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Special Risks in Contracts of Building, Operation, and Transfer (BOT) Projects

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Abstract

Infrastructure projects that have a major role in the financial development of countries have already been financed by governments but nowadays, governments due to budget deficits or spending on important issues such as health, education and social affairs does not have the ability to finance the project or for some reasons is not willing to finance the project. Thus, in this regard, they resorted to the domestic and foreign private sector capital including absorption of funds, exploitation of BOT (build, operate and transfer). However, the main BOT project's contract has been signed between the investee government and project company but the project company in order to implement the project signed several contracts with many project contractors, companies and banks, credit and financial institutions. If the number of parties and contracts are from different countries, it can result in different risks that in an overall classification divided risk into general risks and specific risks (special) of BOT projects. The specific risks of BOT are divided into the risks of pre-building phase, building phase, financing operation phase each having different types.

Keywords: BOT, risks, project

Introduction

Over past decades, public infrastructure projects have been financed by the government and the relationship of project constructor and the government was like the relationship between client and contractor whereby at the beginning, was the project owner, or government or public institution that served as the project financing and the contractor in return of project construction receive the prescribed fee without being involved in the income and expenditure of the project or its risks.

Developing countries have a growing demand for infrastructure projects such as roads, highways, airports, telecommunications etc. and inadequate old infrastructure projects and their aging and important role of infrastructure projects in development and economic growth of countries cannot be ignored (Afshar, Abbas and Garshab Khazaieni, 2005:62). On the other hand, high cost of infrastructure projects and the government's inability to fund infrastructure projects due to deduction of general budget and lack of public resources and a strong need for infrastructure development require governments to attract private sector's capital (domestic or foreign) (Grimsey, 2002, p.202-107)

BOT (Build – operate – transfer) is among new methods of finance by which the government in the framework of a contract entrusted concession rights to build, operate and manage a project to the private section (either domestic or foreign). According to this method, the private sector is forced to provide the necessary capital for planning, management, building facilities and public infrastructure project and to build the project in a specified period and for the amortization of capital and profits at a certain time and entrusts the project at the end of the contract period or the end of the exploitation license to the government or public companies that assigned project (Kumaraswany, 2001, p.197).

Multiplicity of parties and contracts from different countries bears risks and since the private sector generally signs contract in form of consortium with government and public company or the public section of the contract, the more the members of consortium, the probability of multi-nationality of consortium increases which leads to a mass of risks (Neilsen, 1997,p.6). As a result,

projects of BOT contracts are called risky projects. Of course, in general infrastructure projects usually encounter risk. But, the basic difference in project implementation through BOT is related to the overall transfer of risks from the public and governmental sector to the private sector (Unido, 1996, p.156). Besides, due to high time-consuming costs of project delivery and lenders and investors reliance on profit from project cash flow, the level of risk increases. All BOT projects bear risks. And a regular and certain affair cannot be found in high risk projects (Unido, 1996:157) and successful implementation of BOT process is an easy task and the whole process of project development is time-consuming and expensive business (Khazaieni Garshab and Ahmadi Loza, 2005, p.263). However, the important issue which plays a major role is that all participants in the project before the start of project intends to identify risks related to the project (Unido, 1996, p.157) to minimize the probability of its occurrence and negative effects (Taleghani, p.47). BOT risks are divided into two general and specific categories of BOT.

Primary recognition of risks

At this point, probable risks of different stages of BOT project implementation and all risks that potentially threat BOT project and project company should be identified (Khazaieni and Ahmadi, 2005, P.264), here, the main objective is to identify problem for further objectives of risk management (Taleghani, P.47).

Although, generalizing risk specifications in infrastructure projects by BOT method is difficult and every host country and in fact every BOT project has its unique risk conditions (Mir Abbassi, Nasirzadeh and Imam Jafar Zadeh, 2005: 1). However, risks of project are divided from different aspects.

In Unido's handbook, risks are divided into general and specific risks that general risks in turn are divided into political, business, legal risks of investee government and specific risks are divided into development, building, completion and operation (Unido, 1996).

In Ancitreal handbook, project risks refers to risks such as force major risks and events that are out of parties' control and leads to project's work-cut such as war, looting and terrorist attack and political risks (disturbance in project as a result of government's adverse rules and actions) and risks of building and operation (the risks of project completion, the risk of increasing building costs, the implementation risks, operation risk, the risk of increasing operation costs) and business risks and eexchange rate and financial risks (UNCITRAL 1996, P.11).

