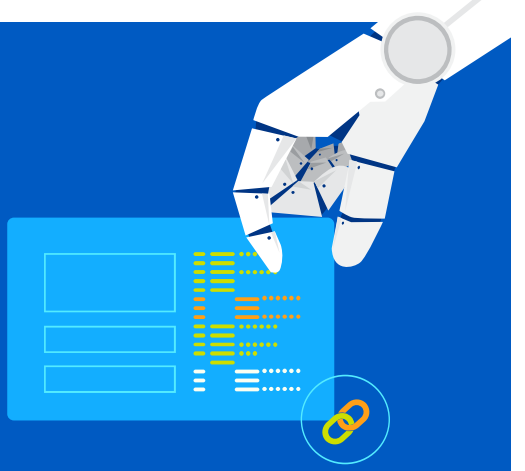
MODELING.
THE ROLE OF THE SOFTWARE DEVELOPER OF THE FUTURE



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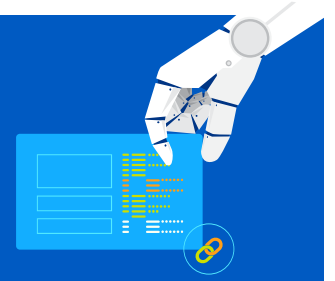
AGENDA.



- INTRO
- WHAT MODELS ARE
- PRESENTATION
- Q&A

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PROFESSOR
JOÃO ÁLVARO CARVALHO

1983

Degree in Systems and Informatics Engineering

1990

Doctoral Thesis:
“Business Meta Knowledge Base: A Repository of Models for Assisting the Management and Development of Organizational Information Systems”

2003

Full Professor
@University of Minho

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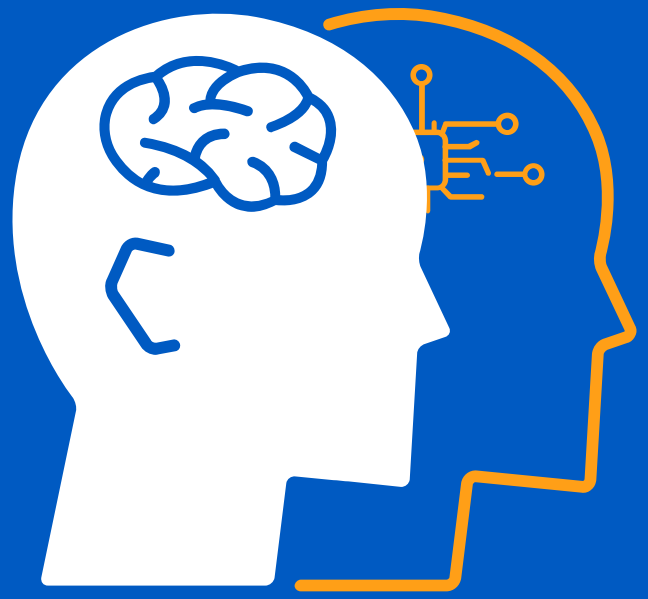
QUIDGEST.
WHO WE ARE



- **PIONEERS SINCE 1988**

  Automation and Artificial Intelligence applied to software development

- **200 SUCCESS CASES**

  Digitally transforming our customers around the world

- **33 YEARS OF RECOGNIZED EXPERTISE**

  Solid network of international partners

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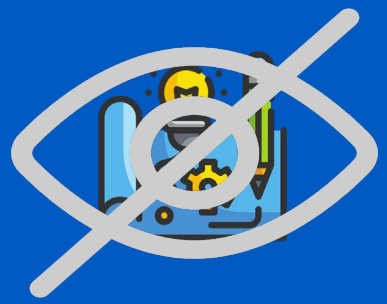
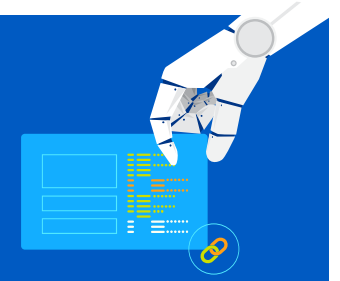
WHAT ARE MODELS?



- Conceptual representations of all the topics related to a specific problem or challenge
- Main objective: highlight and aim at abstract representations of the knowledge and activities that oversee a particular application domain.

GENIO.



- With GENIO, knowledgeable people are able to engineer solutions

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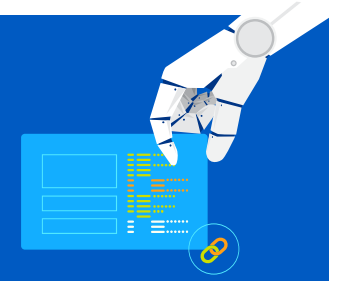
GENIO.



- With GENIO, knowledgeable people are able to engineer solutions
- A knowledge engineer has the know-how about a management domain and the skills to translate this know-how into GENIO models, namely through design thinking

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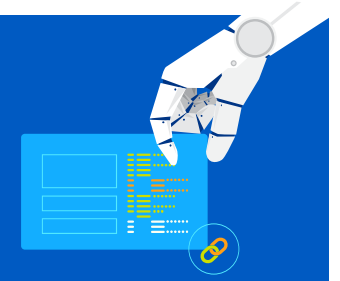
GENIO.



- With GENIO, knowledgeable people are able to engineer solutions
- A knowledge engineer has the know-how about a management domain and the skills to translate this know-how into GENIO models, namely through design thinking
- Leapfrogging from code to models and from manual development to AI development, Genio knowledge engineers swiftly become much more productive than traditional developers with years of experience.

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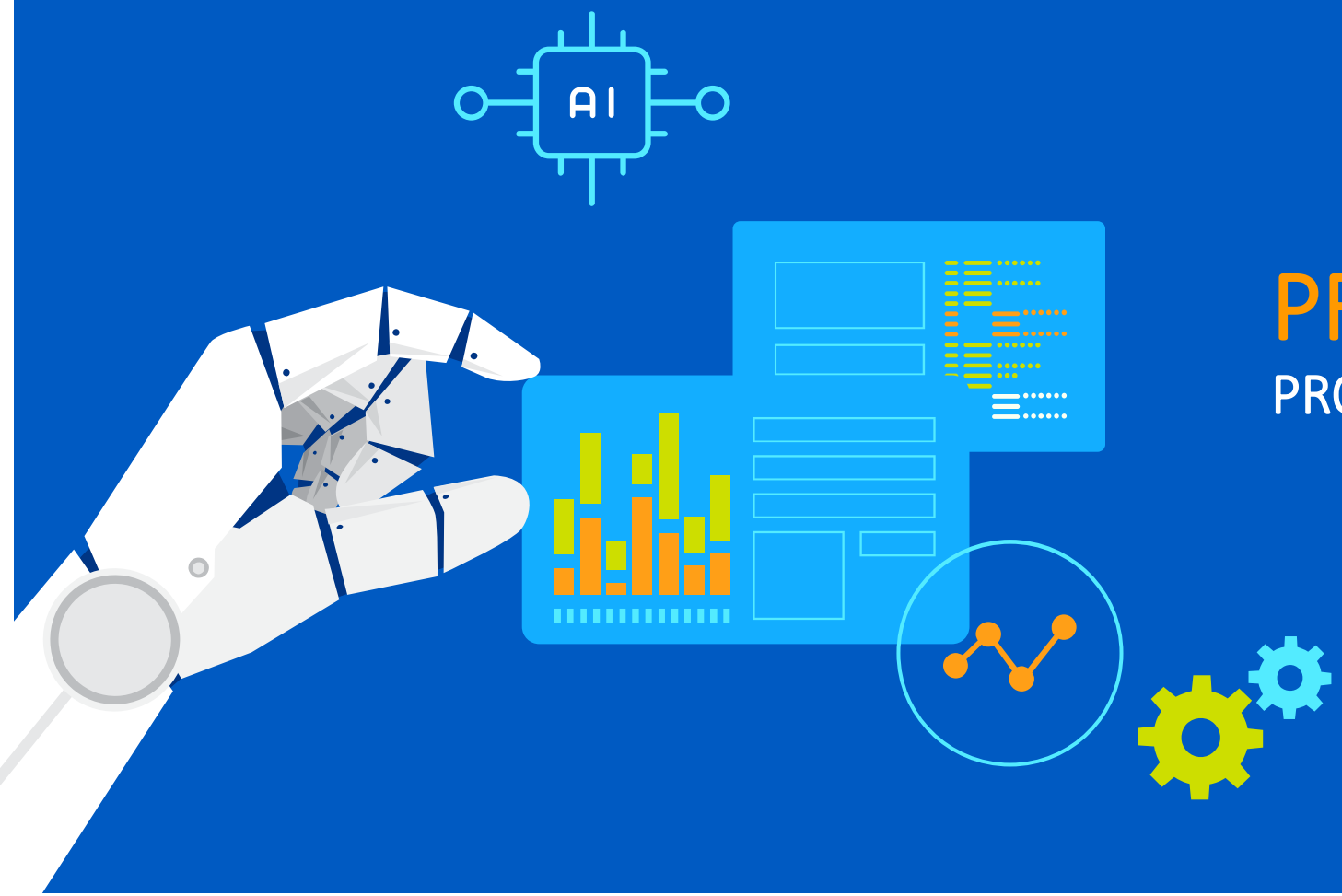

PRESENTATION.

