Final implementation of the practical exercise

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Final architecture and changes

Important changes with regard to the design

- Gold and silver sub-coordinators deleted

- Utility Computing: does not take into account distance between prospectors

- Parameter optimization in our "Selectivity method"

- Diggers agents always prioritize mining over manufacturing

Multi-Agent System final architecture
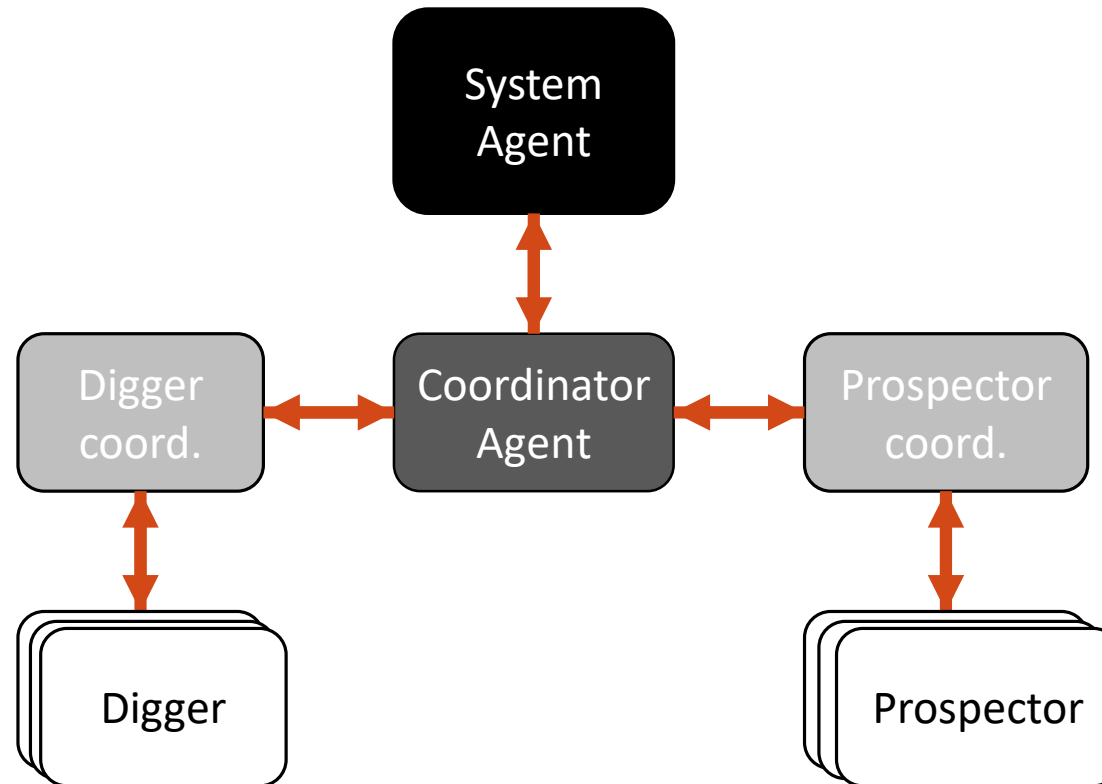
New turn game settings

New turn game settings

→ = Game Settings

→ = Utility map

Found metal fields to assign

Found metal fields to assign

→ = found metals
→ = all found metals

System Agent

Digger coord. ←3— Coordinator Agent ←2— Prospector coord.

