University of Zagreb
Faculty of Economics & Business

Intelligent Automation

FOReSiGHT

Dalia Suša Vugec, Faculty of Economcs & Business Zagreb

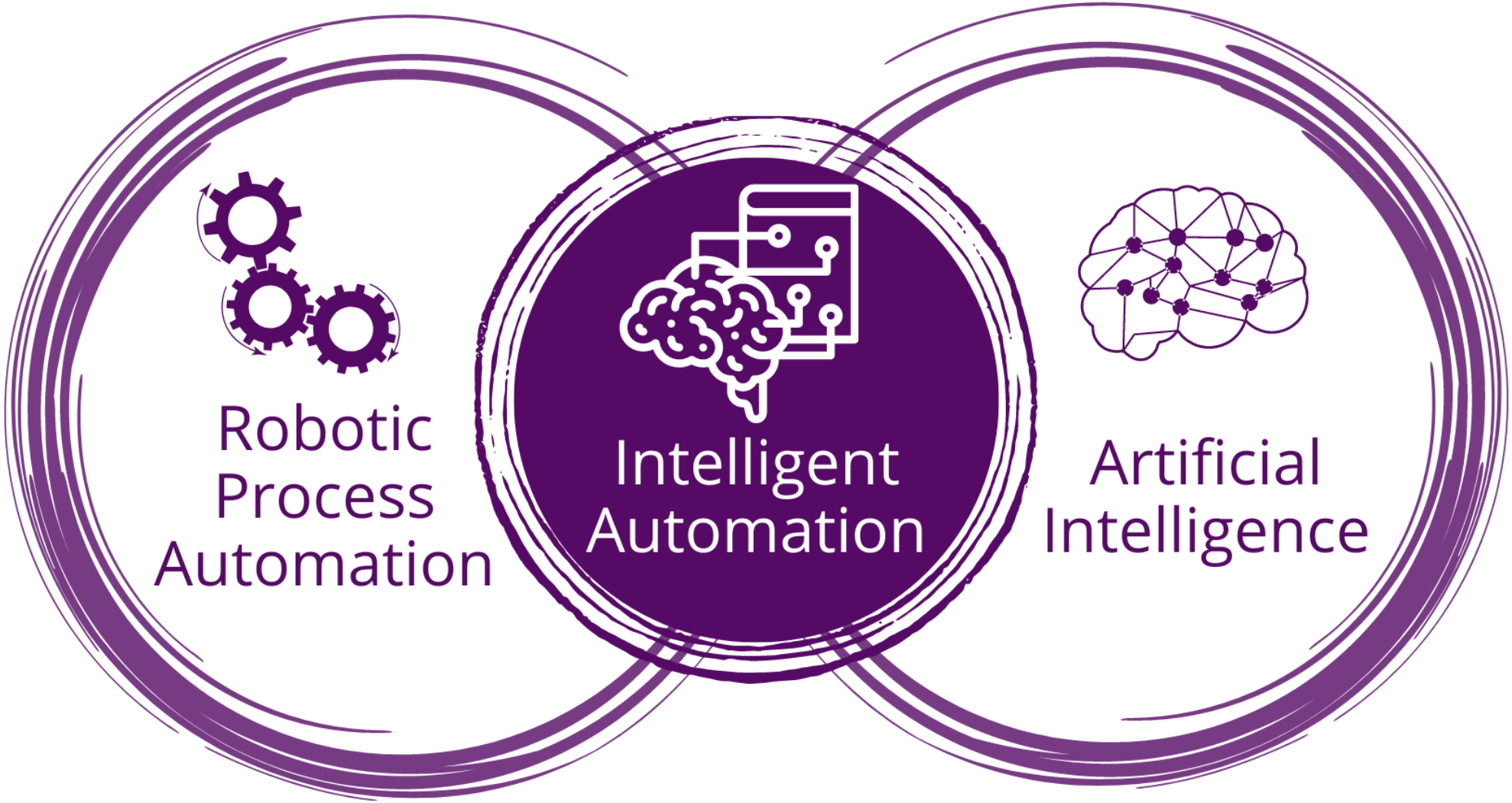
This presentation is developed under Erasmus+ Programme – Strategic Partnership Project Number: 2020-1-RO01-KA203-080368 being financed by the European Union and reflects entirely the author's view. The Commission is not responsible for the content and for any use that may be made of the information it contains

AACSB ACCREDITED · ISO 9001 BUREAU VERITAS Certification · EQUIS ACCREDITED · EFMD ACCREDITED

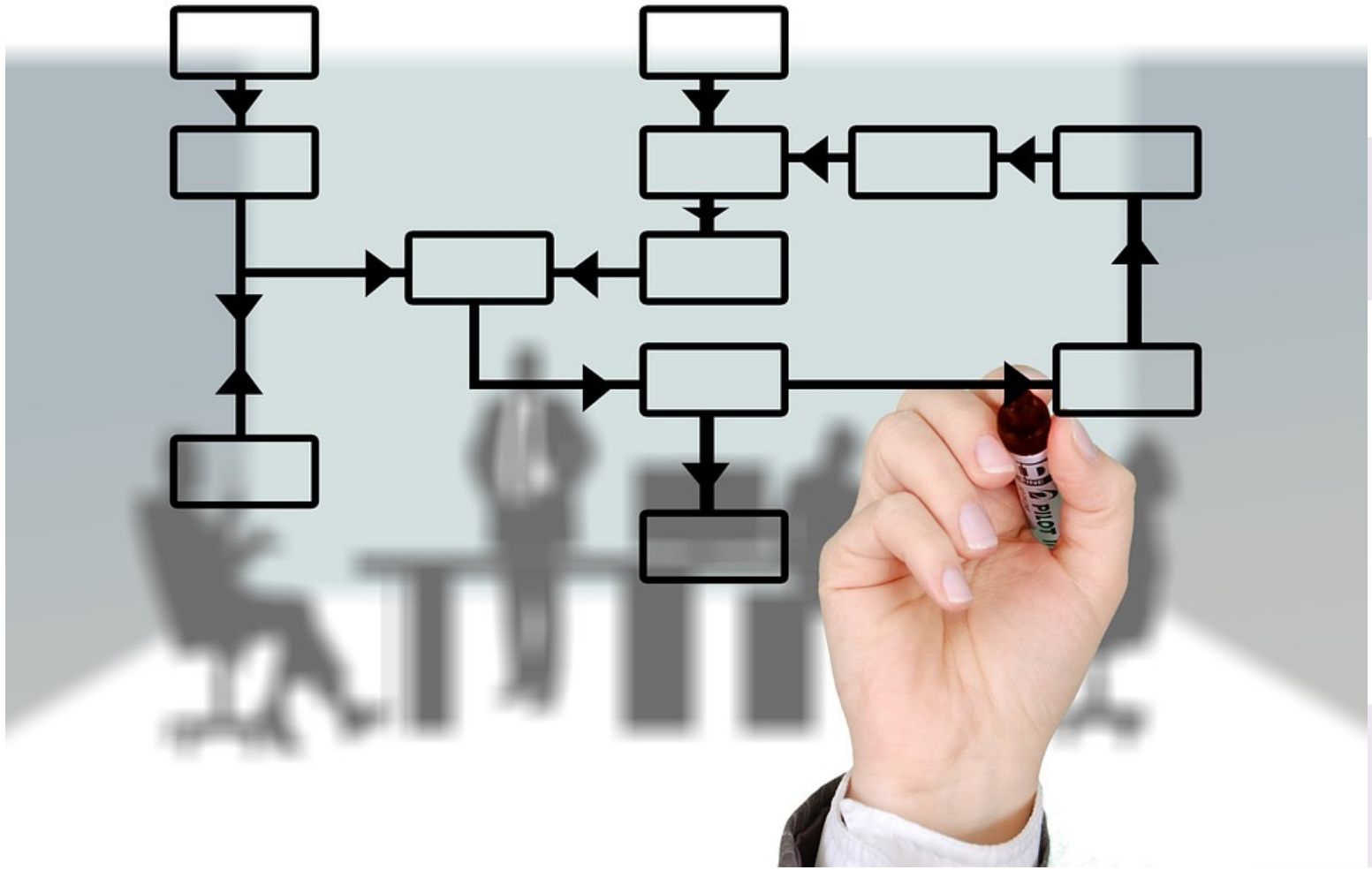
With the support of the Erasmus+ Programme of the European Union