PROFESSOR JOÃO ÁLVARO CARVALHO

Universidade do Minho

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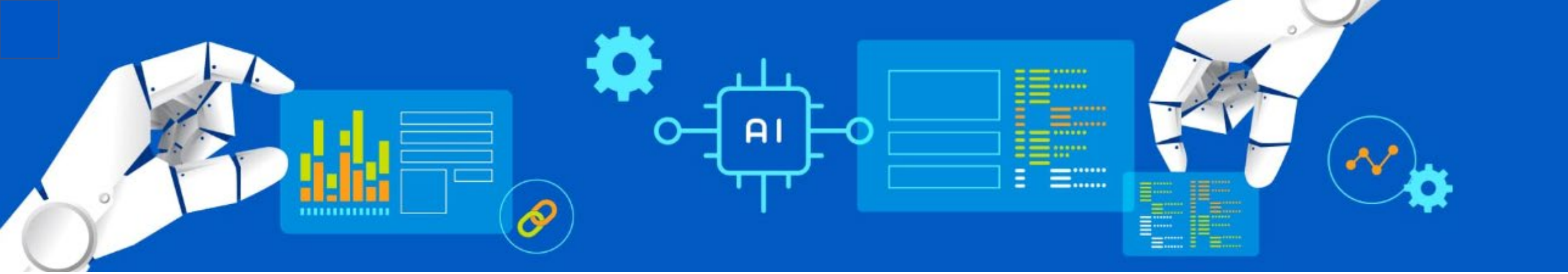
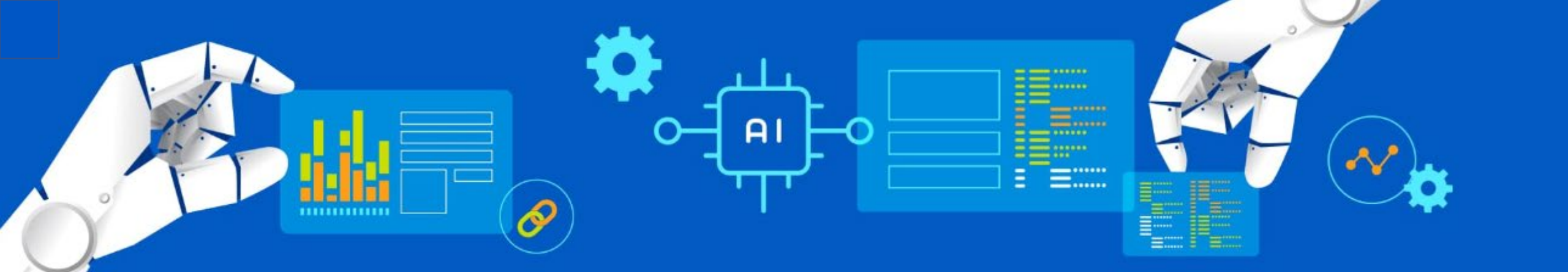


Modeling: The Role of the Developer of the Future

João Álvaro Carvalho

Universidade do Minho



Modeling: The Role of the Developer of the Future

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Modeling: The Role of the Developer of the Future

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Modeling: The Role of the Developer of the Future

Why does it matter?

Why do we care?

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- Engenharia Informática
- Ciências da Computação
- **Engenharia e Gestão de Sistemas de Informação**
- Engenharia de Telecomunicações e Informática
- Engenharia Eletrónica Industrial e Computadores

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Modeling: The Role of the Developer of the Future

Why does it matter?

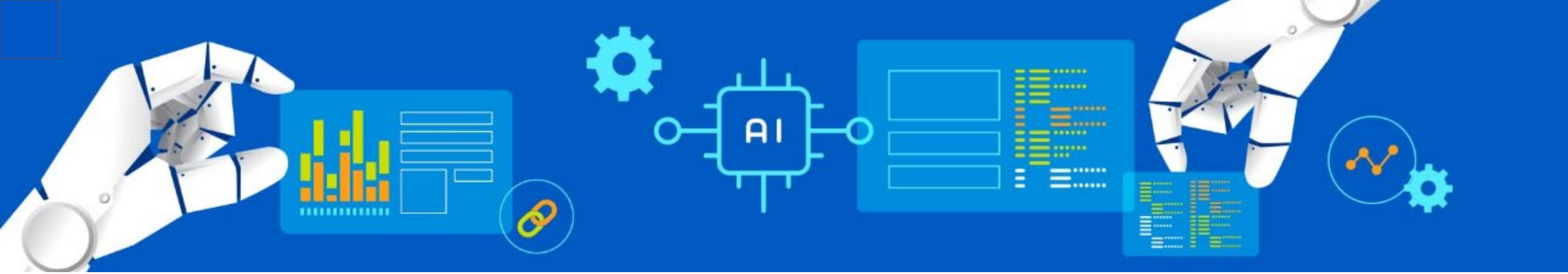
Why do we care?

Why does it matter?
Why do we care?

Universidade do Minho

(Re)design education programs as portfolios of competences adequate to current and future needs of IT-related professionals

- What functions are [will be] performed by IT-related professionals?
- What competences are necessary to perform those functions?
- How technology developments affect the functions and/or the compteneces?



Modeling: The Role of the Developer of the Future

João Álvaro Carvalho

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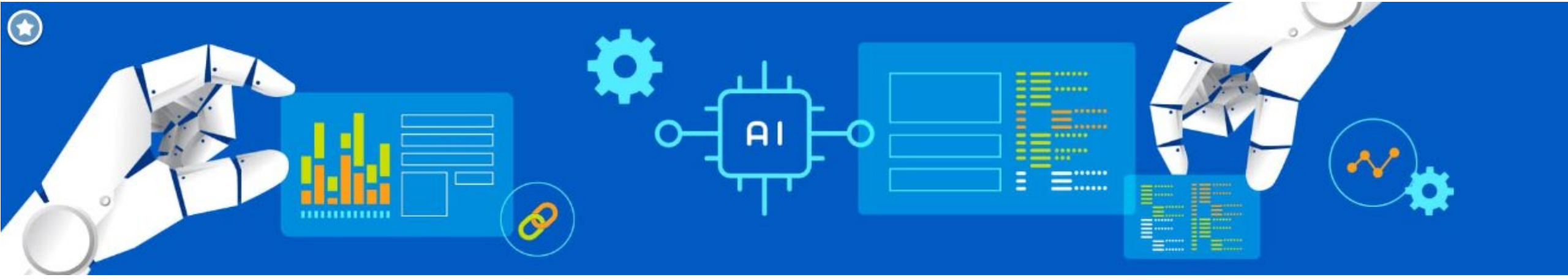
- GENIO – a software device that automates most of the production of software products…

[my own statement, (hopefully) free from jargon, fashion, ambitions, or “poetry”]



