CLAIMS

What is claimed is:

1. An information transmission method, applied to a first device, wherein the method comprises:

sending first information to at least one second device, wherein the first information is used to trigger the second device to transmit assistance information or used for performing resource selection or reservation by the second device.

2. The method according to claim 1, wherein the first information comprises at least one of the following information:

first information type indication information;

time domain resource indication information;

frequency domain resource indication information;

time information for transmitting the assistance information;

identification information of a first information sender;

identification information of a first information receiver; and

information about a to-be-transmitted service of the first device.

3. The method according to claim 2, wherein the information about the to-be-transmitted service of the first device comprises at least one of the following:

a data volume of the to-be-transmitted service;

delay information of the to-be-transmitted service;

a priority of the to-be-transmitted service;

a data rate of the to-be-transmitted service;

reliability of the to-be-transmitted service;

a service period of the to-be-transmitted service; and

a communication range requirement corresponding to the to-be-transmitted service.

4. The method according to claim 1, wherein the first information is carried in target information, and the target information comprises at least one of the following:

sidelink control information;

downlink control information;

radio resource control information;

direct link radio resource control information; and

sidelink feedback control information, wherein

the sidelink control information further comprises first-stage sidelink control information and second-stage sidelink control information.

5. The method according to claim 2, wherein the first information type indication information is used to indicate at least one of the following:

the first information is not trigger information for triggering transmission of the assistance information; and

the first information is trigger information for triggering transmission of the assistance information.

~~6. The method according to claim 2 or 4, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the type indication information is indicated by a first indication field, wherein each code point in the first indication field corresponds to one type of the first information;~~

~~or~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the type indication information is indicated by joint coding with a second indication field, wherein each code point in the second indication field corresponds to one type of the first information;~~

~~or~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the type indication information is indicated by a code point in a third indication field, wherein each code point in the third indication field corresponds to one type of the first information;~~

~~or~~

~~in the second-stage sidelink control information, the type indication information is implicitly indicated by a code point in an information destination ID indication field;~~

~~or~~

~~in the second-stage sidelink control information, the type indication information is implicitly indicated by a communication range requirement indication field and a geographical area ID indication field.~~

~~7. The method according to claim 6, wherein the second indication field and/or the third indication field comprise/comprises at least one of the following:~~

~~a priority indication field, a resource reservation period indication field, a frequency domain resource allocation indication field, a time domain resource allocation indication field, a demodulation reference signal DMRS pattern indication field, a second-stage SCI format indication field, a β offset indication field, a DMRS port quantity indication field, a modulation and coding scheme indication field, a hybrid automatic repeat request HARQ process ID indication field, a new data indicator NDI indication field, a redundancy version RV indication field, an information source ID indication field, an information destination ID indication field, a channel state information CSI requirement indication field, a communication range requirement indication field, and a geographical area identification ID indication field.~~

~~8. The method according to claim 4, wherein in a case that the target information is at least one of the first-stage sidelink control information, the second-stage sidelink control information, and the downlink control information, the method further comprises:~~

~~indicating, by using a format of the target information, whether the first information is trigger information for triggering transmission of the assistance information;~~

~~or~~

~~indicating, by using a radio network temporary identifier RNTI for scrambling the target information, whether the first information is trigger information for triggering transmission of the assistance information.~~

~~9. The method according to claim 8, wherein in a case that the target information is the second-stage sidelink control information, the method further comprises:~~

~~adding the first information to~~carrying the first information in the second-stage sidelink control information in a specific format, and indicating the format of the second-stage sidelink control information by using a fourth indication field in the first-stage sidelink control information, wherein

~~the fourth indication field comprises at least one of the following:~~

~~a priority indication field, a resource reservation period indication field, a frequency domain resource allocation indication field, a time domain resource allocation indication field, a demodulation reference signal DMRS pattern indication field, a second-stage SCI format indication field, a β offset indication field, a DMRS configuration type indication field, and a modulation and coding scheme indication field.~~

~~10. The method according to claim 8, wherein if the first information is the trigger information for triggering transmission of the assistance information, a method for generating the RNTI for scrambling the target information comprises at least one of the following:~~