University of Zagreb
Faculty of Economics & Business

What is Intelligent Automation?



Robotic Process Automation – process



- many definitions
  - core of every organization
  - nervous system of the organization
- processes are the business, and not only what makes the business

Robotic Process Automation – business process types

- PRIMARY
- SUPPORTING
- MANAGEMENT

- HUMAN-CENTRIC
- SYSTEM-CENTRIC

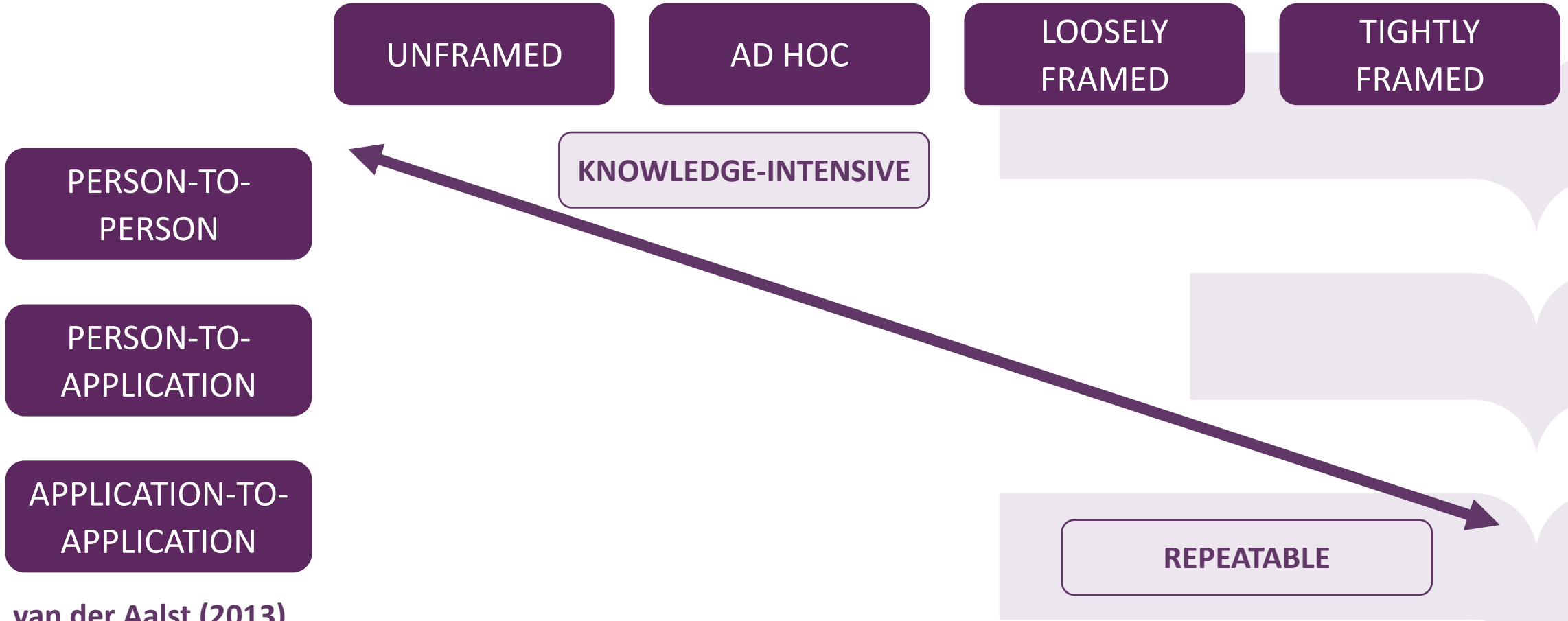
- PERSON-TO-PERSON
- PERSON-TO-APPLICATION
- APPLICATION-TO-APPLICATION

- UNFRAMED
- AD HOC
- LOOSELY FRAMED
- TIGHTLY FRAMED

- KNOWLEDGE-INTENSIVE
- REPEATABLE

University of Zagreb
Faculty of Economics & Business

Robotic Process Automation – business process classification



van der Aalst (2013)