Genio

CODE GENERATION PRODUCTIVITY

100
times
individual productivity

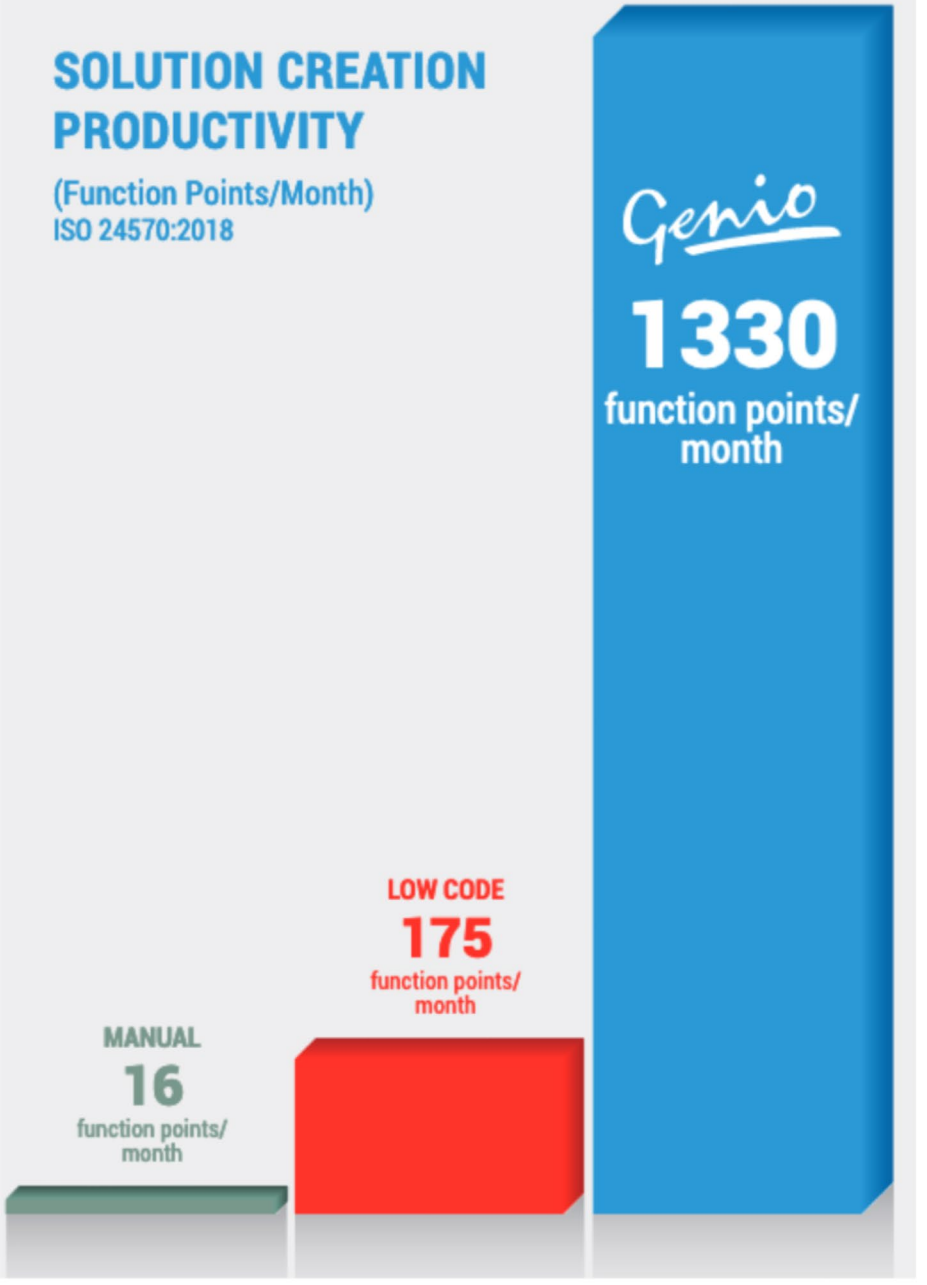
1/10
of time

1/10
of usual resources

AI

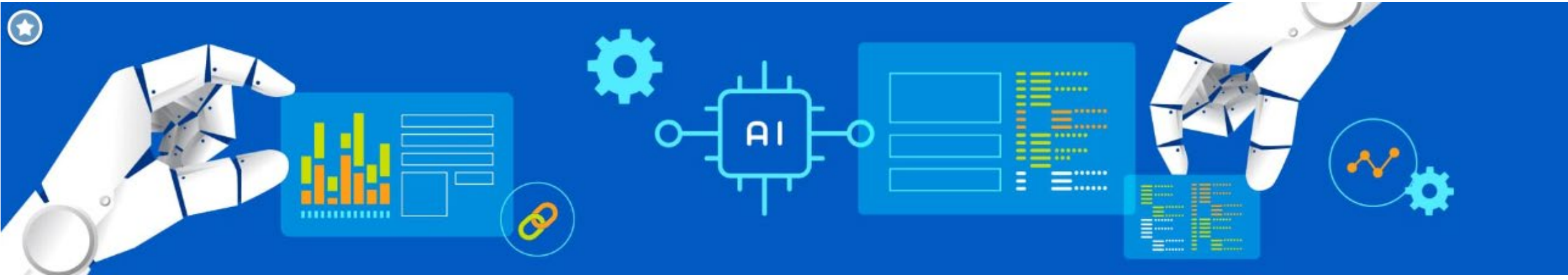
SOLUTION CREATION PRODUCTIVITY

(Function Points/Month)
ISO 24570:2018



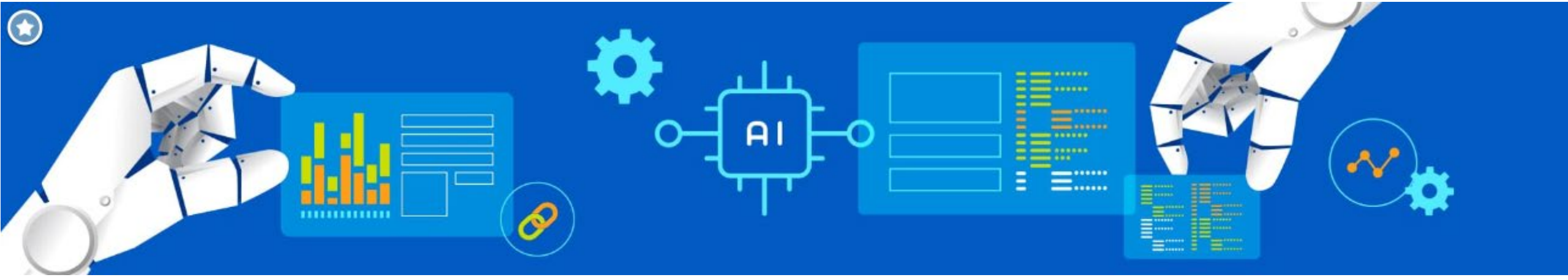
Implications of GENIO

- A new paradigm in
  - Software development
  - Software engineering
  - …



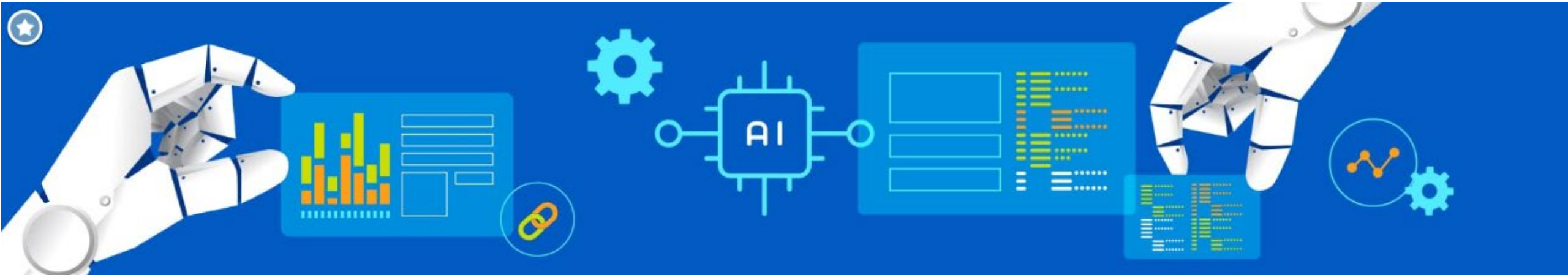
Software development/engineering realm

- “… a revolutionary IDE…”
- “… rapid application development for complex management solutions… ”
- “… automatic software generation… ”
- Productivity booster
- …

