Distributed Artificial Intelligence and Intelligent Agents

Course info

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Course info

Coordinator

Mihhail Matskin
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Assignments and project responsible

- Shirin Tahmasebinotarki (Course assistant)

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Lectures & **Exercises:**

see next slide

Written examination (4.5 p.)

January 8 at 08-12
Registration at least 21 days before exam period

Homework and project assignments (3 p.)

Schedule

- Allocation of lectures and tutorials to scheduled time-slots for :
  - Lectures:
    - October 28, 31, November 1, 4, 7, 12, 15, 18 (recorded video), 19, 25, 28
    - December 4
  - HW Tutorials:
    - November 5, 13, 19, 26
    - December 6

Homework

There are 3 Homework with deadlines (very preliminary).

Start Date	Due Date	Description
2024-11-05	2024-11-12	Homework 1
2024-11-13	2024-11-19	Homework 2
2024-11-19	2024-11-26	Homework 3

It is assumed that the Homework are done by groups of 2 student – you can do it also alone but there will be no additional bonus for doing them alone

Mini-Project

Size of the mini-project

Bigger than HW assignment

Topic

You are supposed to design an agent system for a suggested specification.

You can also make your own project proposal for the system - the proposal must be approved by the course coordinator (the last date for approval of your own project proposal is **November 29**).

Homework and project bonus points (preliminary)

1. Delivering each homework and a project in due time gives 1 bonus point (this assumes that all Homework are approved by TA). For approval, if in the case there were small problems in the solutions during discussion, we usually give maximum one week to reflect the changes and then the bonus is recorded.

2. For each Homework and project approval from the first attempt gives 1 bonus point.

3. In case of Late Submission of any Homework, No bonus points will be awarded for the “in-time submission of homework”.

4. Challenges of assignments (on time + approved from first time) - up to 2 points per each. If not submitted on time - no bonus for challenges

5. Challenges in project (on time + approved from first time) up to 6 points

ALL Bonus points are only valid for the first exam on January 8

Course literature

- M. Wooldridge: *An Introduction to Multi-Agent Systems*. John Wiley and Sons, Second edition (Chichester, England).
- lecture notes
- selected papers (an additional listing of literature may be provided in the course)