~~being generated by using a predefined value;~~

~~being equal to a predefined scrambling RNTI;~~

~~being equal to a scrambling RNTI configured by a higher layer;~~

~~being generated by using a resource pool ID;~~

~~being generated by using an information source ID;~~

~~being generated by using an information destination ID; and~~

~~being generated by using a group ID.~~

~~11. The method according to claim 1, further comprising:~~

~~indicating, by using a transmission resource of the first information, whether the first information is trigger information for triggering transmission of the assistance information.~~

~~12. The method according to claim 11, wherein if the first information is the trigger information for triggering transmission of the assistance information, the transmission resource of the first information comprises at least one of the following:~~

~~a physical sidelink feedback channel;~~

~~a physical sidelink data channel;~~

~~a resource in a dedicated resource pool;~~

~~a preconfigured transmission resource;~~

~~a resource in a specific subband in a resource pool; and~~

~~a resource on a specific symbol or in a specific subframe in a resource pool.~~

~~13. The method according to claim 2, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the time domain resource indication information in the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the time domain resource indication information is indicated by a fifth indication field, wherein each code point in the fifth indication field corresponds to at least one piece of time domain resource indication information, and the time domain resource indication information comprises at least one of a time domain resource start position, a time domain resource end position, and a time domain resource length, wherein~~

~~the fifth indication field is an independent indication field, or the fifth indication field is a jointly coded indication field.~~

~~14. The method according to claim 2, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the frequency domain resource indication information in the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the frequency domain resource indication information is indicated by a sixth indication field, wherein each code point in the sixth indication field corresponds to at least one piece of frequency domain resource indication information,~~

and the frequency domain resource indication information comprises at least one of a frequency domain resource start position, a frequency domain resource end position, and a frequency domain resource length, wherein

the sixth indication field is an independent indication field, or the sixth indication field is a jointly coded indication field.

15. The method according to claim 2, wherein in the first information, the time information for transmitting the assistance information comprises at least one of the following:

time window position information for transmitting the assistance information;

time window length information for transmitting the assistance information; and

delay information for transmitting the assistance information.

16. The method according to claim 2, further comprising:

determining, based on a quality of service QoS parameter mapping of the to-be-transmitted service, or a predefinition, or a higher layer configuration, the time information for transmitting the assistance information, wherein the QoS parameter of the to-be-transmitted service comprises at least one of the following:

a delay requirement of the to-be-transmitted service;

a priority of the to-be-transmitted service;

a reliability requirement of the to-be-transmitted service;

a transmission rate requirement of the to-be-transmitted service;

a data volume of the to-be-transmitted service; and

a communication range requirement of the to-be-transmitted service.

17. The method according to claim 15, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the time information for transmitting the assistance information, in the first information,

in the first-stage sidelink control information and/or the second-stage sidelink control information, the time window position information and/or the time window length information are/is indicated by a seventh indication field, wherein each code point in the seventh indication field corresponds to at least one piece of time window

~~position information and/or time window length information, and the time window position information comprises a time window start position and/or a time window end position, wherein~~

~~the seventh indication field is an independent indication field, or the seventh indication field is a jointly coded indication field.~~

~~18. The method according to claim 15, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the time window length information for transmitting the assistance information, in the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the time window length information is indicated by an eighth indication field, wherein each code point in the eighth indication field corresponds to one time window length, wherein~~

~~the eighth indication field is an independent indication field, or the eighth indication field is a jointly coded indication field.~~

~~19. The method according to claim 15, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the delay information for transmitting the assistance information, in the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the delay information for transmitting the assistance information, in the first information is indicated by a ninth indication field, wherein each code point in the ninth indication field corresponds to one delay value for transmitting the assistance information, wherein~~

~~the ninth indication field is an independent indication field, or the ninth indication field is a jointly coded indication field.~~

~~20. The method according to claim 2, wherein in a case that the first device uses the first-stage sidelink control information and/or the second-stage sidelink control information to carry the information about the to-be-transmitted service in the first information,~~