In the EIC book (European Contractors Association), risks are divided into the general economic and financial risks, market, building, operation and maintenance and environmental risks (EIC, 2003, p. 40). And, in another work that categorizes risks into political and build risks, operational, market and income (Askar, 2002, p.325).

Other classifications of risks associated with the BOT are proposed which are briefly mentioned here. However, by analyzing and comparing studies and their classifications it was determined that each categorization with respect of profit one of the project factors are conducted, consequently, the proposed model in each has not the required comprehensiveness. For example, in the proposed model by "Unido" risks that the private investor is involved in a foreign country are specified from the viewpoint of private sector and wants the host government to manage them. In contrast, it does not pay attention to the government's concern and "costumer's risks" are related to the lack of "providing appropriate services" by the private sector is not found in that categorization. Also, by comparing these categorizations it is determined that the focus of any categorization is on a certain part of project process and consequently stages of a BOT project is not seen. For example, UNIDO in risk project group does not observe the finance step risks and product sales (UNIDO, 1996. PP.54-65) though Tiong and Wang have correctly specified two types of risks but did not take

into account the impact of economic risks on the success or failure of a BOT project (Khazaieni and Ahmadi, 2005, p.265). And in Askar, (2002, pp.325-326) not only "economic risks" but also "regulation risks" have not been studied and all are known as political risks and put into one category (ibid). In contrast, in EIC book, despite removing important risks of "regulations", "the risk of plan environmental effects" which is part of "implementation" risks as a separate group and in the same class of other groups and other classifications and categorizations did not in turn have the required comprehensiveness (EIC, 2003, pp.35-40).

Despite the shortcomings of risk project categorizations, among categorizations made, Unido categorization includes more items of project risks and we try to complete this categorization and removing its pitfalls to provide comprehensive categorizations of project risks. Accordingly, whether the private sector (project company) has the capability of controlling risks or not and the government should control manage them, risks are divided into two main categories, general risks (Afshar and Khazaieni, P.63) and private risks or project-specific and general or country risks are risks that are related to the political, economic and law environment of the host (investee) country and the project sponsors do not generally control over it. On the other hand, these risks exist in all forms of investment including BOT (build, operate and transfer), etc. However, project-specific risks are risks that are unique to BOT project and are somehow controllable by project sponsors. In this article project-specific risks are studied.

Analysis of BOT project-specific risks

Project-specific risks are risks that are usually limited in sponsors and investors' control and sponsors and lenders encounter it (UNIDO, 1996, p. 156). Some of these risks are related to the development and preparation step and some exist in the building and operation step about which we discuss.

Development risk (project preparation): The development steps include preparation steps before implementation such as invitation to bidding, analysis of different project documents etc. before signing project contract to select investor and project company or consortium, and hold bidding participants and bidders are forced to spend money in different ways and to spend a lot of time that one of the most important issues in this step is competitors in binding (Delmen, 2000, pp.42-43).

In fact the development risks is relevant to competition in bidding which takes place in the first step of BOT process (such as the risk of losing bidding or assigning it to the competitor or failure in signing BOT agreement which leads to losing bidding costs). In big BOT projects, bidding contracts may be variable because exploitation such projects requires a lot of planning and comprehensive programming, preparing bidding documents and giving lots of explanations (UNIDO, 1996, pp. 156-157).

The government or the governmental company that grants the project provides a package of project arrangements and preparations including invitation to bidding and determining project conditions etc. The bidding package is sent to all interested participants. Sponsors and participants in biding analyzed practical feasibility of the project, planning and testing and reviewing technical and environmental conditions whose analysis such as primary plan and appropriate consortium formation for participants in the project leads to more financial costs for sponsors (Delmen, 2000. p. 43). Now if the project is assigned to other sponsors and project company and a contract is signed between them, the costs of company case and bidding remains.

The risk of project implementation: A risk of the project implementation step is incomplete project (Afshar and Khazaieni, p.65). The stage of project implementation consists planning, engineering and project building till project commission which respectively may bear several risks

in the process of project implementation including planning, building, establishment and on-time completion of project, cost increase etc.