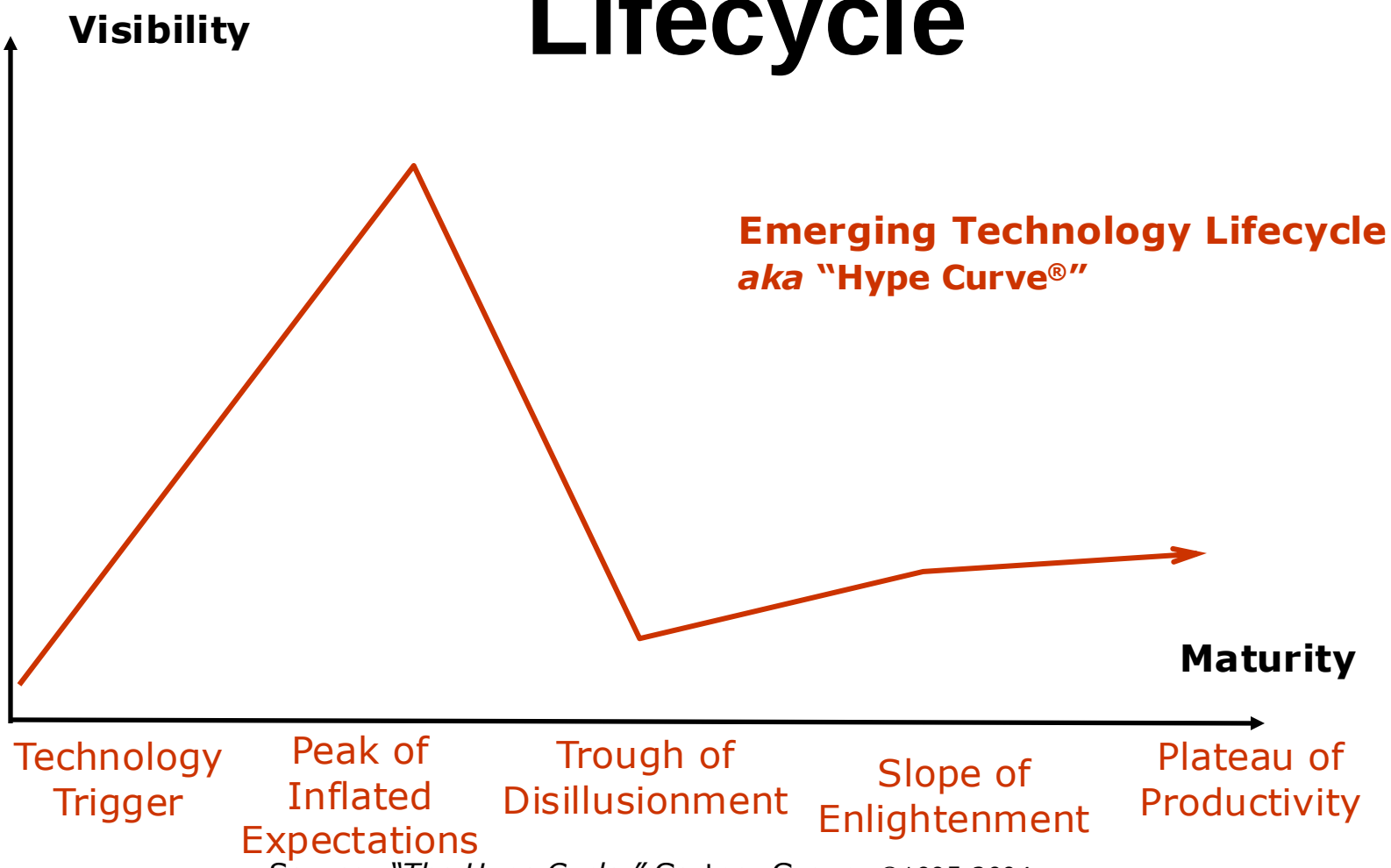
Tentative Plan

	Date	Lecture
1	28.10.2024	Introduction and Overview
2	31.10.2024	Negotiation in MAS
3	01.11..2024	Negotiation in MAS
4	04.11.2024	Negotiation in MAS
5	07.11.2024	Communication in MAS
6	12.11.2024	Communication in MAS , Coordination in MAS
7	15.11.2024	Coordination in MAS
8	18.11.2024	Multi-agent systems architectures, Agent-oriented Software Engineering (recorded video)
9	219.11.2024	Agent Theory
10	25.11.2024	Agent Theory, Agent Architectures
11	28.11.2024	Agent Architectures, Mobile Agents and other Applications
12	04.12.2024	Summary

What will you learn from this course?

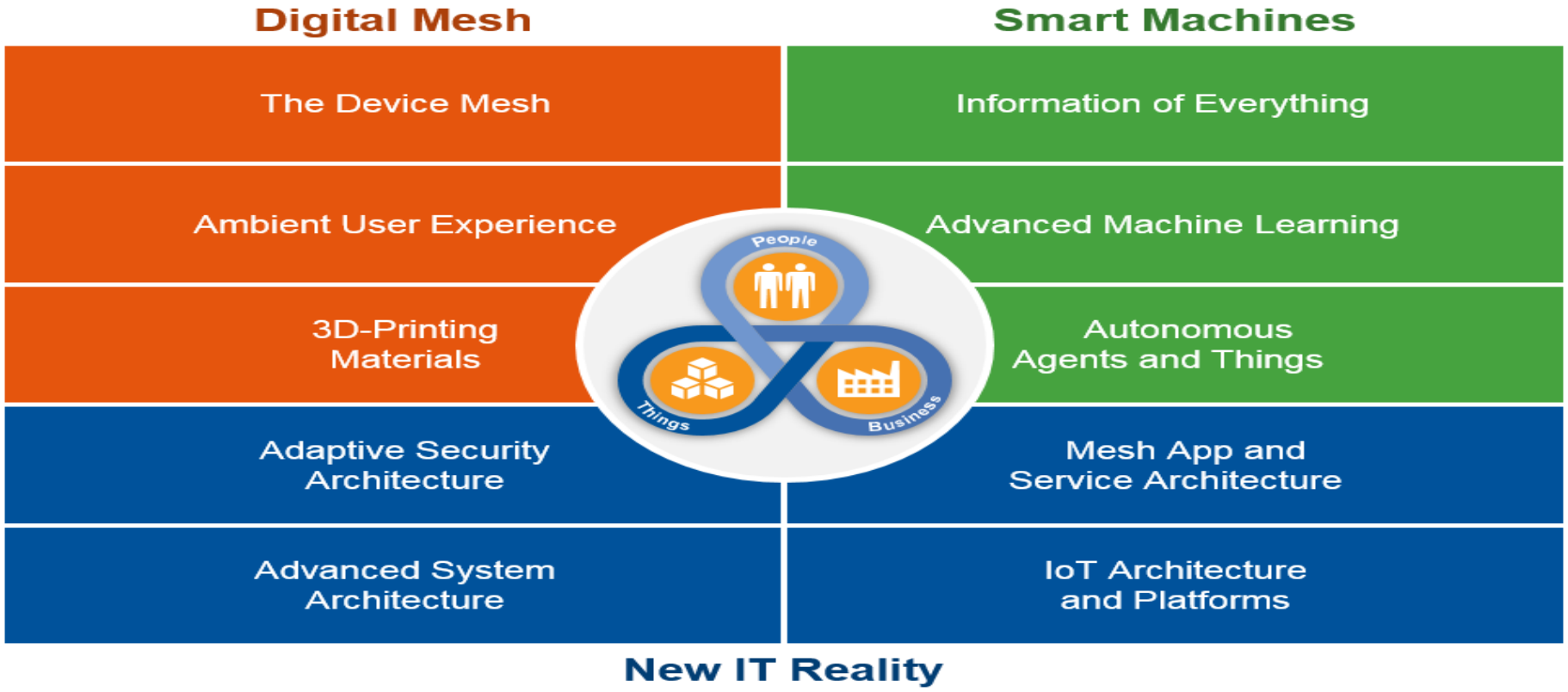
1. Learn what agents and multi-agent systems are (foundations of intelligent autonomous systems)
2. Have a good overview of important agent issues:
   - ⇒ Agent Coordination, Negotiation, and Communication
   - ⇒ Agent-Oriented Software Engineering (extra)
   - ⇒ Micro (intra-Agent) and Macro (agent systems) agent architectures (extra)
   - ⇒ Agent Intelligence Mechanisms
3. Get valuable hands-on experience in developing agent systems
4. Being able to distinguish hype from ”golden nuggets” in the area of Software Agents