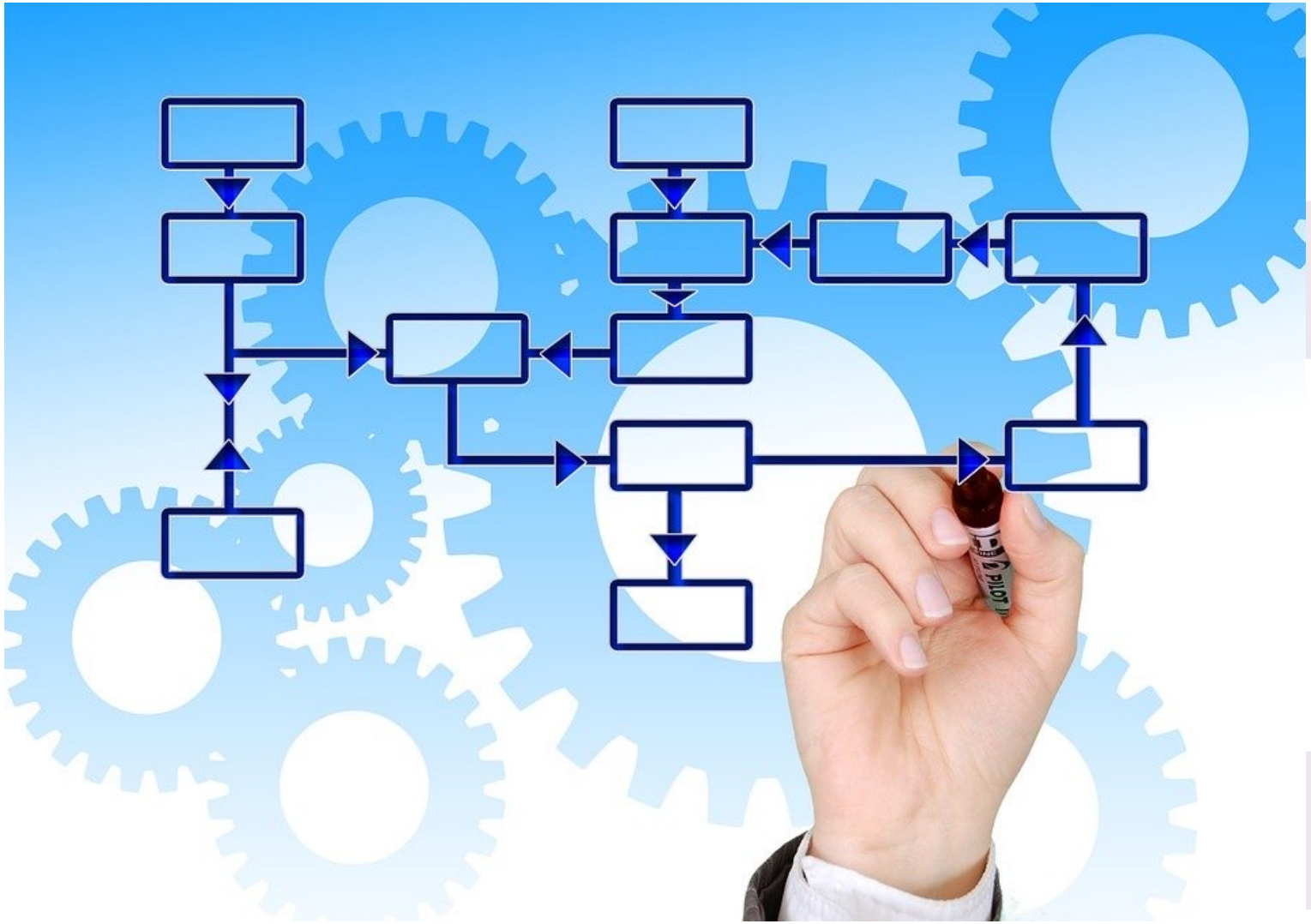
Robotic Process Automation – BPM

- Several main ideas:
  - Adam Smith, 1776 → The Wealth of Nations
  - Hammer and Champy, 1993 → Business process reengineering
  - Davenport, 1993 → Business process innovation

University of Zagreb
Faculty of Economics & Business

Robotic Process Automation – development

Robotic Process Automation – definition



- Performing complex business task with reduced human intervention
- Based on software and algorithms
- Driven by simple rules and busienss logic

University of Zagreb
Faculty of Economics & Business

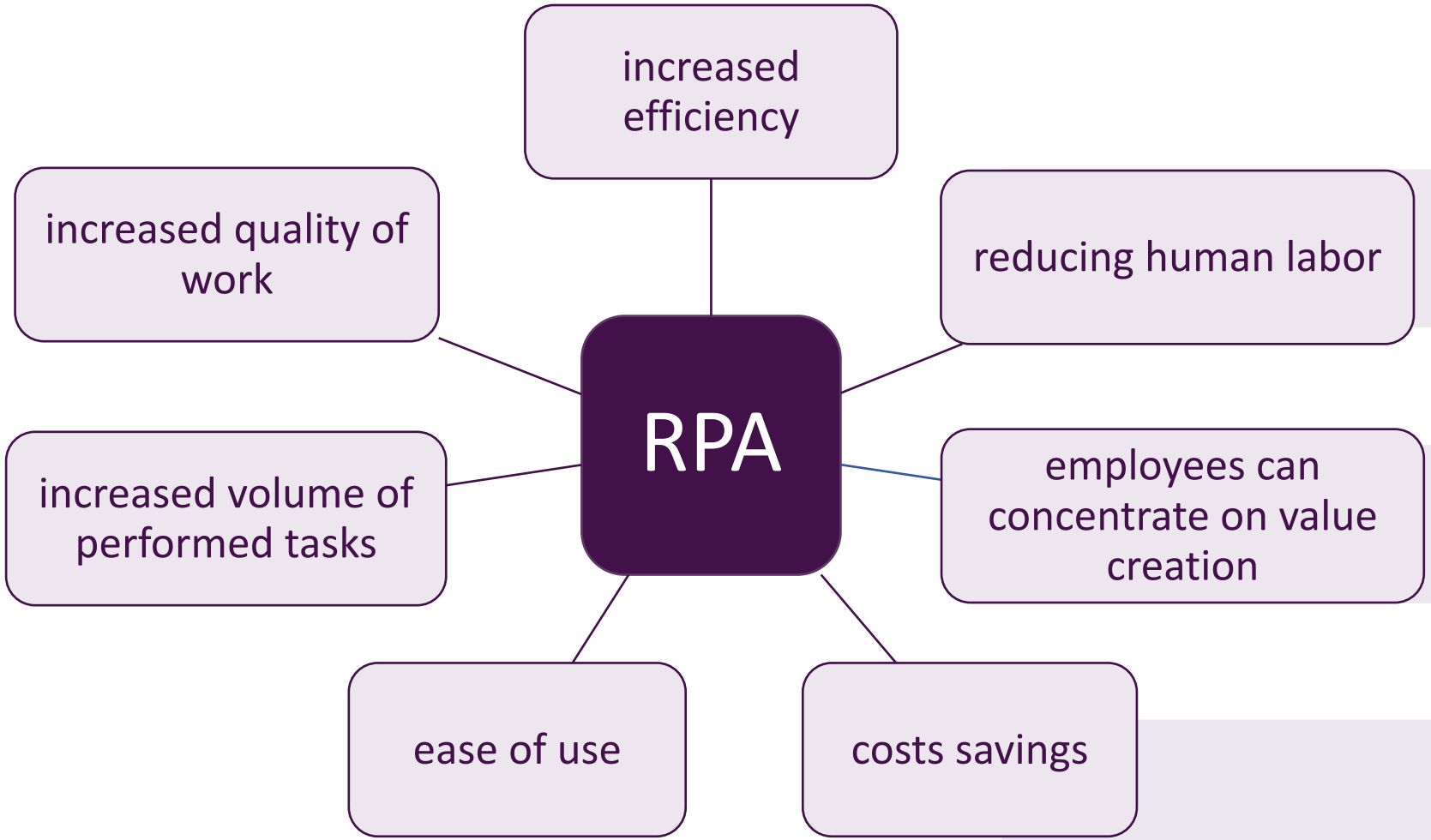
Robotic Process Automation – how to select processes?