Planning risk: The stage of project planning is one of the implementation and establishment steps and is prior to the building stage. The planning risk that affects project implementation and its establishment and exploitation includes the followings:

Not observing standards of planning and performance; unreliable information; complexities of project with respect of planning; defending the plan; counselor qualification; experience, capacity and careless planning; low way of thinking; re-work, insufficiency of plans and documents; out of date documents; lack of experience and skills of the expert personnel; lack of experiments, investigation and supervision; lack of communication in team buildings, facilities etc.; violation of detailed plan; poor technical specifications ; changes in design and scope of work ; failure to adopt a position on a detailed plan; lack of designer's link with the final exploiter; project's type and size; new or repeated project; having a plan; delay in data representation; lack of project purposes realization; unacceptable results for exploitation and finally correct planning (Ansari, ibid, p.91).

Building risk

The building stage is the most expensive stage of project with highest risk. if the project remains incomplete, type of BOT projects or its derivatives including Boo is not valuable; thus, government or the governmental agency that assign the project and loaners to the project company, expect the project company to guarantee that works are done with project specifications (UNIDO, 1996, pp. 156-157).

The building risk is responsibility about all costs of project development, extra building costs and delay costs (Delmen, 2000. pp. 43-44) and project completion which includes building, experimenting and establishment of the project. As mentioned before, incomplete project is not valuable and the project should be built according to specified conditions in exploitation contract, building risks include:

- The risk of building plan correctness – the type of technology that should be used and the risk of deficits and destructions in primary facilities and equipment – unpredicted accidents and conditions such as bad weather conditions – environmental risks created during the building period. The risk of primary workers and facilities (materials), and whether there is a professional worker available in the project place? And, allowance for such imports and restrictions derived from such rules should be investigated. Lack of access to experienced and committed managers to the project
- Lack of relevant infrastructure and services such as linking roads, service provision in the location (including water, power and other requirements), an available worker and facilities of the entire project location, the completion program – i.e. with regard to worker and primary equipment for project, the completion time is reliable and tangible. The technology under study, infrastructure constraints of the host country, planning conditions, experiment and establishment – the risk of overall change costs in the job market and primary materials and facilities, necessary services for building, the cost of budget provision, administrative costs and other marginal costs of changes during the building contract – the risk of political and natural accidents.

The building risk is usually transferred to the contractor because the contractor takes the responsibility of project building and design. In order to make sure of exact determination of building commitment the project conditions should be exactly determined based on contract's terms and specifications (Delman, 2000, p. 43).

The establishment risk

After the contractor established the project, in order to show harmony with project specifications and successful communication with any foreign network such as power network with water system and exact management of relationship between different facilities and technologies that co-exist in the project, some experiments and examinations should be conducted. Although establishment of a project can somehow be conducted by another operator or independent engineer, typically the responsibility of successful establishment is on the shoulders of contractor and the method of establishing project should be completely determined so that project implementation is agreed by the project company. At the time of project's examination and experiment by the contractor the independent engineer would probably be present in order to guarantee that the project matches conditions of project contract between the government or the governmental company and project company, the operator or buyer may want to be involved in establishing the project because incomplete establishment affect the quality of the product.

The desired establishment usually necessitates functional factor so as to ensure the minimum level of performance is achieved before accepting responsibility by the project company. Thus, the building and function risks will interfere to some extent and despite some establishments succeed in project completion, since the risk principles is linked to building contractor, in order to motivate successful completion of the project, the contractor should be paid to significantly (Delmen, 2000, p.44).

The risk of project deadline

The project deadline for a project company, project assigner and the buyer is highly important. Since the project company is mainly responsible for the project, in order to establish the project greatly sponsored the project or in order to sponsor the project borrows from lenders and to pay installments on due otherwise delay compensation should be paid. Therefore, desires are completed and the projects are launched for gaining the highest revenue and preparation and interest amortization derived from investment and paying installments of received loans. Besides, project assigner which is the government or governmental agency and assigns the advantage of building and launching the infrastructure project to provide services or products and also the buyer or buyers of products and services for their severe need to products and services want to complete project as soon as possible (ibid, p.45). Because risks of project establishment and launch is on contractor's shoulder, the risk of on-time completion is on contractors that due to building contract with the project company takes the responsibility to build the project and if it does not complete the project in due time i.e. 3-5 years or is incapable of doing it if the necessary attention is paid on the compensation of delay in fulfilling their commitment.