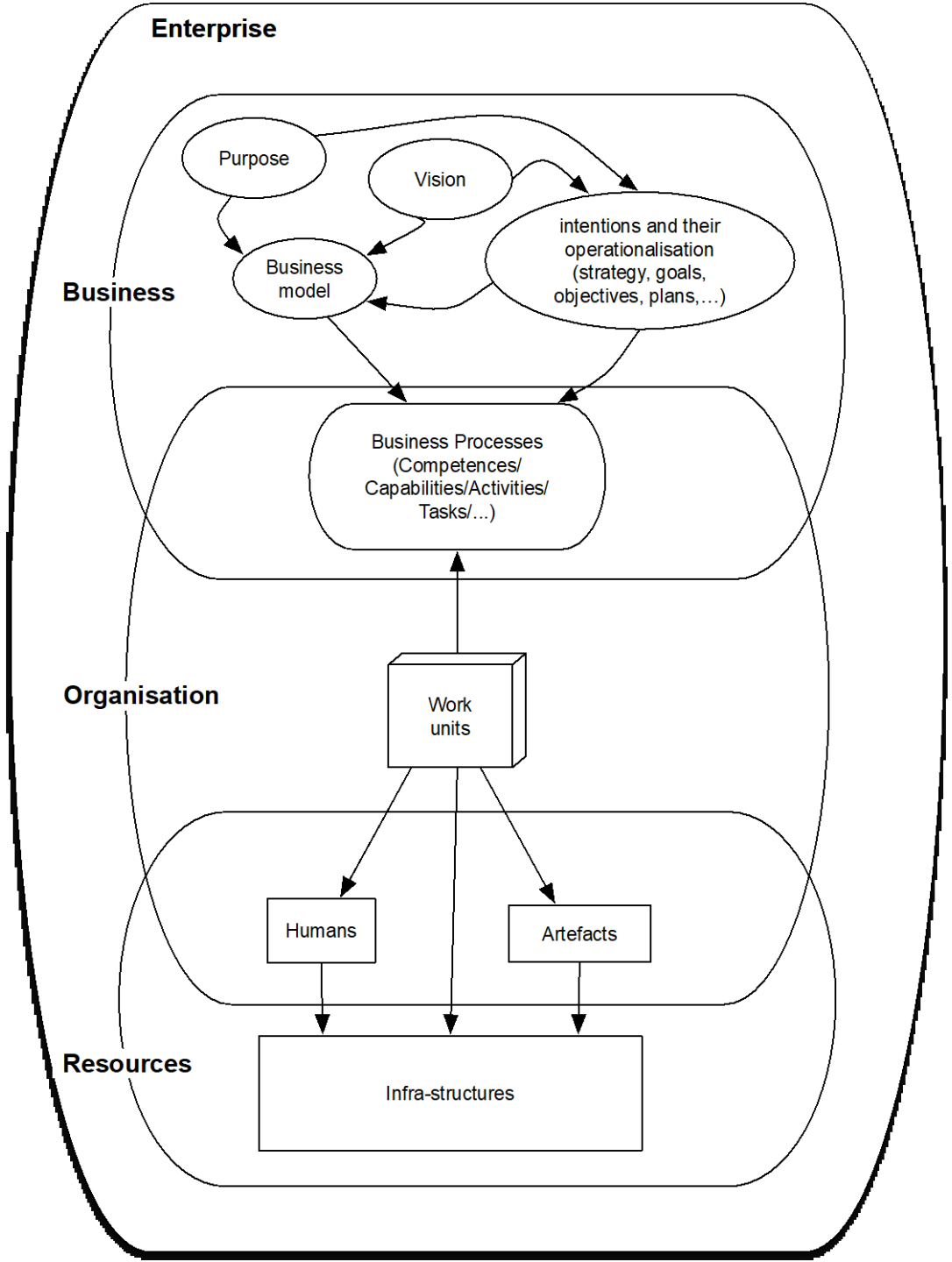


Challenging the realm of GENIO's impacts

Impact of Quidgest's GENIO on the
Business and ***Organization*** Development of ***Enterprises***