~~in the first-stage sidelink control information and/or the second-stage sidelink control information, the information about the to-be-transmitted service is indicated by a tenth indication field, wherein the tenth indication field is an independent indication field, or the tenth indication field is a jointly coded indication field, wherein~~

~~each code point in the tenth indication field corresponds to at least one of the following:~~

~~a data volume of the to-be-transmitted service;~~

~~a delay requirement of the to-be-transmitted service;~~

~~a priority of the to-be-transmitted service;~~

~~a reliability requirement of the to-be-transmitted service;~~

~~a transmission rate requirement of the to-be-transmitted service;~~

~~a period of the to-be-transmitted service; and~~

~~a communication range requirement of the to-be-transmitted service.~~

~~21~~16. An information transmission method, applied to a second device, wherein the method comprises:

receiving first information sent by a first device, wherein the first information is used to trigger the second device to transmit assistance information or used for performing resource selection or reservation by the second device.

~~22~~7. The method according to claim ~~21~~6, wherein the first information comprises at least one of the following information:

first information type indication information;

time domain resource indication information;

frequency domain resource indication information;

time information for transmitting the assistance information;

identification information of a first information sender;

identification information of a first information receiver; and

information about a to-be-transmitted service of the first device.

~~23~~8. The method according to claim ~~22~~7, wherein the information about the to-be-transmitted service of the first device comprises at least one of the following:

a data volume of the to-be-transmitted service;

delay information of the to-be-transmitted service;

a priority of the to-be-transmitted service;

a data rate of the to-be-transmitted service;

reliability of the to-be-transmitted service;

a service period of the to-be-transmitted service; and

a communication range requirement corresponding to the to-be-transmitted service.

~~24~~9. The method according to claim ~~21~~6, wherein the first information is carried in target information, and the target information comprises at least one of the following:

sidelink control information;

downlink control information;

radio resource control information;

direct link radio resource control information; and

sidelink feedback control information, wherein

the sidelink control information further comprises first-stage sidelink control information and second-stage sidelink control information.

~~25~~10. The method according to claim ~~22~~7, wherein the first information type indication information is used to indicate at least one of the following:

the first information is not trigger information for triggering transmission of the assistance information; and

the first information is trigger information for triggering transmission of the assistance information.

~~26. The method according to claim 21, further comprising:~~

~~determining a type of the first information, wherein~~

~~a method for determining the type of the first information comprises at least one of the following:~~

~~determining, based on content indicated by first information type indication information in the first information, whether the first information is trigger information for triggering transmission of the assistance information;~~

~~determining, based on a format of the first information and/or a format length of the first information, whether the first information is trigger information for triggering transmission of the assistance information;~~

~~determining, based on a RNTI for scrambling the first information, whether the first information is trigger information for triggering transmission of the assistance information; and~~

~~determining, based on a transmission resource of the first information, whether the first information is trigger information for triggering transmission of the assistance information.~~

~~27. The method according to claim 21, further comprising:~~

~~if the first information is trigger information for triggering transmission of the assistance information, transmitting the assistance information based on a resource indicated by the first information;~~

~~or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and identification information of a first information receiver comprised in the first information matches the second device, transmitting the assistance information based on a resource indicated by the first information;~~

~~or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and a distance between a first information receiver and a first information sender meets a preset condition, transmitting the assistance information based on a resource indicated by the first information;~~

~~or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and an identity of a first information receiver comprised in the first information matches the second device, and a distance between the first information receiver and a first information sender meets a preset condition, transmitting the assistance information based on a resource indicated by the first information.~~

28. The method according to claim 21, further comprising:

if the first information is not trigger information for triggering transmission of the assistance information, performing resource selection or reservation for data transmission based on a resource indicated by the first information;

or

if the first information is trigger information for triggering transmission of the assistance information, and identification information of a first information receiver comprised in the first information does not match the second device, performing resource selection or reservation for data transmission based on a resource indicated by the first information;

or

if the first information is trigger information for triggering transmission of the assistance information, and a distance between a first information receiver and a first information sender does not meet a preset condition, performing resource selection or reservation for data transmission based on a resource indicated by the first information;

or

if the first information is trigger information for triggering transmission of the assistance information, and an identity of a first information receiver comprised in the first information matches the second device, and a distance between the first information receiver and a first information sender does not meet a preset condition, performing resource selection or reservation for data transmission based on a resource indicated by the first information.