Timely completion of the project is important from different aspects, the most important of them is legal contracts and relationships which exists between participants in the project, operators, buyers and loaners, all of the contracts relies on projects completion in a specific time period and for example in case of establishment of power plant project and power production. If completing a certain unit of power plant in a certain period is not conducted according to project plan, it will have undesirable effects that are referred to in the following:

The start of operational phase of the project will be questioned: Usually, in project contract between the government or governmental agency, the building period of the project and its operation phase is determined. For example, in a project establishment project 30 years was considered for a building and operation project that about 2-5 years was allocated to building period and about 25 years allocated to operation period and the operation period starts after completion of building period and based on specified period for building and completion of project in the contract, the

project company signed a contract for operation and maintenance of project with the operator and the operator in the specified time period in the operation and maintenance contract should carry out their duties before the project company. Besides, the project company should fulfill their commitments before the operator that lack of timely completion of project put into trouble the start of operation phase and fulfillment of commitments of operation contract parties.

Receiving energy from the buyer is also postponed which negatively affects network plan of buyers' facilities: According to the purchase agreement signed between the project company and buyer, the project company is committed to deliver a certain amount of electricity from one of power plants in a certain time to the buyer (for example start of operation period). Delay in building and consequently delay in building and operation leads to delay in product delivery to the buyer that in addition to negatively affecting network plans of buyer for providing energy and answering consumers, leads to buyer's delay in payment and the agreed cost of energy.

Buyer's delay in paying product cost and its effect on the project company: The project company in order to sponsor the project typically resort to loaners and according to the sponsorship contract borrow money from the loaner and according to the predicted plan of building period and the start of operation and gaining profit from the project, due time of installments with its profit is determined. Therefore, the project company by selling products and services to the buyer according to the purchase agreement and taking its price in specified period pay the loaners' installments with its interest. Now, if building project is not completed in due time and project is not operated at the specified time, the product is not produced to represent to the buyer and accordingly the buyer for not receiving the product does not pay to the project company cause that loan and debt installments of project company is not paid with its interest at the specified time in the sponsorship contract to the loaners and the installments are subject to delay compensation or the loaners try to implement guaranties.

To claim compensation from the project company by project assigner: In the project contract between the government or governmental company that assigns the project and the project company, if the building project is not completed at the specified time and the project is not ready for operation, the commitment or damage sum for delay in fulfilling commitment should be paid.

Risk of cost increase: For reasons such as change of exchange rate law, inflation and other similar accidents, the cost of project including building and operation costs may increase which may have negative effects on the implementation process of project and conducting project steps including building and operation steps. Some of the above risks are called exchange rate, inflation and financial risks. Below, some risk factors of cost increase are referred to.

The risk of tax increase: The increase of project income tax and accepting it by the project company in turn leads to project cost increase.

The risk of price increase of raw material and facilities: In building and operation step, particularly in the project establishment phase, raw materials and facilities needed for doing the project, the company is responsible to provide raw materials and facilities to implement project, or according to the contract assigns its provision to the building and operator contractor and naturally the increase of required raw materials and facilities price leads to increase of project cost.

The risk of building cost increase: With regard to the available time framework in BOT projects and the building period, specific building costs, such as worker and material cost may change and increase which causes the increase of project cost.

The risk of operation cost: Based on project return, operator usually receives wage, however, especially in developing countries, operator maybe not inclined to accept long-term risks.

The risk of spare parts and replacements: The project company that assigned the project building to the contractor after completion of project building and project delivery to operator for

operation and maintenance wants the building contractor to give the operator some spare parts. On one hand, the project company in turn, at the end of operation period of the project and at the time of project ownership transfer to government or governmental company that assigns the project, may be forced to provide spare parts and its delivery to government or governmental company that cost of spare parts is influenced by several factors of market and its cost increase leads to increase of project cost (UNIDO, p.1996).

The risk of product price decrease: Increasing project cost based on the operation income is calculated from the project. Thus, in case that products should be sold and on the other hand due to different market factors, the received price for project products decreases, project impurities decreases from the product sale and decrease of received money from the place of project product increase project cost (Delmen, 2000, p. 51).