Digger

Prospector

1
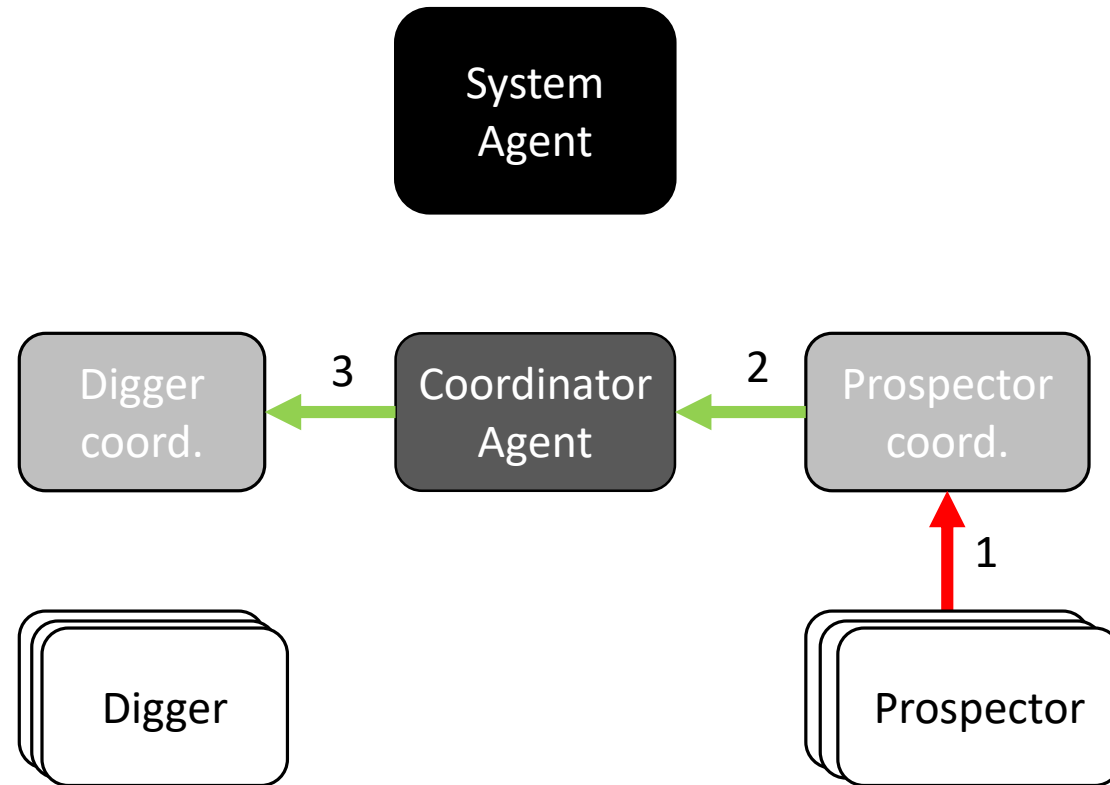
Metal field assignation

Metal field assignation

➡ = list of metals
➡ = bids of diggers
➡ = metal assignation

System Agent

Digger coord.

Coordinator Agent

Prospector coord.