29. The method according to claim 27, wherein the transmitting the assistance information based on a resource indicated by the first information comprises:

transmitting the assistance information on a resource indicated by time domain resource indication information and/or frequency domain resource indication information comprised in the first information.

30. The method according to claim 28, wherein the performing resource selection or reservation for data transmission based on a resource indicated by the first

~~informationtransmitting the assistance information based on a resource indicated by the first information comprises:~~

~~selecting, based on time information comprised in the first information and used for transmitting the assistance information, a transmission resource for the assistance information in a time window indicated by the time information, and transmitting the assistance information.~~

~~31. The method according to claim 28, wherein the performing resource selection or reservation for data transmission based on a resource indicated by the first information comprises:~~

~~when performing resource selection or reservation, excluding, based on time domain resource indication information and/or frequency domain resource indication information comprised in the first information, a time domain resource indicated by the time domain resource indication information and/or a resource indicated by the frequency domain resource indication information.~~

~~32. The method according to claim 27 or 28, wherein a manner of determining the preset condition comprises at least one of the following:~~

~~determining based on indication information in a communication range requirement indication field in the first information;~~

~~determining based on a predefinition; and~~

~~determining based on a higher-layer configuration.~~

~~33. The method according to claim 27, wherein if the assistance information transmitted by the second device carries an identity of an assistance information receiver,~~

~~the identity of the assistance information receiver is the same as an identity of the first information sender in the first information.~~

~~34. The method according to claim 27, wherein if the first information is trigger information for triggering transmission of the assistance information, and the first information carries resource information of a to-be-transmitted service of the first device, the method further comprises:~~

~~selecting a resource for the to-be-transmitted service of the first device based on information about the to-be-transmitted service of the first device, and indicating, by using the assistance information, a resource used for data transmission in the first device.~~

~~35~~11. An information transmission apparatus, applied to a first device and comprising:

a first sending module, configured to send first information to at least one second device, wherein the first information is used to trigger the second device to transmit assistance information or used for performing resource selection or reservation by the second device.

~~36~~12. The apparatus according to claim ~~35~~11, wherein the first information comprises at least one of the following information:

first information type indication information;

time domain resource indication information;

frequency domain resource indication information;

time information for transmitting the assistance information;

identification information of a first information sender;

identification information of a first information receiver; and

information about a to-be-transmitted service of the first device.

~~37~~13. The apparatus according to claim ~~36~~12, wherein the information about the to-be-transmitted service of the first device comprises at least one of the following:

a data volume of the to-be-transmitted service;

delay information of the to-be-transmitted service;

a priority of the to-be-transmitted service;

a data rate of the to-be-transmitted service;

reliability of the to-be-transmitted service;

a service period of the to-be-transmitted service; and

a communication range requirement corresponding to the to-be-transmitted service.

14. The apparatus according to claim 11, wherein the first information is carried in target information, and the target information comprises at least one of the following:

sidelink control information;

downlink control information;

radio resource control information;

direct link radio resource control information; and

sidelink feedback control information, wherein

the sidelink control information further comprises first-stage sidelink control information and second-stage sidelink control information.

15. The apparatus according to claim 12, wherein the first information type indication information is used to indicate at least one of the following:

the first information is not trigger information for triggering transmission of the assistance information; and

the first information is trigger information for triggering transmission of the assistance information.

~~38~~16. An information transmission apparatus, applied to a second device and comprising:

a first receiving module, configured to receive first information sent by a first device, wherein the first information is used to trigger the second device to transmit assistance information or used for performing resource selection or reservation by the second device.

17. The apparatus according to claim 16, wherein the first information comprises at least one of the following information:

first information type indication information;

time domain resource indication information;

frequency domain resource indication information;

time information for transmitting the assistance information;

identification information of a first information sender;

identification information of a first information receiver; and

information about a to-be-transmitted service of the first device.