Environmental risk: Even though the environmental risk is studied as functional risk, due to its importance and role in project requires separate analysis because in recent years regarding infrastructure projects of environmental risks especially in developing countries turned into a fundamental and noteworthy issue. On the one hand, international conventions and on the other hand their pressure on developing countries cause the developing countries to be encouraged to observe international regulations about preserving environment. In this respect, the World Bank established regulations by following the famous concept of "sustainable development" which answers the current need without endangering future generations' capabilities meet their needs. Most multidimensional sponsor organizations such as ADB and EBRO require similar environmental evaluations and accordingly, international management standards were provided in 1400 ISO collections by International Standard Organization (Delmen, 2000, p. 46).

The primary steps of BOT project which are related to environmental risks include project building (such as plan and build), maintenance and operation of project, quality of raw material prepared and the function conditions related to environmental issues and applicable rules and conditions of assigning government and any condition imposed by international lending institutions like the World Bank will be determined.

Due to the impact of environmental risk on BOT project that sometimes puts implementation into trouble, lenders especially those who are authorized to interfere in the project are willing to pay more attention to environmental risks. And, credential export companies such as multidimensional institutes are sensitive to environmental risk.

Force major risk: Force major accidents are conditions that are not controllable by government or project company such as natural accidents or disasters (fire, flood, storm) etc. that stops project implementation or disrupts it but the project company should not consider the following conditions as force major.

1. Delay in implementation by building contractor or operation and maintenance contractor or any other sub-contractor

2. Delay in delivering materials, machines or power plant parts (or hidden and obvious deficits)

3. Worn or damaged equipment and materials or power plant facilities. Of course the government should not consider the followings as emergency and force major and disclaim its responsibility

1. Expropriation or nationalization of the power plants by authorities

2. Imposition of sanctions, import restrictions, quotas, etc. by public authorities

3.Waiver of any approval of the project contract by the project company

4. Transformation Act (Wang and Tiong, 2000, pp. 314-315)

Operational risk: Project operation has maintenance and operation risks that according to BOT contract has primarily been transferred to the project company and consequently is transferred to build contractor from the project company due to building contract. Typically, after completion of building and project delivery from building contractor and its delivery to operator (operation and maintenance) these risks till the end of operation period is on the shoulders of operator or the project company. Operation risks, which are noted before include risk of design defects, equipment or facilities, etc.; existence of worker and material, their costs, and checking the ability to provide skilled worker in the project location; the problem of visa for such workers (if foreign workers needed) and materials and limitations presented by the regulations of investee government is determined; changes in operational conditions due to changes in regulations or other conditions; costs of capital and maintenance replacement; existence of experienced and committed managers to the project in the operation period; available local and affordable services and facilities; available infrastructure affaires and services such as linking roads, provision of electricity and other requirements in transferring worker and material to the project location; operation and maintenance program, and whether this program follows a rational system related to buyer's need, and with respect to the nature of host country; whether the government regulation regarding worker and operation and technical conditions of the project realistic; other costs of change during operation period. In addition to operator's responsibilities to launch project based on specific levels and performance, he was asked to set up the project carefully and correctly so it conforms dominant rules of project and allowances and avoids deficit, destruction of project and its limit and infrastructure facilities and nearby facilities and therefore any costs or derived from project operation except those attributed to one of participants in the project or third party is on operator's shoulder whose amount should be determined carefully.

In BOT projects that require advanced or complicated technology, one of the preconditions for project transfer after operation period to the assigner is to transfer skill to its personnel or local partners or sub-parties of contract. Typically, government or governmental company that assign project forces building contractor or operator (utilizer) train the local and national personnel for operation and maintenance of project that should be analyzed carefully. On the other hand, the operator is also responsible for proper maintenance of project till the time of its transfer to the assigner.

The risks of operation are higher than what predicted in project implementation deficit and its income, providing raw, and operation costs. These risks can be divided into 6 groups.

Risks of infrastructure: These risks are related with infrastructure facilities and relevant services such as roads (in highway project) and transfer lines (in electricity project). The responsibility of building these facilities is on third party not the project sponsor. Even though the principles of such equipment may not be part of BOT plan, for success in operating project plan infrastructure facilities is so critical.