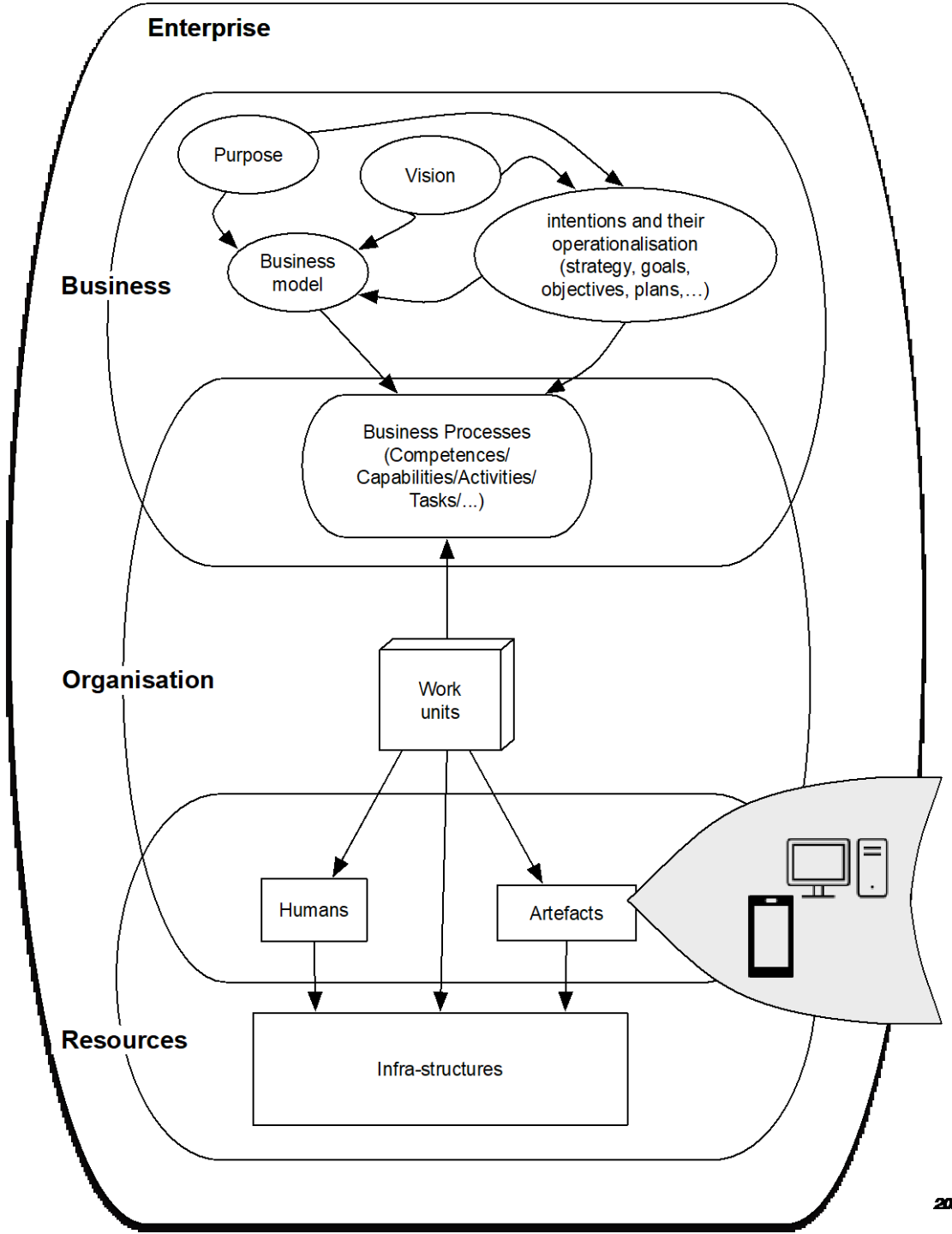
The Enterprise



IT in the enterprise

IT in the enterprise

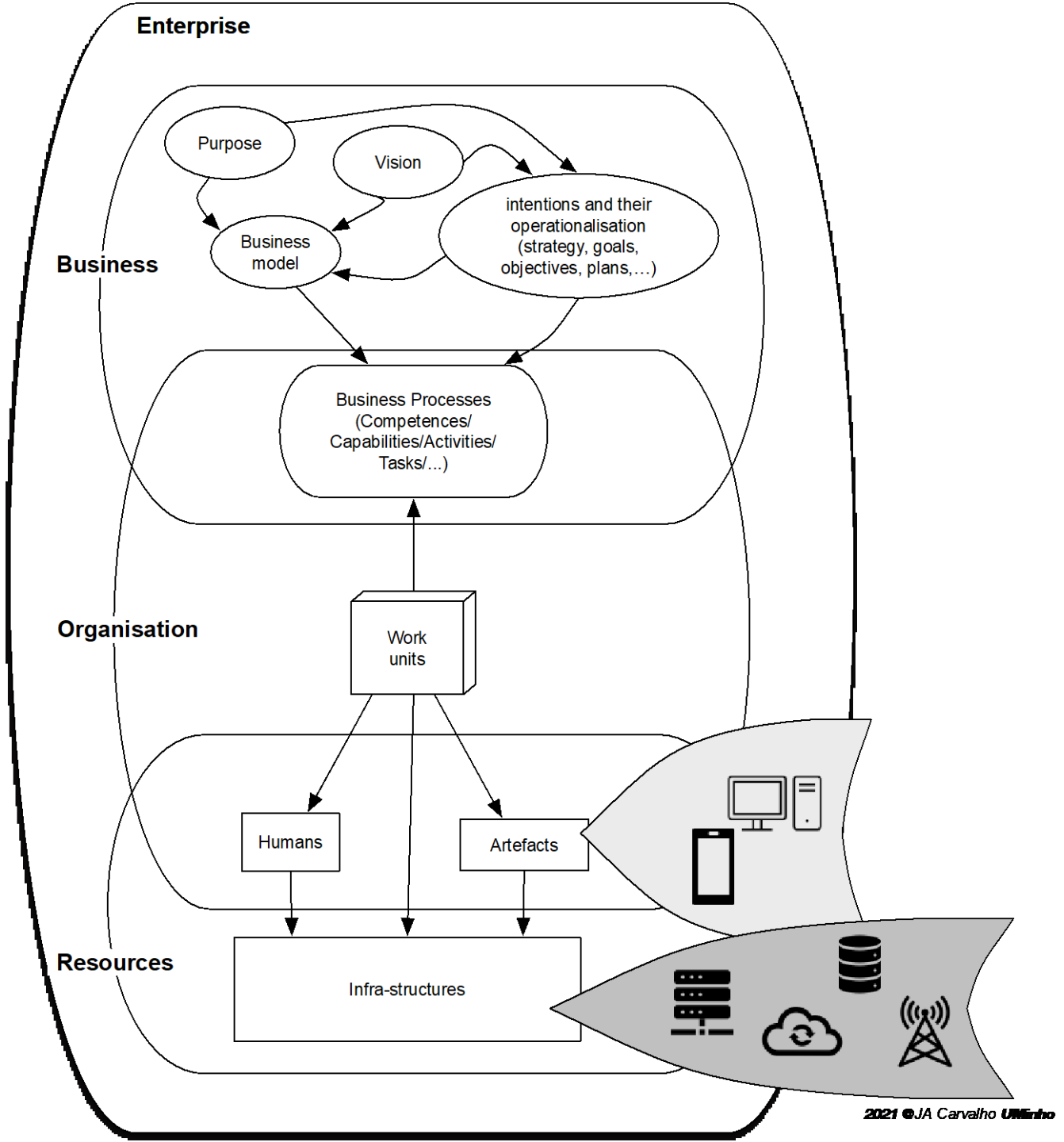
IT Applications



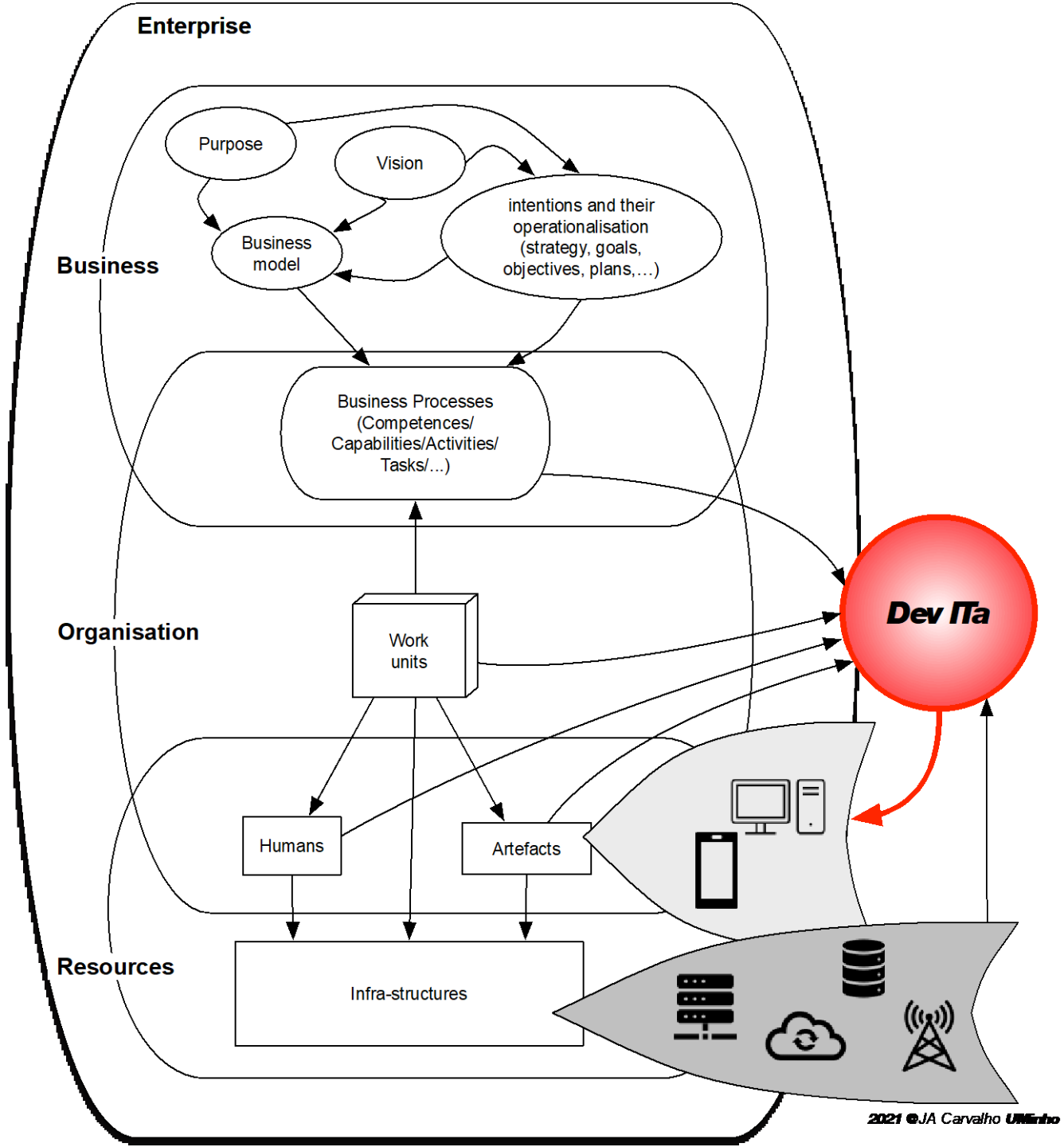
IT in the enterprise

IT Applications

IT Infrastructures



Development of IT Applications


Enterprise
Purpose
Vision
intentions and their operationalisation (strategy, goals, objectives, plans,…)