Emerging Technology Lifecycle



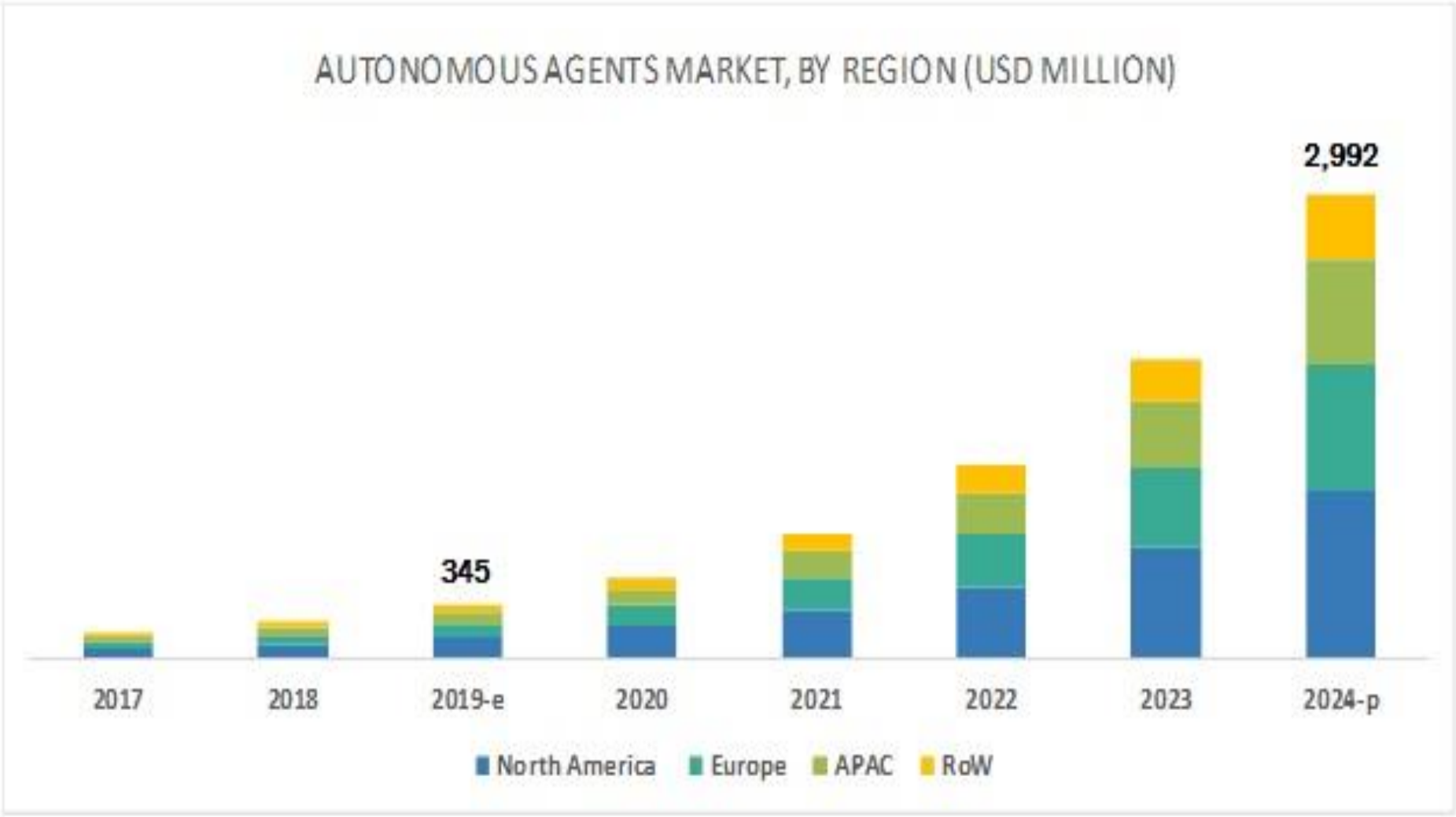
Source: *"The Hype Cycle,"* Gartner Group, ©1995-2004