1   2   3

Digger

Prospector
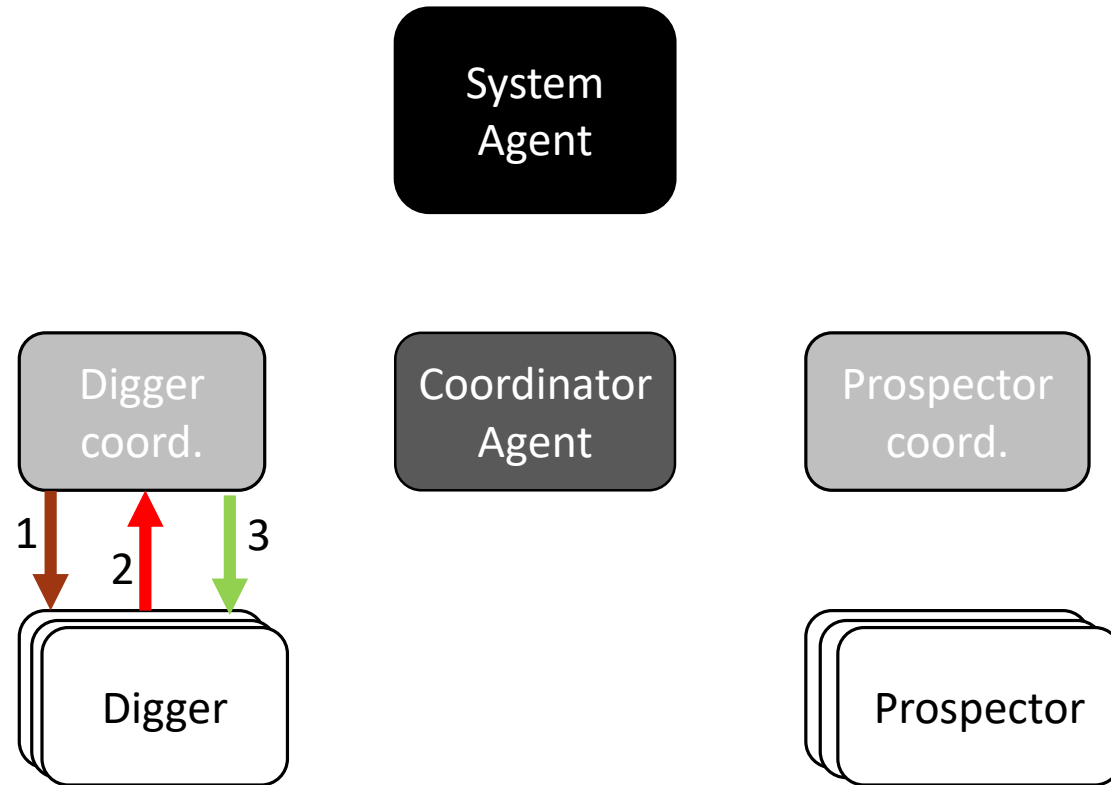
New turn desired actions

New turn desired actions

➡ = movement intention

➡ = digging intention

➡ = manufacturing intention
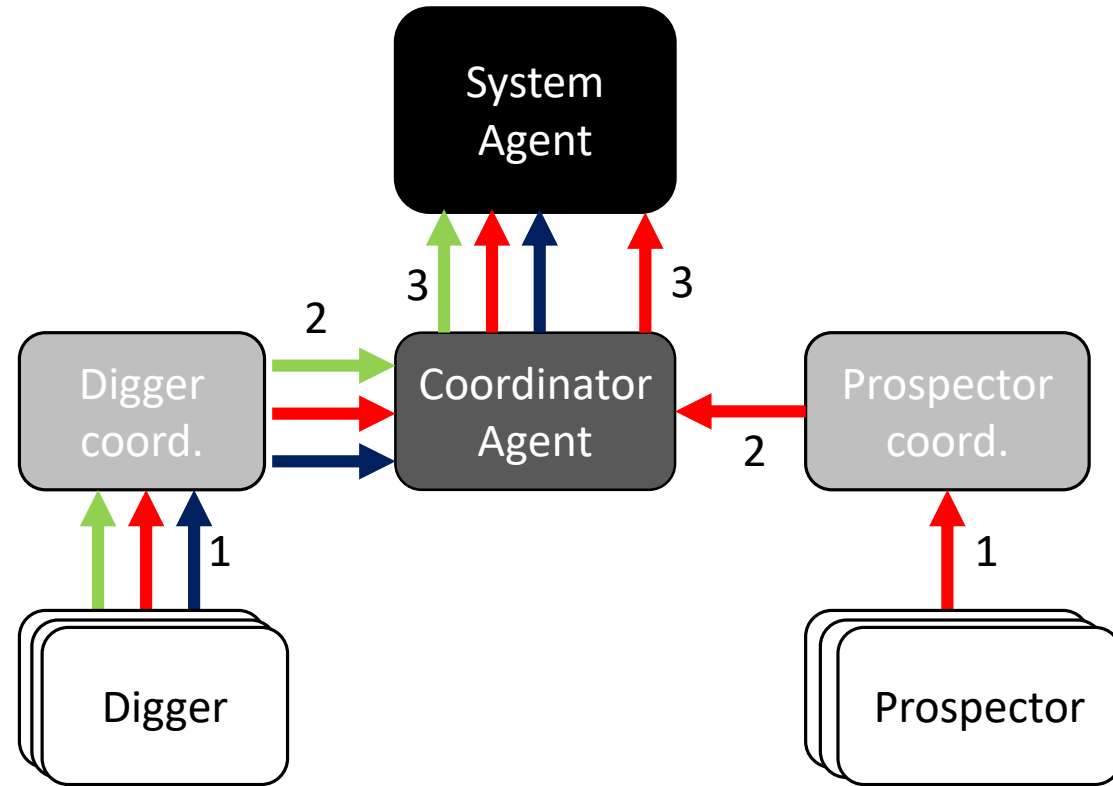
Results

Results

	Execution 1	Execution 2	Execution 3	Execution 4
Benefits	2296	2369	1500	1588
Manufactured Gold	140	156	74	123
Manufactured Silver	138	130	108	74
Average benefit for unit of metal	8.26	8.28	8.24	8.06
Average time for discovering a metal	53.16	67.15	34.18	28.56
Average time for digging a metal	74.86	91.42	88.75	79.57
Ratio of discovered metal	0.94	1.00	0.96	0.95
Ratio of collected metal	0.31	0.31	0.26	0.26