Business model
Business
Business Processes (Competences/ Capabilities/Activities/ Tasks/…)
Organisation
Work units
Dev ITa
Humans
Artefacts
Resources
Infra-structures
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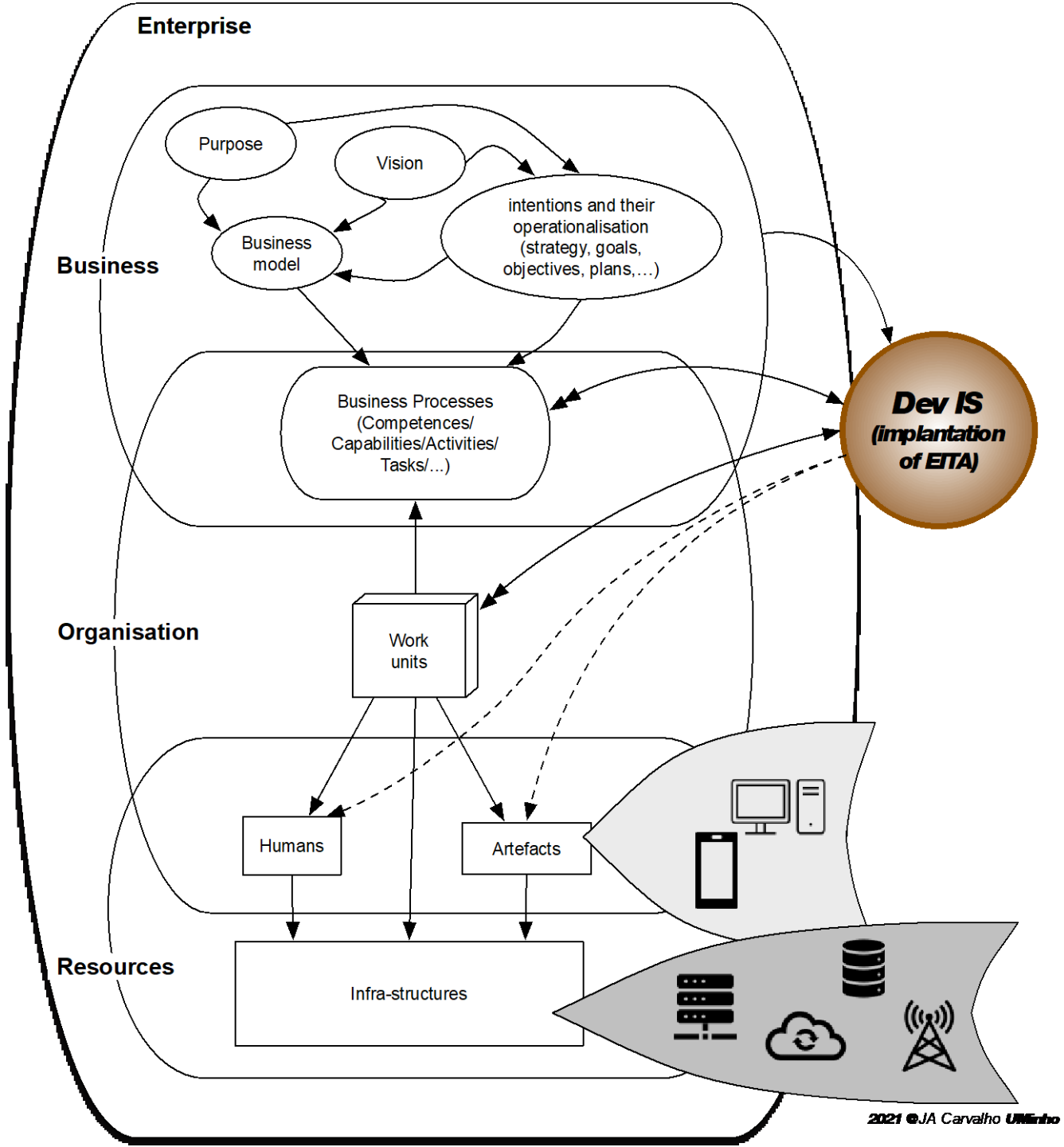
IS (Organization) Development

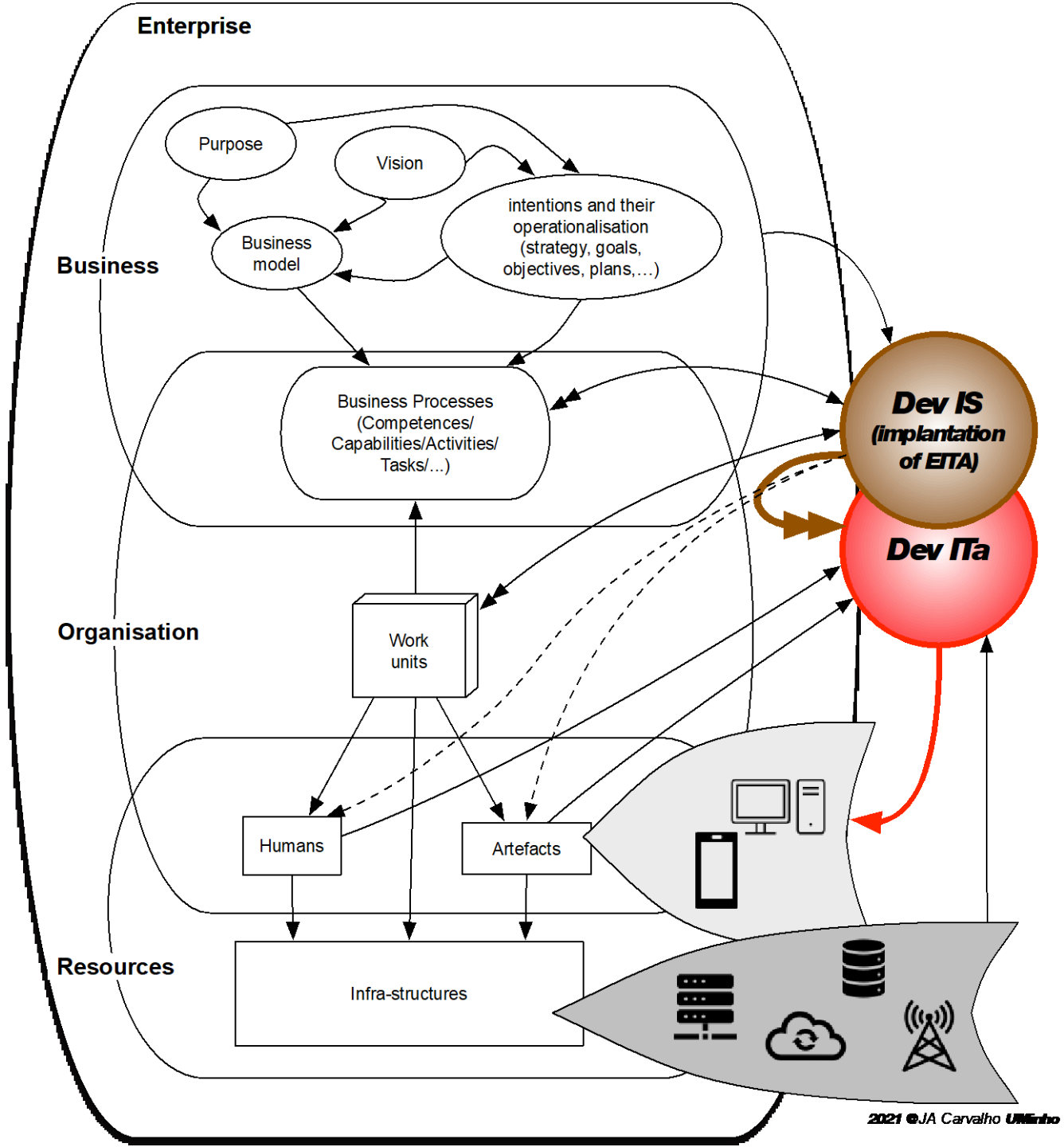
Includes the implantation of IT applications



