

**CLAIMS:**

1. A computer-implemented method of generating a mission plan for an ~~planning~~-autonomous mission, the mission plan being executed by one or more autonomous agents, the method comprising:

5 | obtaining a generic mission template from a computer storage, the generic mission template being constructed from a plurality of mission-objects and defines logical connections between the plurality of mission-objects, wherein each mission-object is configured to logically represent a respective type of mission-element;

10 | associating one or more mission-object in the generic mission template with a respective real world mission-element, thereby generating a specific mission plan;

| using a processor for:

15 | generating, ~~using a processor~~, based on the generic mission template and the specific mission plan, an agent-specific mission plan for each of said one or more agents, wherein an agent specific mission plan comprises tasks assigned to a respective designated agent allowing for the controlling and updating in real-time of the tasks assigned to a specific agent individually from other agents operating under the same mission plan;

20 | ~~and converting each agent-specific mission plan into a format which is compatible with the technical requirement of the respective designated agent~~;

| continuously monitoring the progress of the mission, identifying in real-time that an update to a mission-element is required and updating the mission-element accordingly; and

25 | determining, based on the generic mission plan whether there are logical connections between the updated mission-element and other mission-elements, and if yes, updating the other mission-elements to enable progress of the mission.

2. The method according to claim 1, wherein said obtaining comprises: providing a plurality of mission-object types each type of mission-object being a variable configured to logically represent a respective type of real world mission-element;

5 selecting mission-objects from said plurality of mission-object types;  
establishing connections between said plurality of selected mission-objects; and  
generating said generic mission template.

10 3. The method according to ~~any one of the preceding claims~~claim 1, further comprising:

simulating the mission plan execution thereby validating that the mission plan is free of errors or undesirable logical connection between different mission-objects.

15 ~~4. The method according to any one of the preceding claims~~  
~~further comprising:~~

~~converting, each agent-specific mission plan into a format which is compatible with a respective designated agent.~~

20 ~~5.4. The method according to any one of the preceding claims~~  
1, further comprising, transmitting each agent-specific mission plan to a respective designated agent.

~~6.5. The method according to any one of the preceding claims~~  
1, further comprising:

displaying on a display a graphical representation of the generic mission template;

25 indicating, with the help of said graphical representation, a real-time progress of said real world mission-elements in respect of the mission plan.

~~7.6.~~ The method according to ~~any one of the preceding claims~~claim 1, further comprising:

updating, during the execution of the mission, information related to a first mission-object in said generic mission template;

5 responsive to said updating, associating a new mission-element with said first mission object, thereby enabling to change the mission plan while the mission is in progress.

~~8.7.~~ The method according to claim 7, wherein said new mission-element is an agent, and said information includes an agent-specific mission  
10 plan of the agent.

~~9.8.~~ The method according to claim 7, further comprising:

in case a second mission-object in said generic mission template is logically connected to said first mission-object, updating information in respect of mission-element associated with said second mission object.

15 ~~10.9.~~ The method according to claim 7, wherein said updating is performed automatically with the help of a processor, based on predefined logic.

~~11.10.~~ The method according to ~~any one of the preceding claims~~claim 1, wherein said associating is performed automatically based on predefined  
20 logic.

~~12.11.~~ A computer-implemented method of planning~~generating a mission plan for an autonomous mission~~, the mission plan being executed by one or more autonomous agents, the method comprising:

generating a plurality of mission-objects types each type of mission-  
25 object being a variable configured to logically represent a respective type of real world mission-element;

generating a plurality of selected mission-objects from said plurality of mission-object types;

establishing logical connections between said plurality of selected mission-objects; and

5       generating a generic mission template;

using a processor for:

10       generating, based on the generic mission template and a specific mission plan, an agent-specific mission plan for each of said one or more agents, wherein an agent specific mission plan comprises tasks assigned to a respective designated agent allowing for the controlling and updating in real-time of the tasks assigned to a specific agent individually from other agents operating under the same mission plan;

converting each agent-specific mission plan into a format which is compatible with the technical requirement of the respective designated agent;

15       continuously monitoring the progress of the mission, identifying in real-time that an update to a mission-element is required and updating the mission-element accordingly; and

20       determining, based on the generic mission plan whether there are logical connections between the updated mission-element and other mission-elements, and if yes, updating the other mission-elements to enable progress of the mission.

~~13-12.~~ The method according to claim ~~12-11~~, further comprising:

25       associating one or more mission-object in the generic mission template with a respective real world mission-element, thereby generating a specific mission plan;

~~generating, using a processor, based on the generic mission template and the specific mission plan, an agent-specific mission plan for each of said~~

~~one or more agents, wherein an agent-specific mission plan comprises tasks assigned to a respective designated agent and is compatible with the technical requirement of the respective designated agent.~~

5       ~~14.13.~~ The method according to ~~any one of claims 12, to 13~~ wherein said generating of the generic mission template is performed automatically with the help of a processor based on predefined logic.