- Repetitive
- Routine
- Rule based
- Manual

- Data intensive
- Electronic trigger
- High error rates
- Huge number of resources

https://www.datamatics.com/news-list/selecting-the-right-processes-for-robotic-process-automation

Robotic Process Automation – benefits



University of Zagreb
Faculty of Economics & Business

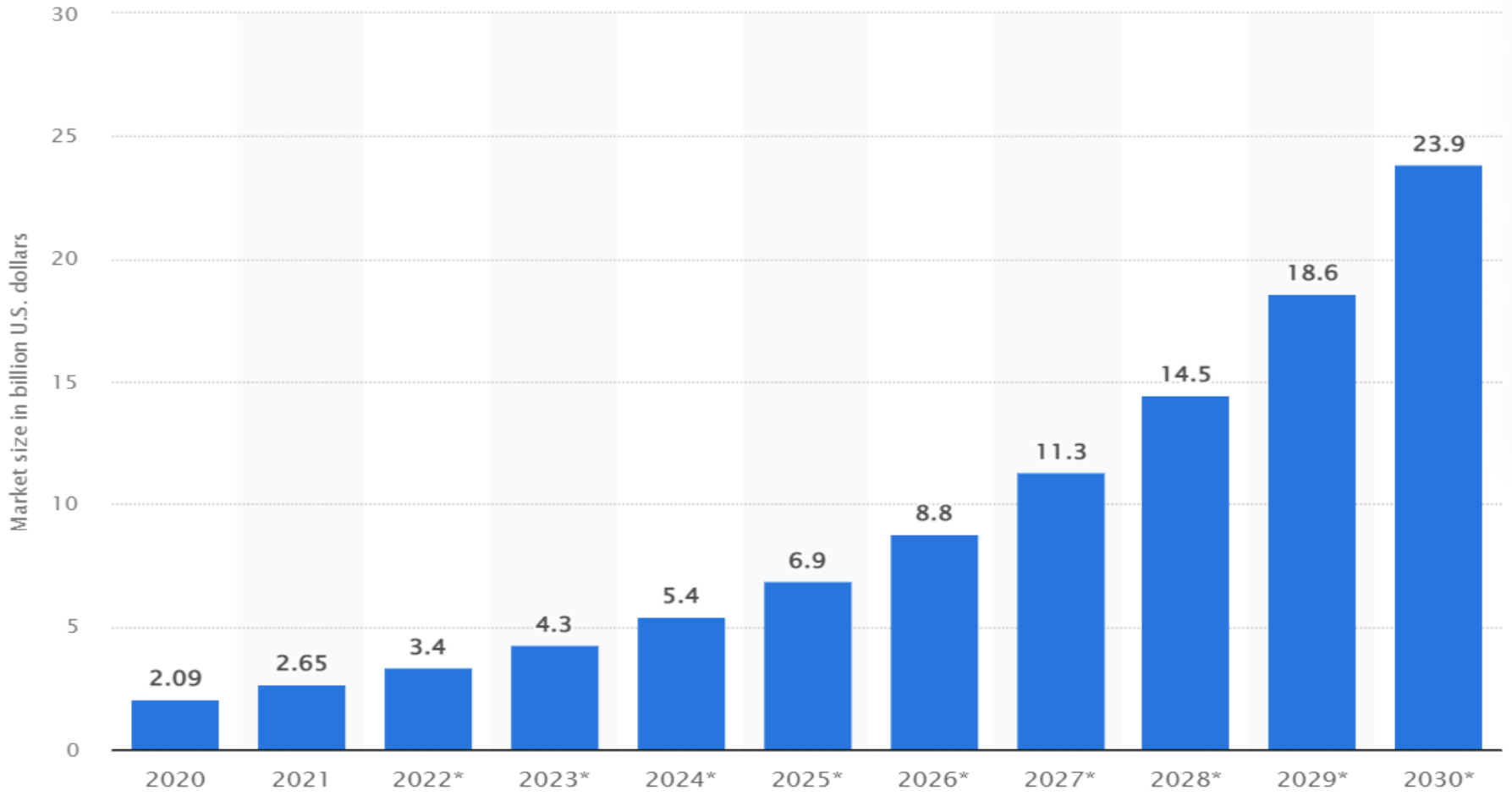
Robotic Process Automation – challenges

Robotic Process Automation – areas of application

- Sales
- Finance
- Accounting
- Human resources
- Banking
- Insurance
- etc.

University of Zagreb
Faculty of Economics & Business

Robotic Process Automation – trends



https://www.statista.com/statistics/1309384/worldwide-rpa-software-market-size/

University of Zagreb
Faculty of Economics & Business

Robotic Process Automation – fun facts

Global robotic process automation market will cross the revenue of USD 10 billion by 2023

98% of IT leaders consider automation of business processes is crucial for leveraging benefits

Around 80% of finance leaders have either implemented or in process to implement RPA globally

Organizations are expected to reduce operational costs by 30% by 2024 through combining hyperautomation technologies in various operations

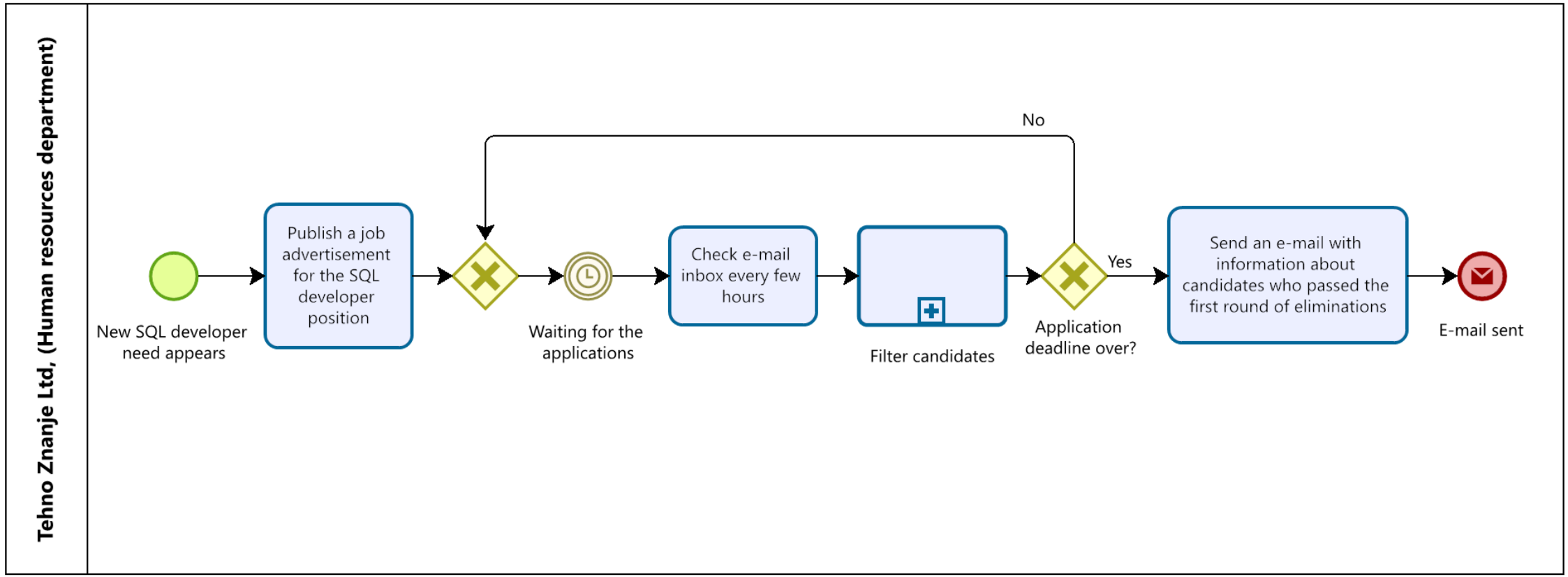
https://www.linkedin.com/pulse/five-major-robotic-process-automation-trends-?trk=pulse-article_more-articles_related-content-card