IS (Organization) Development

Includes the implantation of IT applications

Can include the development of IT applications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Dev IS (implantation of EITA)
Dev ITa
Work units
Organisation
Humans
Artefacts
Infra-structures
Resources
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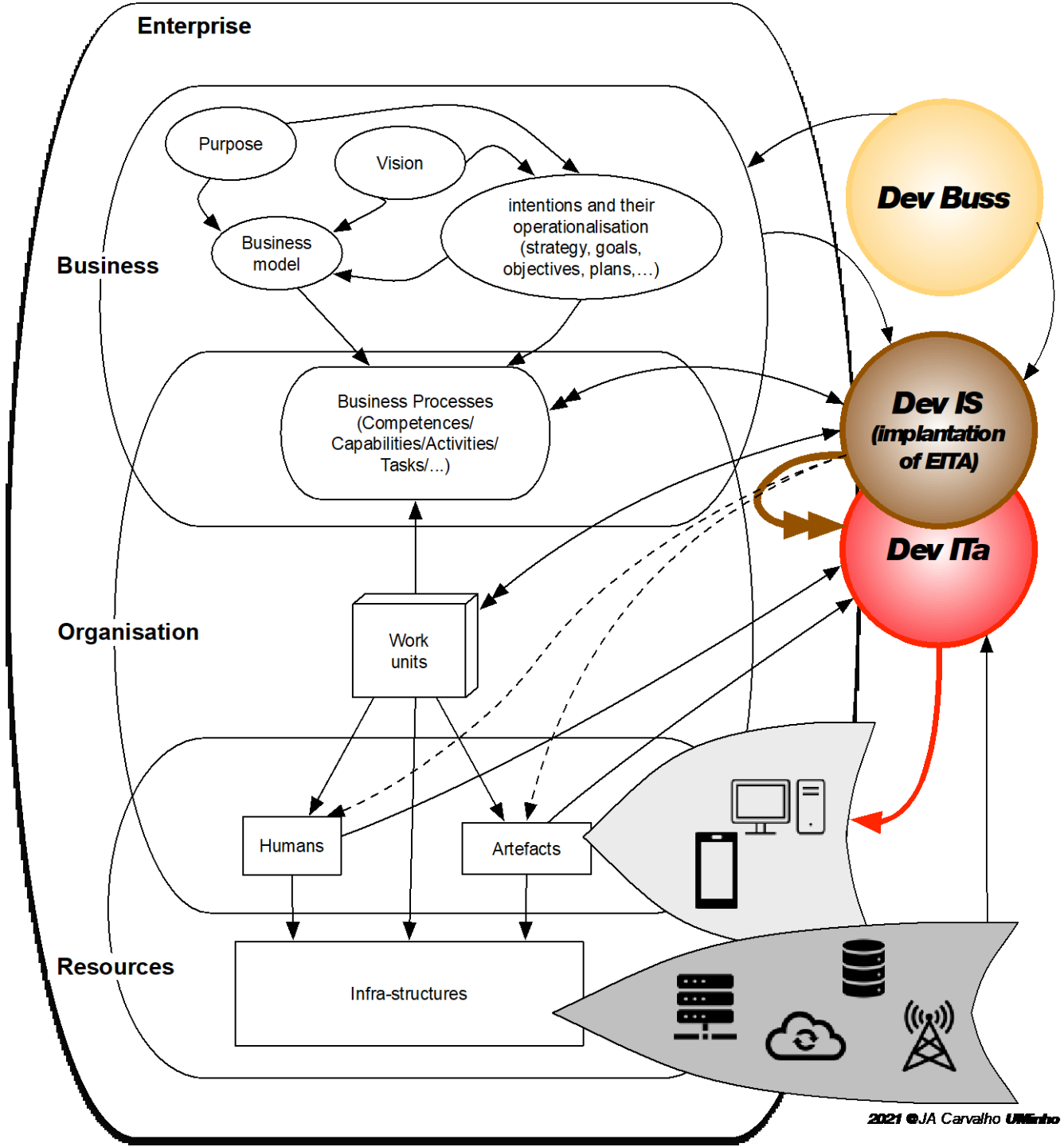
Business Development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Dev IS (implantation of EITA)
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Organisation
Work units
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Resources
Infra-structures
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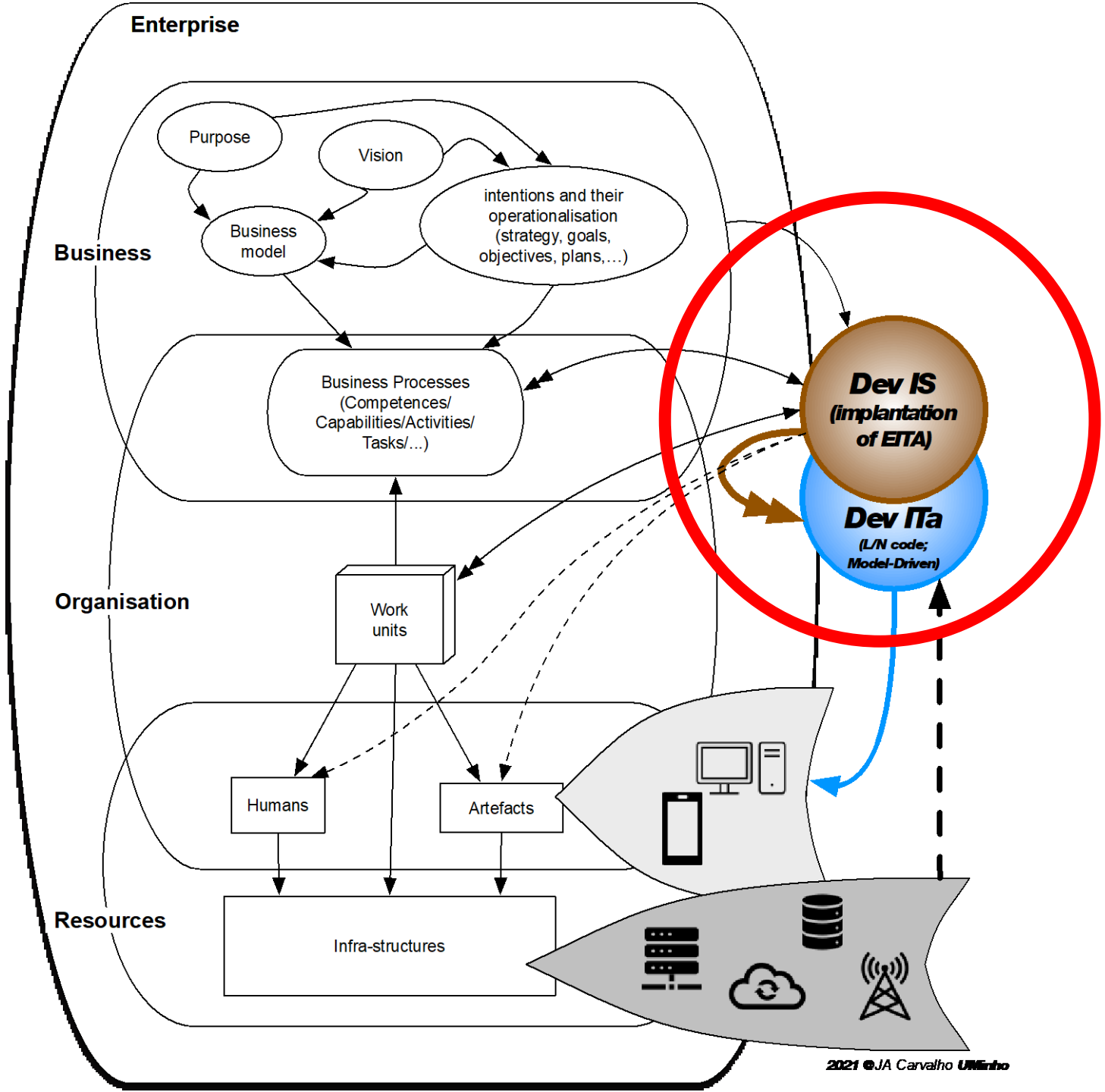
IS Development with Low/No-Code & Model-Driven Development of IT Apps

Includes the implantation of IT applications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Dev ITa (L/N code; Model-Driven)
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Humans
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Infra-structures
Resources
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Profile of the Engineer and Manager of Information Systems

Engineering and Management of Information Systems

- Information curation
- Enlivenment of informational objects through IT
- Development of IT applications
- Implantation of IT applications
- Upkeeping of the portfolio of IT applications
- Design of IS architectures
- Setting up of information-centered, IT-enhanceable enterprise capabilities
- Oversight of IT infrastructures
- Control of the fit between the IS architecture and the reality
- Studies on the impact of IT on society
- Administration of the IST unit