Results: emergent behavior

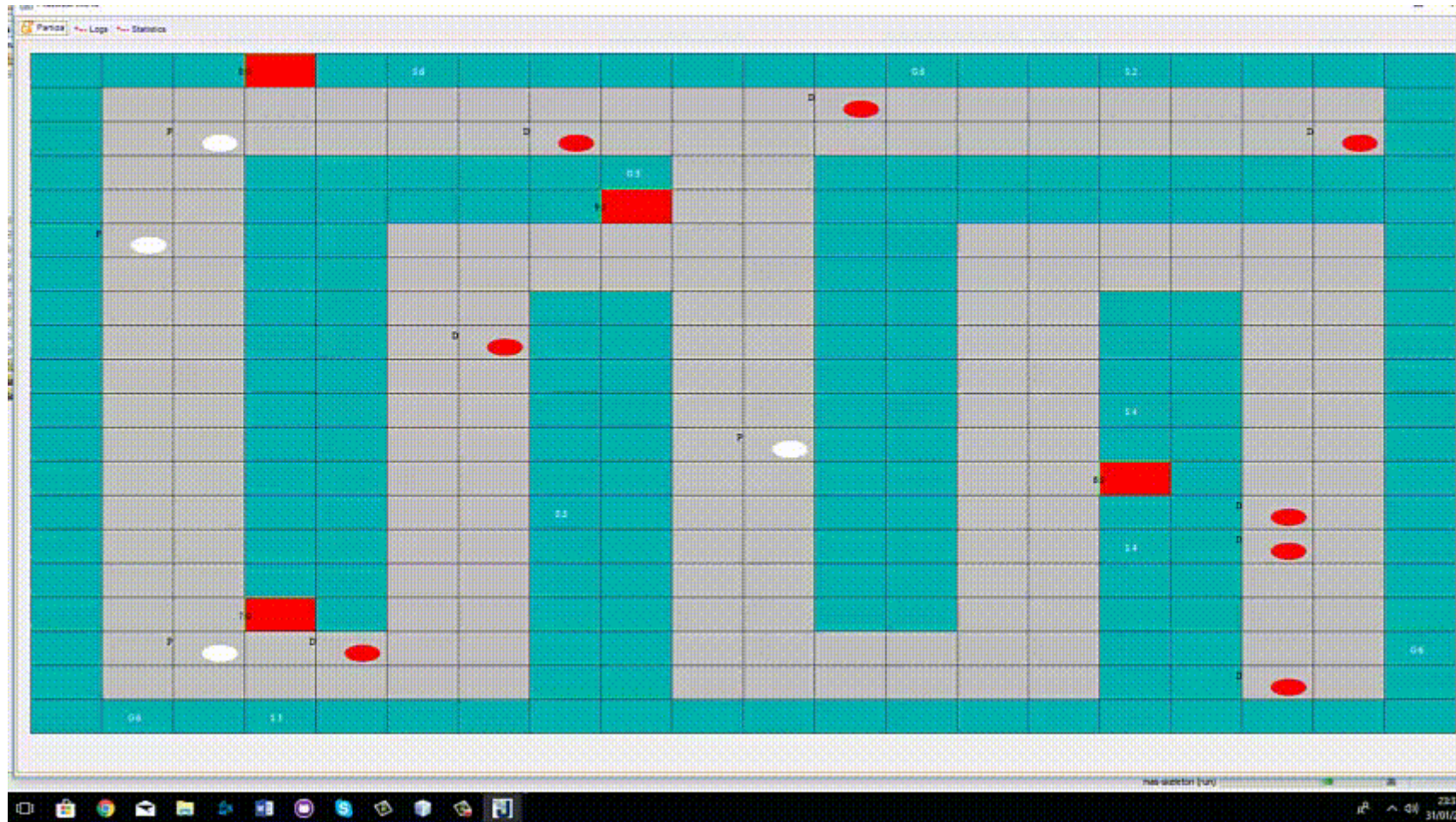Final turn cells around a gold manufacturing center

Final turn cells around a silver manufacturing center

Real demo

Questions