Gartner Identified Top 10 Strategic Technology Trends for 2016:



However, we must recognize that smart agents and things are a long-term phenomenon that will continually evolve and expand their uses for the next 20 years."

From Source: Gartner (October 2015)



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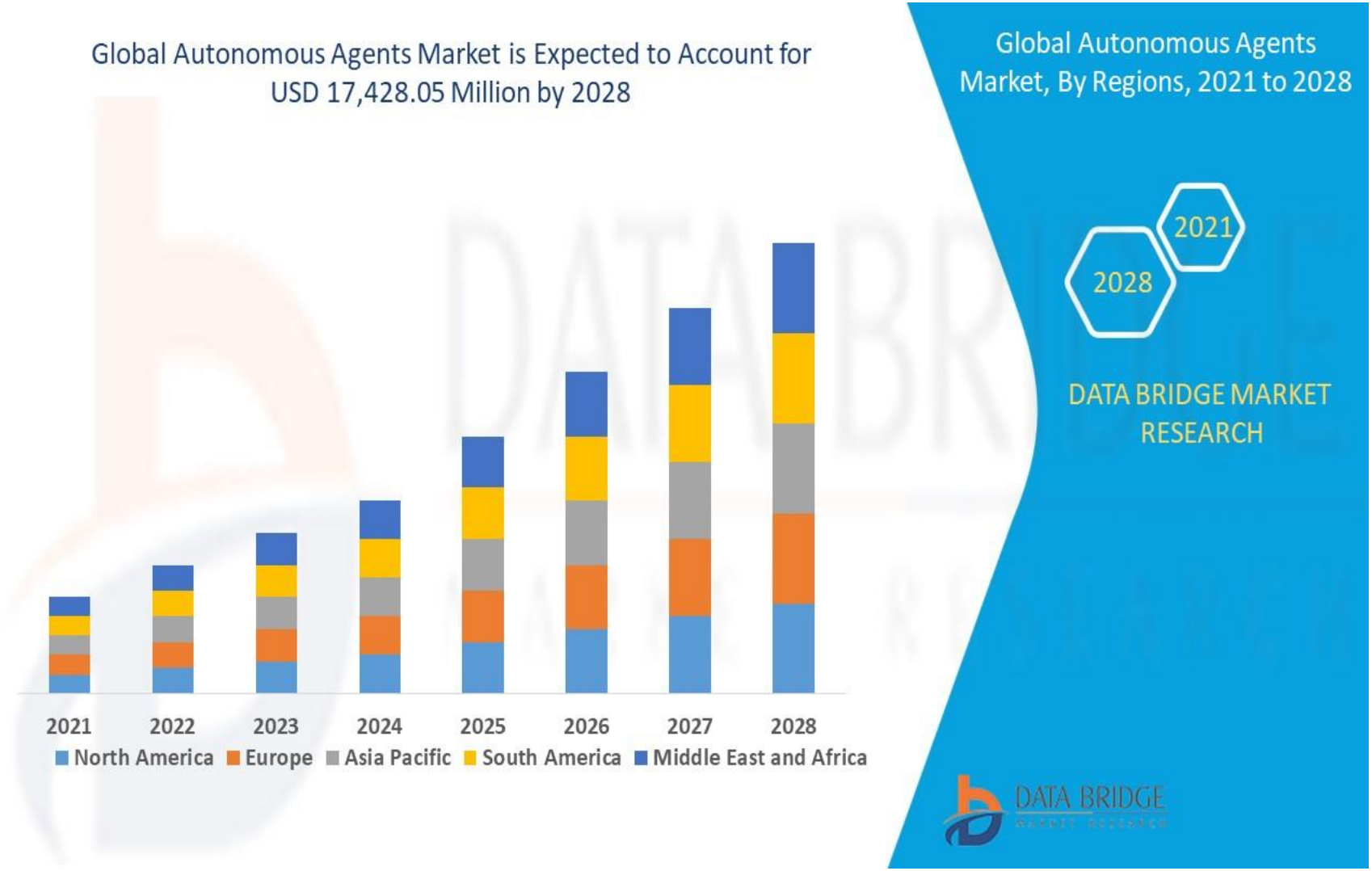

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