevelopment and other real-estate transactions such as direct sale, leasing and joint-development (development based land value capture) or through taxation for the area experiencing an increase in value (tax-based land value capture). Revenues collected from land value capture are typically used to recover transit or TOD related investment (e.g. station plaza and pedestrian deck) costs.

The notion of land value capture is to “mobilize for the benefit of the community at large some or all of the land value increments (unearned income) generated by actions other than the landowner’s such as investments in infrastructure or administrative changes in land use norms and regulations” (Smolka, Martin, 2013, Implementing Value Capture in Latin America). Land value capture can be used by public and private actors. The key consideration is that the (public or private) party who bears the burden of the investment should be entitled to capture all or part of the land value increment.

Some of the private land value capture mechanisms were explained in Module 3. A good example of Land Capture mechanism is “Rail + Property” model, a relatively unique one used in the city of Hong Kong. With the construction of a new train station in Kowloon,
Hong Kong, which is depicted on the slide, MTR (Mass Transit Railway) could capture increases in land value by acquiring the lands at pre-metro construction price and by selling the properties at after-metro construction prices. For further details on land value capture schemes related to TOD investment, you can refer to “Financing Transit-Oriented Development with Land Values, Adopting Land Value Capture in Developing Countries” https://openknowledge.worldbank.org/handle/10986/21286

Investment revenue can also be gained through the transfer, exchange, or sale of ‘air’ rights. The sale of air rights involves the transfer or sale of public development rights; the sale of so-called ‘air’ rights is the sale of the development rights or public claims on buildable area. Mechanisms used to implement the sale of ‘air’ rights include the auctioning of development rights and the provision of density bonuses to developers in exchange of direct payment or provision of affordable housing and public space by private developers.

The Faria Lima district of São Paulo, a picture of which is displayed on the slide, offers an example of where funding has been mobilized through the auction of development rights. In this district, two legal mechanisms, known as the OOUC (Outorga Onerosa do Direito de Construir) and CEPAC (Certificados de Potencial Adicional de Construção), allowed urban authorities to increase the allowable floor area ratio of given sites, calculate a price for different kinds of floor area uses, and auction these newly created building rights off to private developers.

It is important to note that the funding sources explored over the last few slides are made possible through enabling legislation, which in the business model framework are captured through different sub-categories of “delivery mechanisms” (as already covered, and covered in MODULE 3)

For instance, in Brazil, cities are empowered by the national City Statute (Diário Oficial da União, Brasília/DF, 2001), to designate special areas in which urban authorities can increase the allowable floor area ratio of given sites, to calculate a price for different kinds of floor
area uses, and to auction these newly created building rights off to private developers. Similar provisions exist in some countries for changing zoning codes (as for upzoning) and readjusting land use.
Another funding source for TOD investments are investment incentives. In contrast to investment revenues like farebox revenues and land value capture, investment incentives are not typically tied to the overall financial success of a TOD investment. Instead, investment incentives are designed to reduce the overall cost of an investment by providing incentives to stakeholders to join a TOD investment. Investment incentives are meant to capture funding from stakeholders who might not have otherwise become involved in a TOD investment. Investment incentives typically come into play at an earlier stage in the investment process, often as a means of making a TOD investment attractive to potential investors. Two different types of investment incentives, grants and fiscal incentives, can be used to catalyze TOD investment.

Grants are contributions to a TOD investment in monetary or physical asset form that can be received from public or private budgets. Public grants often play an important role in the early stages of TOD investment; public grants can not only help to support expenses at the early stages of a TOD investment, but they can also be used to lower the cost of finance for TOD investments. The grants available for a project vary widely, depending on the strategies and priorities of governments. Grants can be cash or in kind – for instance, land grants often form part of a TOD funding structure, as in the case of NoMa, a neighborhood located in Washington, D.C.

Additional fiscal incentives that are used to catalyze TOD investment are often given in the form of reduced tax rates, tax exemptions and deferred tax by governments. In the United States, such fiscal incentives as tax concessions and property tax credits have been used to
drive different types of development; a particularly high profile example of a fiscal incentive utilized in the United States is the Low-Income Housing Tax Credit (LIHTC), which supports development of affordable housing throughout the country. These types of fiscal incentives can also be applied to TOD investment. In the transit-oriented redevelopment of NoMa, property tax credits were used to attract new tenants to the area; the National Public Radio (NPR), for example, was given a tax abatement estimated to be worth $40 million to relocate to the area.
Other funding source can come from **own source contribution**. Own source contribution comes from existing public or private budgets that are directly mobilized for a TOD investment through budgetary allocation, earmarking, or transfers.