AACSB ACCREDITED
EQUIS ACCREDITED
EFMD ACCREDITED
ISO 9001 BUREAU VERITAS Certification

Robotic Process Automation – example

- human resources department of Tehno Znanje Ltd.
- open position of SQL developer
- review applications and select suitable candidates
- manual vs. automated process of eliminating the resumes of candidates who applied for an open position

Robotic Process Automation – example



University of Zagreb
Faculty of Economics & Business

Robotic Process Automation – example

Instructions

- The CV must be in a template and in PDF format
- Fill in the Google form

Rules

- CV should be in PDF format: CV_Name_Surname.PDF
- Experience working with databases

Result

- New Excel file → essential information
- List of candidates (rule 1)

AACSB ACCREDITED
EQUIS ACCREDITED
EFMD ACCREDITED
ISO 9001 BUREAU VERITAS Certification

Datoteka Uredi Ispravi pogreške Alati Prikaži Pomoć CV eliminator – nacin A – hotmail | Power Automate

Radnje

Radnje pretraživanja

- Varijable
- Uvjeti
- Petlje
- Kontrola tijeka
- Izvrši tok
- Sustav
- Radna stanica
- Skriptiranje
- Datoteka
- Mapa
- Komprimiranje
- Automatizacija korisničkog
- HTTP
- Automatizacija preglednika
- Excel
- Baza podataka
- E-pošta
- Exchange
- Outlook

Podtjekovi | Main | Spajanje_na_mail_preuz... | Preuzimanje_Exce

1 Pokretanje podtijeka Spajanje_na_mail_preuzimanje_filtriranje

2 Pokretanje podtijeka Preuzimanje_Excela

3 Pokretanje podtijeka Obrada_Excela

4 Pokretanje podtijeka Slanje_maila

Varijable

Varijable pretraživanja

Ulazne/izlazne varijable 0

Ovdje još nema ulaznih ili izlaznih varijabli

Varijable tijeka 36

- ABC [42, 5232876712]
- Browser WebBrowser Insta...
- CopiedFiles [C:\EFZG_RPA\Za sl...
- CurrentDateT... 11.10.2022. 0:00:00
- CurrentItem Broj stupaca: 11 {...

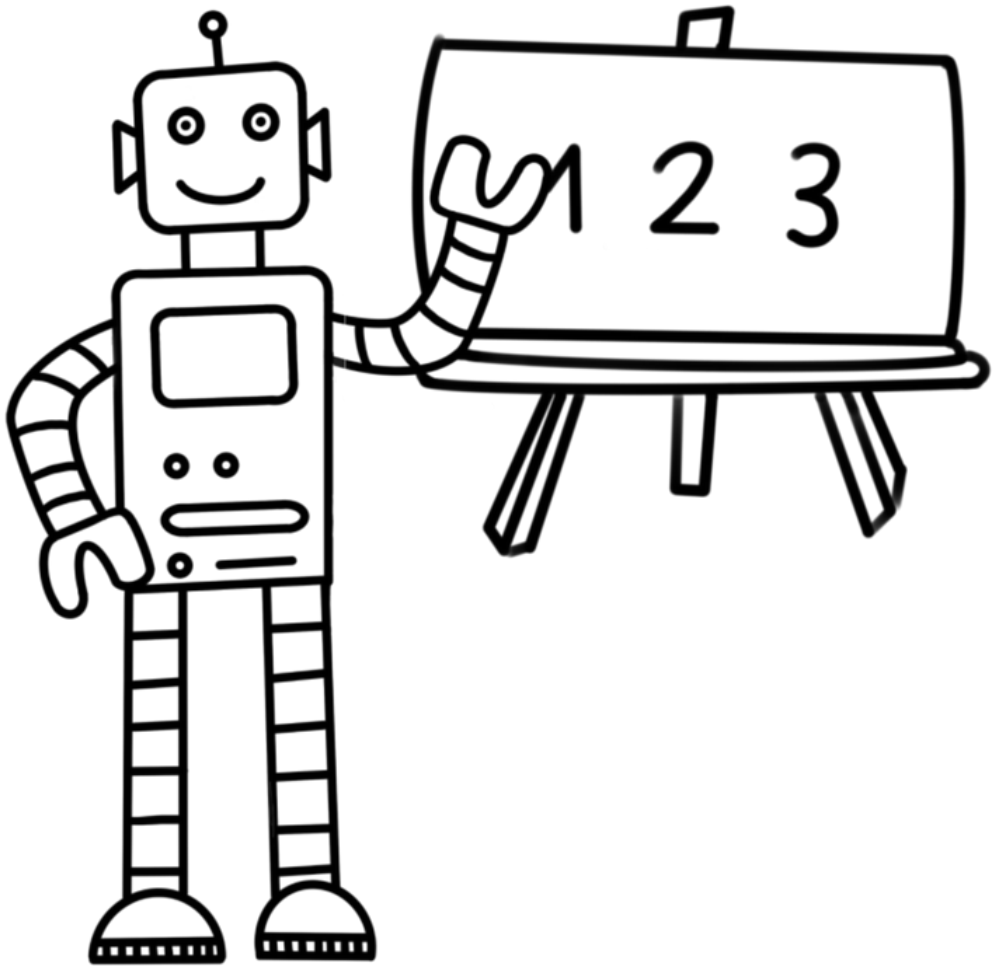
Status: Spremno | 0 Odabrane radnje | 4 Radnje | 5 Podtjekovi | Izvrši kašnjenje 100 ms

Upišite ovdje za pretraživanje 13°C 9:24 12.10.2022.

Artificial Intelligence

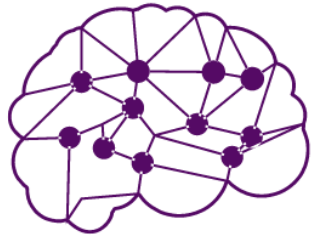
- Definition constantly changing
- Independence
- Alan Turing
- All around
- Many industries
- Many technologies

Artificial Intelligence – machine learning

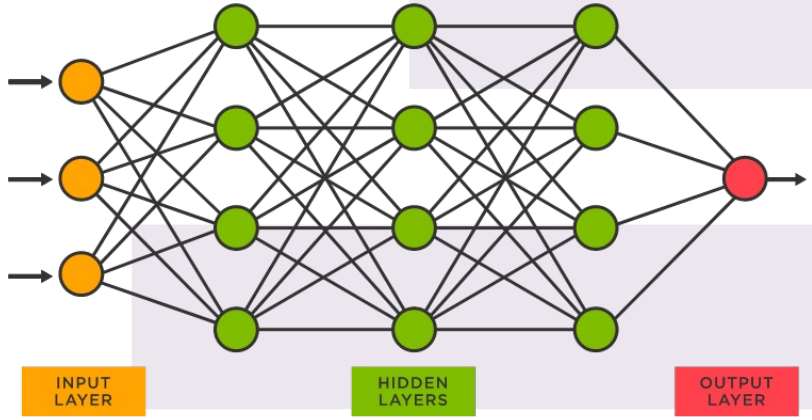


- Ways of learning from data
- Depend on previous experience to enhance performance or generate accurate predictions
- main aim: to learn on their own
- 4 types:
  - *supervised learning*
  - *unsupervised learning*
  - *semi-supervised learning*
  - *reinforcement learning*