10       ~~15.14.~~ A computer-implemented system of planning ~~generating a mission plan for an~~ autonomous mission, the mission plan being executed by one or more autonomous agents, the system comprising at least one processor coupled to a memory and operable to:

15       obtain a generic mission template from a computer storage, the generic mission template being constructed from a plurality of mission-objects and defines logical connections between the plurality of mission-objects, wherein each mission-object is configured to logically represent a respective type of mission-element;

associate one or more mission-object in the generic mission template with a respective real world mission-element, thereby generating a specific mission plan;

20       generate, using ~~a the~~ processor, based on the generic mission template and the specific mission plan, an agent-specific mission plan for each of said one or more agents, wherein an ~~agent~~ agent-specific mission plan comprises tasks assigned to a respective designated agent allowing for the controlling and updating in real-time of the tasks assigned to a specific agent individually from other agents operating under the same mission plan;

25       and is convert each agent-specific mission plan into a format which is compatible with the technical requirement of the respective designated agent;

continuously monitor the progress of the mission, identify in real-time that an update to a mission-element is required and update the mission-element accordingly; and

5 determine, based on the generic mission plan whether there are logical connections between the updated mission-element and other mission-elements, and if yes, update the other mission-elements to enable progress of the mission.

~~16.15.~~ The system according to claim ~~15-14~~, wherein said processor is further operable to:

10 provide a plurality of mission-object types, each type of mission-object being a variable configured to logically represent a respective type of real world mission-element;

select mission-objects from said plurality of mission-object types;

15 establish connections between said plurality of selected mission-objects; and

generate said generic mission template.

~~17.16.~~ The system according to ~~any one of claims 15 to 16~~~~14~~, wherein said processor is further operable to:

20 simulate the mission plan thereby validate that the mission plan is free of errors.

~~18.~~ The system according to ~~any one of claims 15 to 17~~ wherein said processor is further operable to:

~~convert, each agent-specific mission plan into a format which is compatible with a respective designated agent.~~

25 ~~19.17.~~ The system according to ~~any one of claims 15 to 18~~~~14~~, wherein said processor is further operable to:

transmit each agent-specific mission plan to a respective designated agent.

20.18. The system according to ~~any one of claims 15 to 19~~14, further comprising a display, wherein said processor is further operable to:

5       display on the display a graphical representation of the generic mission template;

indicating, with the help of said graphical representation, a real-time progress of said real world mission-elements in respect of the mission plan.

10       21.19. The system according to ~~any one of claims 15 to 20~~14, wherein said processor is further operable to:

update, a first mission-object in said generic mission template; and

responsive to said ~~updating~~update, further update an agent-specific mission plan of an agent associated with said mission-object, thereby enabling to change the mission plan while the mission is in progress.

15       22.20. The system according to claim ~~21~~19, wherein said processor is further operable to:

in case a second mission-object is logically connected to said first mission-object, determine whether the logical connection require to update instruction to a second agent associated with the second mission-object;

20       and if it is, update agent-specific mission plan of said second agent, while the mission is in progress.

23.21. The system according to claim ~~21~~19, wherein said processor is operable to automatically perform said updating, based on predefined logic.

25       24.22. The system according to ~~any one of claims 15 to 23~~14, wherein said processor is operable to automatically associate one or more mission-object in the generic mission template with a respective real world mission-element, based on predefined logic.

25.23. A computer-implemented system of generating a mission plan for an autonomous mission-planning, the mission plan being executed by one or more autonomous agents, the system comprising at least one processor coupled to a memory and operable to:

- 5           generate a plurality of mission-objects types each type of mission-object configured to logically represent a respective real world mission-element;

            generate a plurality of selected mission-objects from said plurality of mission-object types;

- 10          establish connections between said plurality of selected mission-objects; and

            generate a generic mission template;

- generate, using the processor, based on the generic mission template and the specific mission plan, an agent-specific mission plan for each of said  
15      one or more agents, wherein an agent-specific mission plan comprises tasks assigned to a respective designated agent allowing for the controlling and updating in real-time of the tasks assigned to a specific agent individually from other agents operating under the same mission plan;

- convert each agent-specific mission plan into a format which is  
20      compatible with the technical requirement of the respective designated agent;

continuously monitor the progress of the mission, identify in real-time that an update to a mission-element is required and update the mission-element accordingly; and

- determine, based on the generic mission plan whether there are logical  
25      connections between the updated mission-element and other mission-elements, and if yes, update the other mission-elements to enable progress of the mission.

26:24. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps of planning autonomous mission, the mission being executed by one or more autonomous agents, the method comprising:

5 | obtaining a generic mission template from a computer storage, the generic mission template being constructed from a plurality of mission-objects and defines logical connections between the plurality of mission-objects, wherein each mission-object is configured to logically represent a respective type of mission-element;

10 | associating one or more mission-object in the generic mission template with a respective real world mission-element, thereby generating a specific mission plan;

| using a processor for:

15 | ~~generating, using a processor,~~ based on the generic mission template and the specific mission plan, an agent-specific mission plan for each of said one or more agents, wherein an agent specific mission plan comprises tasks assigned to a respective designated agent allowing for the controlling and updating in real-time of the tasks assigned to a specific agent individually from other agents operating under the same mission plan

20 | ~~and converting each agent-specific mission plan into a format which is~~ compatible with the technical requirement of the respective designated agent;

| continuously monitoring the progress of the mission, identifying in real-time that an update to a mission-element is required and updating the mission-element accordingly; and

25 | determining, based on the generic mission plan whether there are logical connections between the updated mission-element and other mission-elements, and if yes, updating the other mission-elements to enable progress of the mission.