Governments can utilize their budgets for TOD investment. While existing budgets are useful complements to bridge viability gaps in TOD investments (in particular for CAPEX), it is preferable to use investment revenues and incentives before resorting to other budgets for operational expenditures.
The final business model element often required for TOD investments are financial products.

TOD investments are generally capital intensive, and often require a large amount of upfront capital expenditure. Stakeholders usually need to obtain access to third party capital, to implement a TOD investment.

Financial products are used by stakeholders to mobilize capital in support of a TOD investment. Unlike funding sources, financial products are financial services provided with the expectation of repayment, typically in the form of interest, coupons, dividends, or other types of fees.

The types of financial products used to finance a TOD project can vary depending on the investment components involved in the TOD investment. The three financial products of particular importance to TOD investment that will be discussed are equity, debt, and de-risking products.
TOD investments typically use a combination of equity and debt. This combination of equity and debt is referred to as the capital structure, or capital stack, of an investment.

When forming an investment’s capital structure, stakeholders must take into account the costs of the financial products used. Each financial product utilized in the capital structure of a TOD investment will incur costs of capital. The higher the perceived risks of a given TOD investment, the higher the returns that the capital provider requires for investment will be. This in turn is associated with higher costs of finance.

Several generalizations can be made concerning the common factors that shape the capital structure of a TOD investment. TOD investments may, for example, require large upfront investment or have high investment risk due to uncertainty in revenue streams; while such factors can result in a limited number of willing capital providers or unattractive financial terms, there are ways to overcome these challenges.

The following slides will discuss the three types of financial products typically used in TOD investments: equity, debt, and de-risking products.
Stakeholders involved in TOD investments can obtain monetary contributions from **equity** investors by ceding an ownership share in the future profits of the TOD investment. The early stages of a TOD investment are considered more risky by investors. This can reduce stakeholders’ ability to access finance at this point. Equity can provide the initial finance needed to start a TOD project but it requires investors with a relatively higher risk appetite, and will be a more expensive form of financial capital (than, as we will see, debt).

Equity investors can invest directly (**direct equity**) in TOD projects, or can invest in funds or a portfolio of projects (**indirect equity**). Direct equity investors generally have sector-specific technical expertise that includes the capacity to perform evaluation and asset management throughout all stages of a TOD investment. Indirect equity, which includes investment in private equity funds, pension funds, and infrastructure funds, can help increase the number of equity investors involved in a TOD investment by providing a way for non-technical investors to become involved. In funds, the public sector often takes top-loss position, which gives more risk averse investors, such as commercial banks and institutional investors confidence in the investment. This can have a powerful leveraging effect, making more investment capital available for TOD projects.
Debt is another financial product often used in TOD investment. The two major types of debt products used for TOD are loans and bonds. When a stakeholder utilizes loans or bonds for a TOD investment, monetary contributions are obtained from creditors with specified conditions, conditions under which the stakeholder agrees to pay the creditor an amount of interest on top of repaying the initial amount of money borrowed.

Loans are the most common type of debt product used for TOD investment. When utilizing loans, stakeholders must pay off both interest and the initial amount of money borrowed over the course of a TOD investment. Though many types of loan products exist, several are particularly relevant to TOD investment, including commercial and concessional loans. While commercial loans are provided to TOD investments with fixed or variable interest rates linked to current market rates, concessional loans are given to TOD investments at favorable rates below that of the market. In addition, while commercial loans typically require repayment in fixed time periods, concessional loans may have longer or more flexible repayment schedules.

In the United States, an example of a loan product targeted specifically to TOD investment is the concessional loan provided by the Denver TOD Fund. The Denver TOD Fund provides loans to TOD investments at better rates than what is available from commercial lenders: stakeholders involved in a TOD investment can access concessional loans at lower interest rates and are given three to five years for repayment. The concessional financial terms of this loan are specifically designed to ease the financial burden of acquiring and assembling land to be used for TOD projects.
This slide provides an overview of the different types of loans often utilized in TOD investment. In addition to commercial and concessional loans, TOD investments can also access subordinated loans, acquisition loans, or targeted loan products to fund TOD projects.