Artificial Intelligence – deep learning



- Branch of machine learning
- Employs algorithms
- Use of deep networks
- Derived from artificial neural networks



https://www.tibco.com/reference-center/what-is-a-neural-network

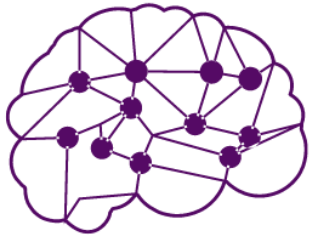
Artificial Intelligence – NLP

- Goal: to identify similarity between sentences or documents
- Calculating similarity score
- Help computers to understand the way humans write and speak
- Natural language understanding

https://online.york.ac.uk/the-role-of-natural-language-processing-in-ai/

University of Zagreb
Faculty of Economics & Business

Artificial Intelligence in BPM

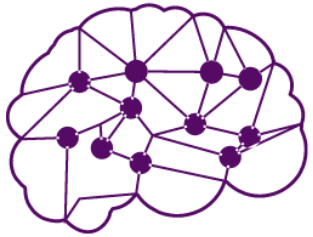


- Redundant tasks automation
- Predictive analysis
- Cost-effective
- CX improvement
- Decision-making capabilities

https://mantra.ai/blogs/how-ai-is-revolutionizing-the-business-process-managementbpm/

University of Zagreb
Faculty of Economics & Business

Artificial Intelligence – trends

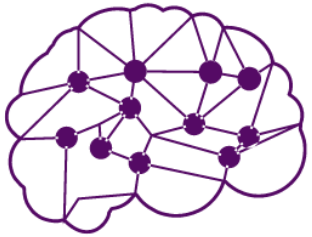


- Development in predictive analytics
- Large Language Models
- Information security
- Launch of better autonomous systems
- Art through NFTs
- Digital avatars
- AI ethics
- Military weapons
- Process discovery
- Embedded Application

https://www.analyticsinsight.net/top-10-artificial-intelligence-trends-to-lookout-for-in-2023/

University of Zagreb
Faculty of Economics & Business

Artificial Intelligence – fun facts

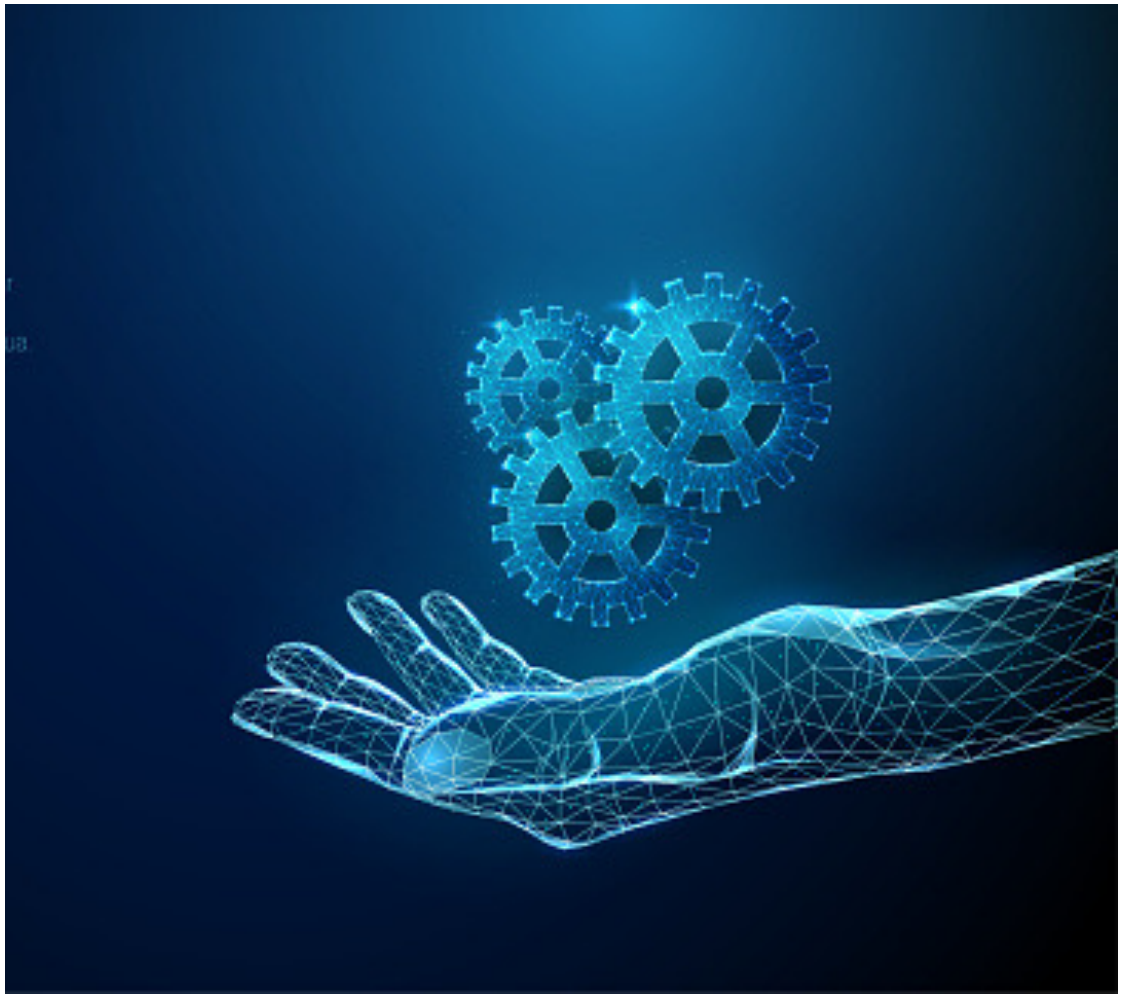


- The global AI market value is expected to reach $267 billion by 2027.
- AI is expected to contribute $15.7 trillion to the global economy by 2030.
- 37% of businesses and organizations employ AI.
- 9/10 leading businesses have investments in AI technologies, but less than 15% deploy AI capabilities in their work.
- The rise of AI will eliminate 85 million jobs and create 97 million new ones by 2025.
- More than three billion voice assistants are now in use, and eight billion will be by 2023.
- The AI industry will be earning $126 billion a year by 2025.
- 67% of Americans and 49% of Europeans believe self-driving cars are safer than regular cars.
- 25 countries are now working on designing autonomous vehicles.
- The self-driving car industry could be worth more than $600 billion over the next five years.