18. The apparatus according to claim 17, wherein the information about the to-be-transmitted service of the first device comprises at least one of the following:

a data volume of the to-be-transmitted service;

delay information of the to-be-transmitted service;

a priority of the to-be-transmitted service;

a data rate of the to-be-transmitted service;

reliability of the to-be-transmitted service;

a service period of the to-be-transmitted service; and

a communication range requirement corresponding to the to-be-transmitted service.

19. The apparatus according to claim 16, wherein the first information is carried in target information, and the target information comprises at least one of the following:

sidelink control information;

downlink control information;

radio resource control information;

direct link radio resource control information; and

sidelink feedback control information, wherein

the sidelink control information further comprises first-stage sidelink control information and second-stage sidelink control information.

20. The apparatus according to claim 17, wherein the first information type indication information is used to indicate at least one of the following:

the first information is not trigger information for triggering transmission of the assistance information; and

the first information is trigger information for triggering transmission of the assistance information.

~~39. The apparatus according to claim 38, further comprising:~~

~~a type determining module, configured to determine a type of the first information, wherein~~

~~a method for determining the type of the first information comprises at least one of the following:~~

~~determining, based on content indicated by first information type indication information in the first information, whether the first information is trigger information for triggering transmission of the assistance information;~~

~~determining, based on a format of the first information and/or a format length of the first information, whether the first information is trigger information for triggering transmission of the assistance information;~~

~~determining, based on a RNTI for scrambling the first information, whether the first information is trigger information for triggering transmission of the assistance information; and~~

~~determining, based on a transmission resource of the first information, whether the first information is trigger information for triggering transmission of the assistance information.~~

~~40. The apparatus according to claim 38, further comprising:~~

~~a first transmission module, configured to: if the first information is trigger information for triggering transmission of the assistance information, transmit the assistance information based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and identification information of a first information receiver comprised in the first information matches the second device, transmit the assistance information based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and a distance between a first information receiver and a first information sender meets a preset condition, transmit the assistance information based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and an identity of a first information receiver comprised in the first information matches the second device, and a distance between the first information receiver and a first information sender meets a preset condition, transmit the assistance information based on a resource indicated by the first information.~~

~~41. The apparatus according to claim 38, further comprising:~~

~~a resource processing module, configured to: if the first information is not trigger information for triggering transmission of the assistance information, perform resource selection or reservation for data transmission based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and identification information of a first information receiver comprised in the first information does not match the second device, perform resource selection or reservation for data transmission based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and a distance between a first information receiver and a first information sender does not meet a preset condition, perform resource selection or reservation for data transmission based on a resource indicated by the first information; or~~

~~if the first information is trigger information for triggering transmission of the assistance information, and an identity of a first information receiver comprised in the first information matches the second device, and a distance between the first information receiver and a first information sender does not meet a preset condition, perform resource selection or reservation for data transmission based on a resource indicated by the first information.~~

~~42. An electronic device, comprising a processor, a memory, and a program or instructions stored in the memory and capable of running on the processor, wherein when the program or instructions are executed by the processor, the steps of the information transmission method according to any one of claims 1 to 20 are implemented; or when the program or instructions are executed by the processor, the steps of the information transmission method according to any one of claims 21 to 34 are implemented.~~

~~43. A readable storage medium, wherein the readable storage medium stores a program or instructions, and when the program or instructions are executed by a processor, the steps of the information transmission method according to any one of~~

~~claims 1 to 20 are implemented; or when the program or instructions are executed by a processor, the steps of the information transmission method according to any one of claims 21 to 34 are implemented.~~

~~44. A chip, wherein the chip comprises a processor and a communications interface, the communications interface is coupled to the processor, and the processor is configured to run a program or instructions to implement the information transmission method according to any one of claims 1 to 20 or the information transmission method according to any one of claims 21 to 34.~~

~~45. An electronic device, configured to perform the information transmission method according to any one of claims 1 to 20 or the information transmission method according to any one of claims 21 to 34.~~

~~46. A computer program product, wherein the computer program product is executed by at least one processor to implement the information transmission method according to any one of claims 1 to 20 or the information transmission method according to any one of claims 21 to 34.~~