Local governments or transit agencies in developing countries, can also obtain long-term loans for infrastructure investments, from bilateral or multilateral development financing institutions including the World Bank, channeled through national governments.

As summarized in this chart, loan types differ in the their concessionality, or the offer of favorable terms to TOD investments, and their seniority, or the priority in which debt must repaid. The seniority of a loan is an important factor to consider in the case of default, when the most senior debt is repaid before more “junior” parts of debt liabilities. In some locations, loans that target risky activities, such as land acquisition or land assembly, can also be available for TOD investment.
An additional type of debt product often used for TOD investment are **bonds**.

Like loans, bonds can be defined as monetary contributions obtained from creditors with specified conditions of repayment; in contrast to loans, however, bonds have a different structure of repayment. With this repayment structure, the issuer of a bond agrees to pay bondholders a fixed or variable coupon rate at regular intervals until the bond reaches maturity, at which point the initial amount of money invested is returned. In the case of TOD investment, stakeholders involved in a TOD project can issue bonds in return for monetary support; the specific stakeholders involved in TOD investments that typically issue bonds for financing purposes are such entities as municipalities or companies.

The table on this slide summarizes the types of bonds typically used for TOD investment and provides examples of cases in the United States in which each type of bond was used to finance infrastructure investment. These types of bonds differ in terms of their issuer and whether their repayment is tied to a particular revenue stream.

Bonds require well-functioning capital markets. Bond markets need a transparent regulatory framework and qualified rating agencies. At the present, the bond market is not well developed in most developing countries. Development of a well-functioning bond market is important to facilitate not only TOD investment but other infrastructure investments.
The financial products known as de-risking products can help reduce or manage investment risks, ultimately allowing TOD stakeholders access to debt and equity at more favorable financial conditions.

De-risking products aim to lower the cost of finance (i.e. the cost of debt and equity), by helping to reduce the likelihood that an investor or lender will not receive a return on their investment. These products can improve the so-called “risk-reward profile” of a TOD investment by reducing the severity of an investor’s potential losses and by reducing uncertainty about the performance of the investment. In some cases, TOD stakeholders may not be able to access finance at all without some form de-risking support.

TOD investments can utilize such de-risking products as credit guarantees, revenue guarantees, and insurance to reduce investment risk. Guarantees and insurance are both provided by third parties, and both work by providing full or partial compensation in case of non-performance of the TOD investment due to pre-specified events.
The financing required for a TOD investment is, ultimately, context-specific. Stakeholders involved in a TOD investment must collaborate to determine what elements might work best for a specific project based on the instruments available in their specific context.

Though the structure of individual TOD investments varies widely, the business model framework provides a clear way in which to understand all of the elements that stakeholders must consider. This is particularly applicable for stakeholders in emerging cities, where a concrete framework for TOD finance can help to improve TOD implementation.
Module Quiz

1. With the construction of a new metro line, Delhi government officials hope to improve accessibility and connectivity for residents. What type of investment component are accessibility and connectivity?
   a. Tangible assets
   b. Intangible assets
   c. Processes

2. Public-private partnerships can typically be categorized under what type of delivery mechanism?
   a. Implementation vehicle
   b. Transaction-level contract
   c. Institutional framework

3. TOD stakeholders in Tokyo, Japan use funds gained from land value capture to finance construction of a new railway station. Under the business model framework, under what element can land value capture be categorized?
   a. Financial products
   b. Funding sources
   c. Investment components
   d. Delivery mechanisms

Answers

1. a and b
2. a
3. b
Module Quiz

4. At what stage of a TOD investment do stakeholders typically utilize the financial product of equity?
   a. Implementation stage
   b. Maintenance stage
   c. Pre-development stage
   d. Operation stage

5. To finance construction of transit-oriented affordable housing, TOD stakeholders in San Francisco, USA are able to access a loan with reduced interest rates and a flexible repayment schedule. What kind of loan have these TOD stakeholders utilized?
   a. Concessional loan
   b. Commercial loan

Answers

1. c
2. a