Jovanovic (2022) https://dataprot.net/statistics/ai-statistics/

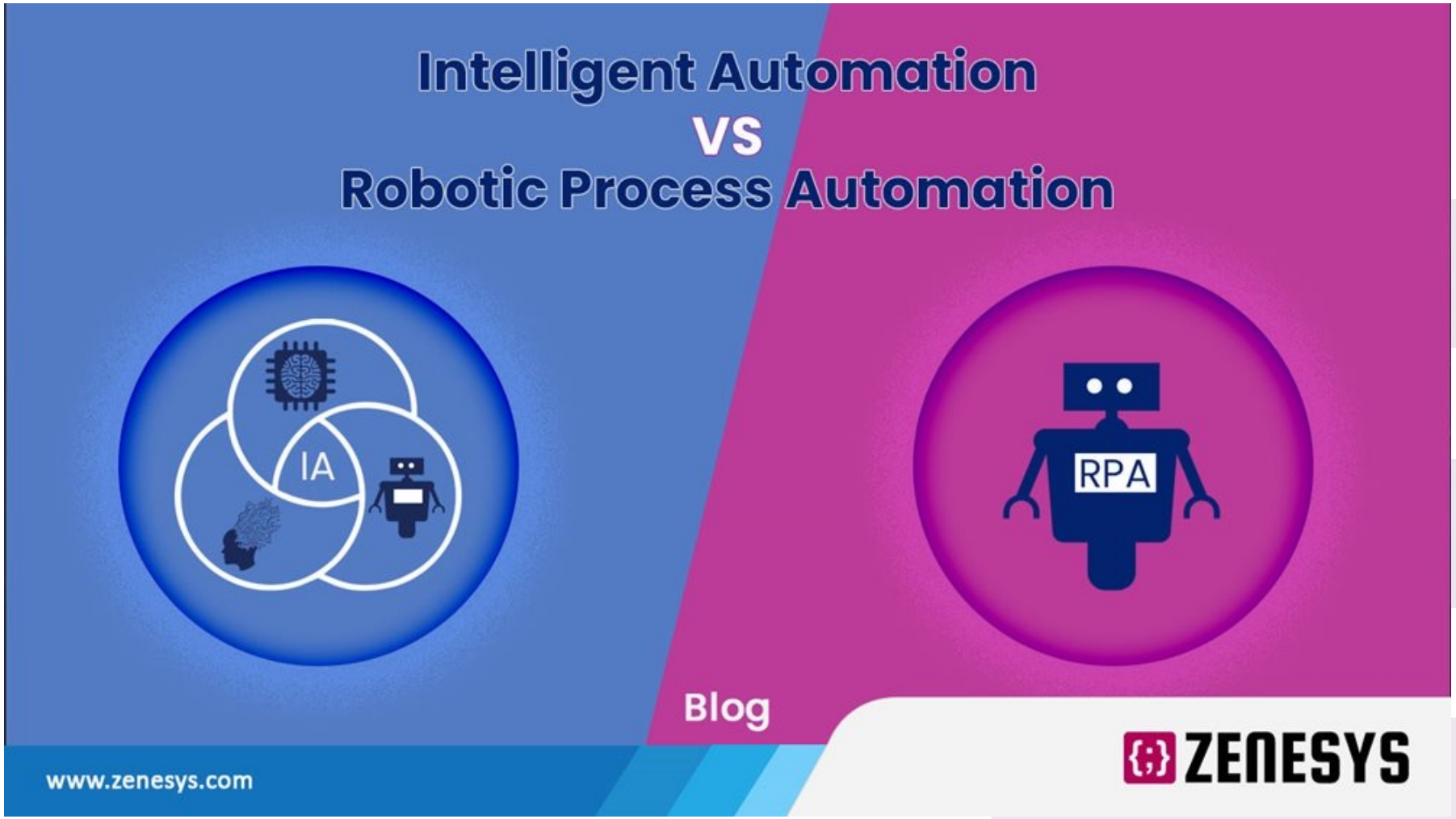
University of Zagreb
Faculty of Economics & Business

Intelligent Automation



- AI + BPM + RPA
- Analytics, machine learning, deep learning and natural language processing
- Learning from the past
- Making decisions
- Many benefits
- Challenges

Intelligent Automation vs. RPA



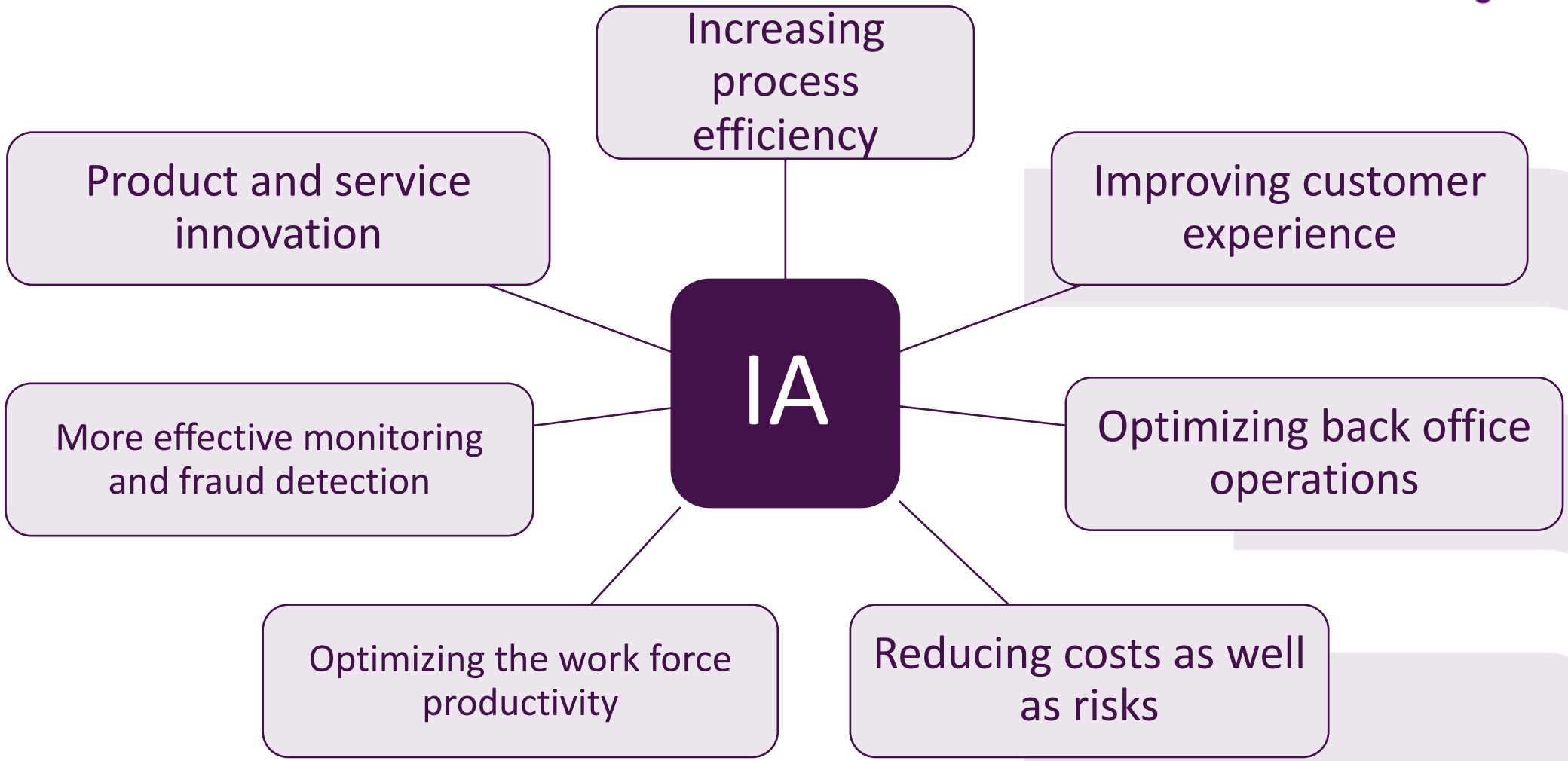
https://www.zenesys.com/blog/rpa-vs-intelligent-automation