Technical risks: These risks include deficits in plan and hidden deficits in facilities of BOT project that is typically needed for realization of implementation purposes by the relevant company or buyer. Plan, building or facilities deficit especially in BOT projects include very advanced technologies that can be very dangerous.

Demand risks: Demand risks are associated with capacity and or price and most of BOT projects which rely on market-based incomes are faced with these risks, if demand for the product and service of project is lower than predicted the rate of capital return decreases. Because, project capital is usually provided from loan and installments of loan and its profit is from the place of project income.

Management risks: The quality of management in any project is the main factor of success.

Supply risks: These risks that are called market risks have two components: capacity and price.

Some BOT projects by supplying unreliable basic raw materials (for example fuel supply for power plant) if supplying raw material for estimation of project needs is unreliable and insufficient, project capability to provide product commitment and debt repayment commitment decreases. In some cases supplication of raw material is controlled by government or exclusive company. This means that projects may suddenly encounter considerable increase of price, the project company may have no control over it and will overall have a negative impact on project operation (UNIDO, 1996, p. 146).

Project financing risks: The required capital of project is provided either through a shareholders' capital share or by borrowing money from lenders that should be repaid in operation period and from product sale or providing project services loans should be repaid and its capital and benefit compensated. Among risks that may threat project in this regard and negatively impact repayment of loans and capital compensation and its profit include risk of demand decrease for product purchase from the predicted level, the risk of product price decrease, the risk of undesirable performance of undesirable toll adjustment performance in projects such as road, highway etc, and the risk of debt pressure and project loans (Afshar and Khazaieni, p.64).

Market risk: The following cases are primary market risks that may be observed in BOT project or its derivations including Boo, Boot.

Lenders as major sponsors of project who are obsessed and sensitive about successful and timely implementation of project and the possibility of paying loan installments are not certainly intended to accept market risk about project and want to adjust contract structure of project as the market risk apart from the project company assigned to other participants in the project including operators and buyers (ibid, p.156).

1. The risk of product price: The most important market risk with regard to BOT project is the price of project product. Regarding the importance and role of project payment in debt repayment, lenders want the market risk to be predictable and controllable or the risk to be transferred to the buyer for the product price, the first one rarely occurs in similar BOT projects and should be limited to projects whose product is present in the market (Delmen, 2000, p. 51).

2. The risk of product cost: Among the main market risks is the project product cost, however, raw materials is necessary for project operation and the market is not sufficiently flexible to provide such material or there is concern for the capacity of future provision of this material. Lenders as beneficiaries in correct and timely implementation of project and its sooner operation may want the project company to sign a contract for raw material because in this contract in the operation period the cost of raw material provision is mostly determined. And, the cost of raw material forms a part of payment for the product by the buyer (ibid, p.52).

3. The risk of monopoly in buying a product project: Sometimes the monopoly buyer of project product are specific consumers or even government and governmental company as a contract party in which case the monopoly buyer is reluctant to pay the real price of project product. For example, in order to guarantee the risk in BOT project it is predicted that the government or governmental company according to the contract commits to buy and pay the product price.

4. The risk of competing project: After establishment of project, the government or companies may assign a similar project establishment advantage to other project company which is the rival of previous company.

In case of the existence of a rival project and supplying products demand for products of project decreases which leads to risk of not selling products and product price decrease.

Customer risks: BOT project causes risks for customer and buyer of project product including risks of products and services' quality and efficiency, toll rate risk, contract cancellation risk by the project company, risk of social effects, risk of technology transfer, and risk of project assign.-risk of project continuation after assigning to the investee government (ibid. .52).

Conclusion

BOT projects (build, operation and transfer) are considered a risky project because of the multiplicity of parties to the contract that are from different countries and the multiplicity of contracts and other related issues including project financing through borrowing loan from credit institutes and international banks and raw material import from other countries and issues related to currency such as capital, transfer and exit of capital, loan installment payment with the currency etc. That is generally divided into general risks (political, financial and legal) and BOT project specific risks (build, operation, finance, facilities and raw material provision, market, customer, etc.). Identifying risks particularly specific BOT risks requires management of these risks according to which risks are controlled, the risk control step including avoidance, reduction, acceptance and transfer of risks (to several participants in the project including contractors, building, providers of raw materials and facilities, buyers of product and services buyer etc. and or risk insurance).

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