Intelligent Automation – areas of application

Banking & Finance	HR	Healthcare & Insurance	CRM
• Loan application processing • Cards and payments business • Bank statement reconciliation • Know Your Customer	• Hiring & on boarding & headcount reduction • Expense management • Employment history verification • Payroll automation	• Claim processing • Patient data processing • Medical bill processing • Remitting claims	• Loading a detailed customer profile • Getting detailed billing data • Updating user preferences and other user information

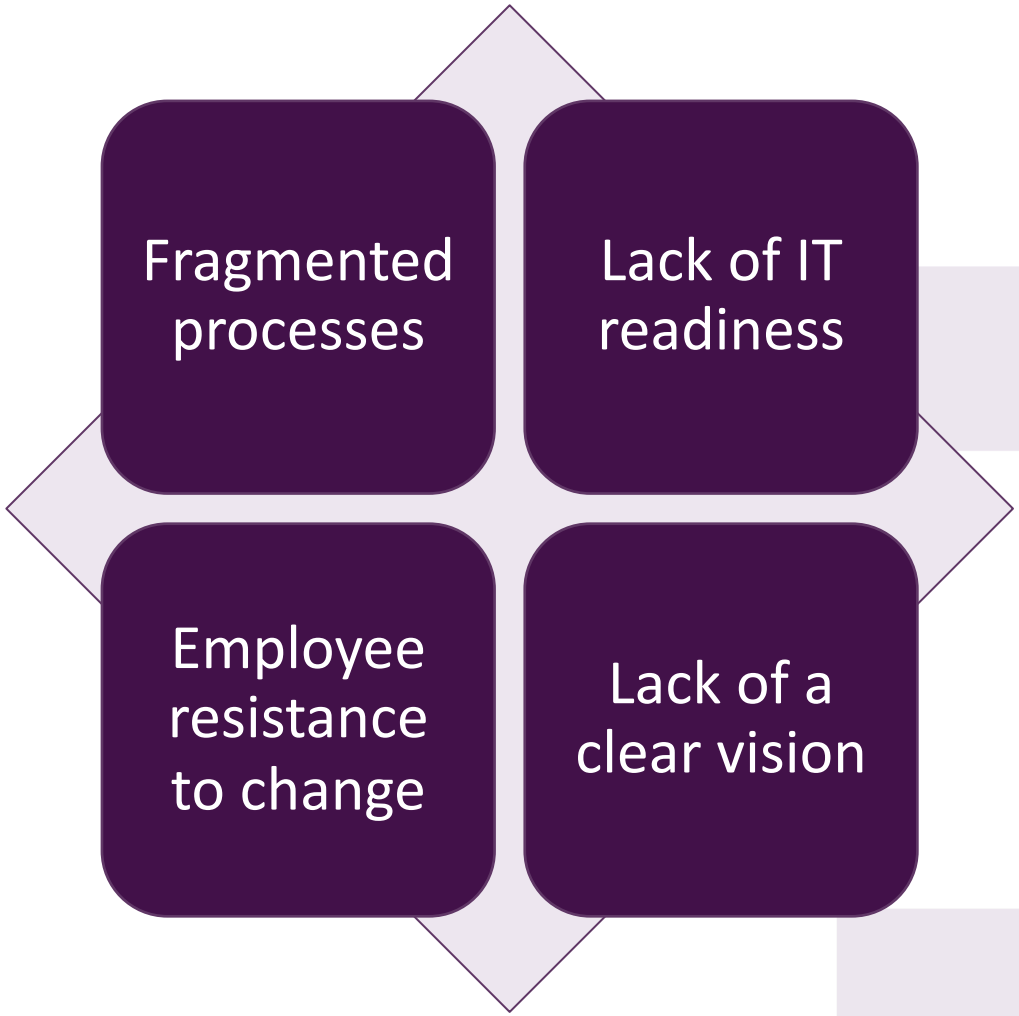
https://medium.com/@umesh.bhosale29/intelligent-automation-ia-artificial-intelligence-ai-and-cognitive-technology-injects-the-b1ae80749efe

Intelligent Automation – benefits



https://www.happiestminds.com/insights/intelligent-automation/

Intelligent Automation – challenges



https://www.automationanywhere.com/company/blog/rpa-thought-leadership/top-4-challenges-in-implementing-intelligent-automation

University of Zagreb
Faculty of Economics & Business

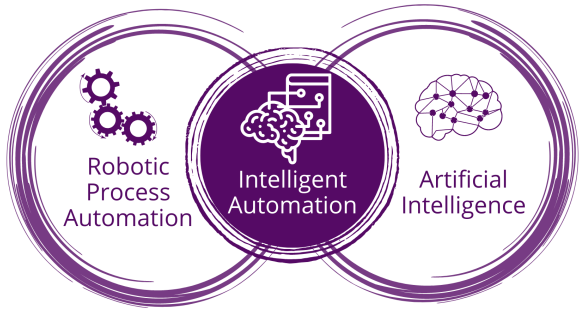
Intelligent Automation – trends

- Widespread adoption of RPA across industries
- Rising significance of low-code/no-code platforms
- Mainstream adoption of Generative AI
- Rise of collaborative robots
- DevOps CI/CD automation will be ruled by constant testing
- Growing impact of augmented intelligence
- Rising adoption of NLP technology and conversational AI
- Faster adoption of intelligent automation in SMBs
- IA to support staff shortages
- Sustainable automation through process assessment and discovery

https://www.automation.com/en-us/articles/august-2022/top-10-intelligent-automation-trends-look-2023

University of Zagreb
Faculty of Economics & Business

Concluding remarks



- Importance of business processes and BPM
- Benefits and challenges of RPA
- Development of AI
- Intelligent automation as the future

AACSB ACCREDITED
EQUIS ACCREDITED
EFMD ACCREDITED
ISO 9001 BUREAU VERITAS Certification

University of Zagreb
Faculty of Economics & Business

Thank you!
Q & A

Dalia Suša Vugec

dsusa@efzg.hr

Faculty of Economics & Business

University of Zagreb

AACSB ACCREDITED

EQUIS ACCREDITED

EFMD ACCREDITED

ISO 9001 BUREAU VERITAS Certification