Engineering and Management of Information Systems

- Information curation
- Enlivenment of informational objects through IT
- **Development of IT applications**
  - Involves the engineering of IT applications, mainly through the combination of high-level components (e.g., DBMS, WMS, …), dealing with the adequate interface channels, that comply with a set of requirements: define and/or interpret requirements; design the IT application; build the IT application; test the IT application to verify its conformity to the requirements.
  - Might involve Low/No-code platforms or other type of devices for automating (more or less) the production of software
  - (Note: the requirements might have been established in advance, or they might have to be elicited).
- Implantation of IT applications
- Upkeeping of the portfolio of IT applications
- Design of IS architectures
- Setting up of information-centered, IT-enhanceable enterprise capabilities
- Oversight of IT infrastructures
- Control of the fit between the IS architecture and the reality
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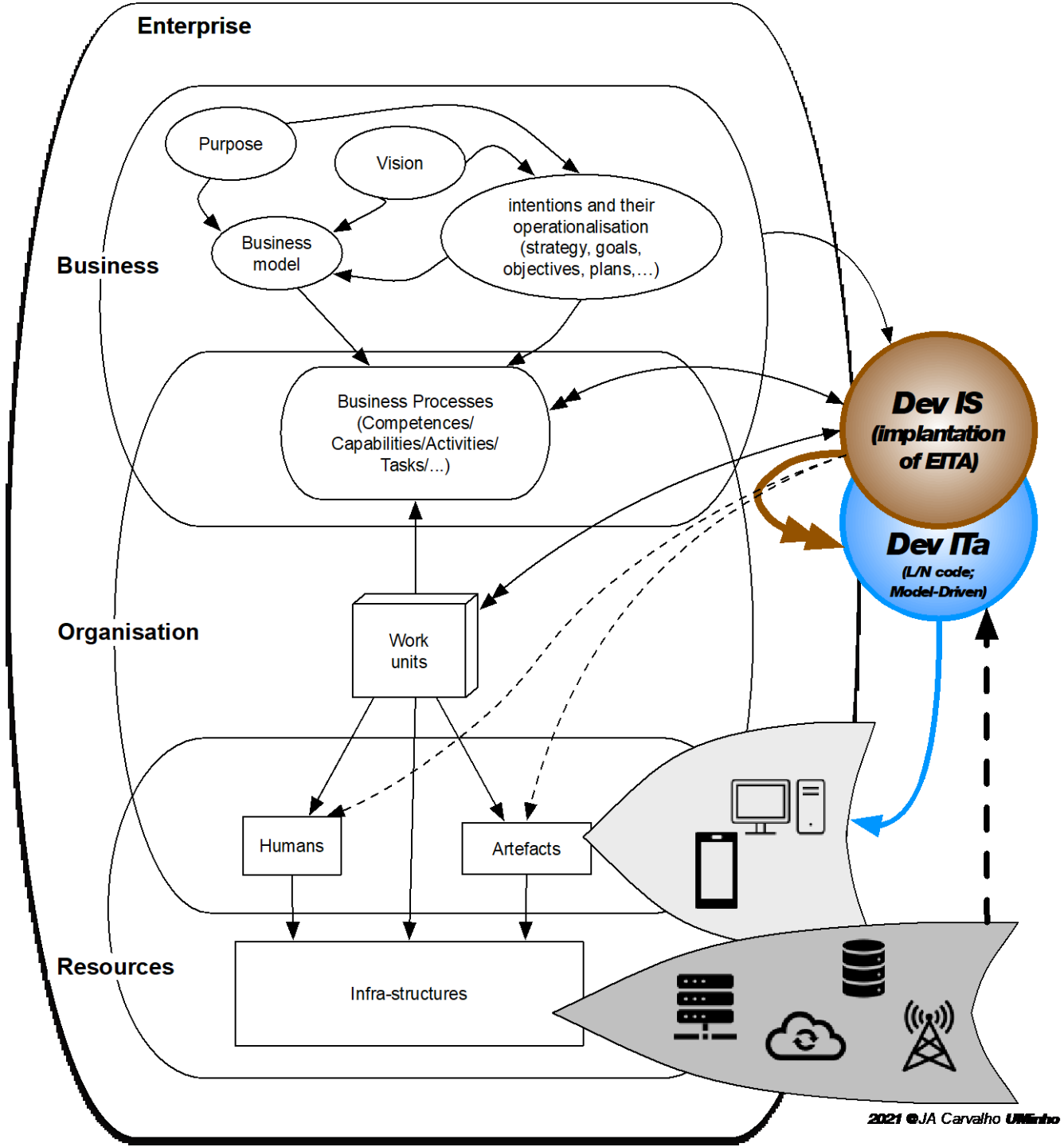
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Engineering and Management of Information Systems

- Enlivenment of informational objects through IT
- Implantation of IT applications
- Setting up of information-centered, IT-enhanceable enterprise capabilities

Engineering and Management of Information Systems

- Enlivenment of informational objects through IT
- **Implantation of IT applications**
  - Involves sub-functions such as:
    - selecting and obtaining the most adequate IT application for the enterprise;
      * COTS/RUSP; tailor-made; whatever; …
    - preparing the enterprise for the implantation of the IT application;
    - installation and configuration of the IT application;
    - transferring existing information to the new IT application;
    - testing of IT applications to verify its suitability to the enterprise and to the intentions of the implantation;
    - (re)designing the activities (processes) of the enterprise;
    - training of enterprise agents;
    - adjustment of the IT infrastructure;
    - management of change, etc.
- Setting up of information-centered, IT-enhanceable enterprise capabilities

Business and Organizational Development of Enterprises

- Enlivenment of informational objects through IT
  - Implantation of IT applications

- Setting up of information-centered, IT-enhanceable enterprise capabilities
  - Implantation of IT applications

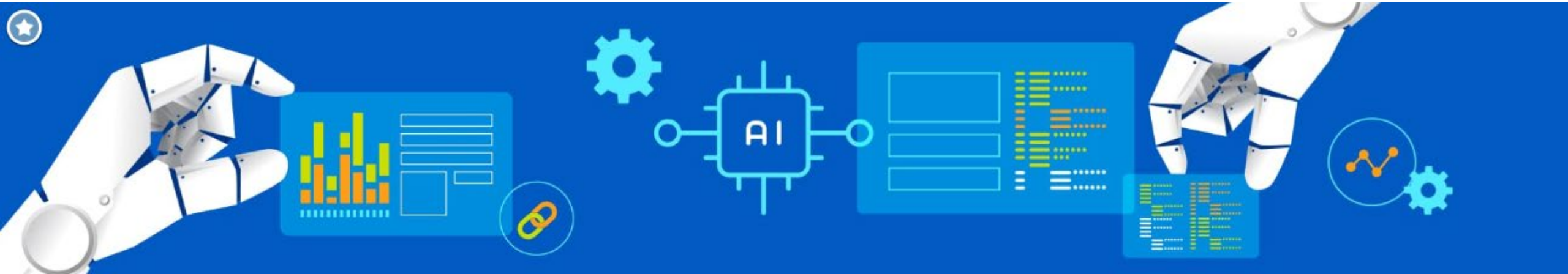
[Development of IT Applications]

Engineering and Management of Information Systems

- Enlivenment of informational objects through IT
  - involves sub-functions such as:
    - searching, selecting, setting up and exploiting of IT applications capable of enlivening information, taking into consideration its intended uses;
    - searching, selecting, setting up and exploiting of IT platforms to enhance and enable the collection, storage, retrieval, presentation, and dissemination of information, taking into consideration its intended uses.
- Implantation of IT applications
- Setting up of information-centered, IT-enhanceable enterprise capabilities
  - Design and implementation of information-centered, IT-enhanceable enterprise capabilities key to the autonomy and sustained adaptation of the enterprise, including coordination (orchestration or choreography); control and command; competitive vigilance; decision-making; continuous improvement; knowledge management; innovation; etc.
  - In existing enterprises, it involves designing the desirable structure for the capability, analyzing and diagnosing the existing structure, defining the attainable structure, planning the changes necessary to achieve the defined structure, and carrying out the change process.

Challenging the realm of GENIO's impacts

Impact of Quidgest's GENIO on the
Business and ***Organization*** Development of ***Enterprises***



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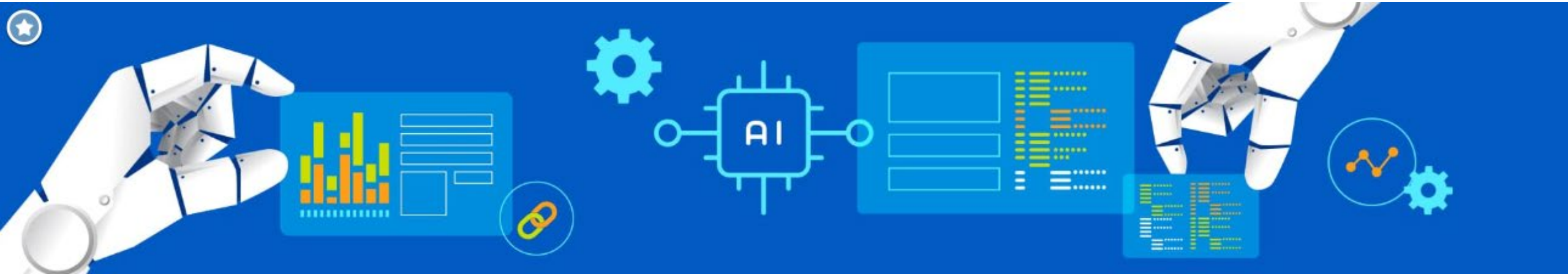
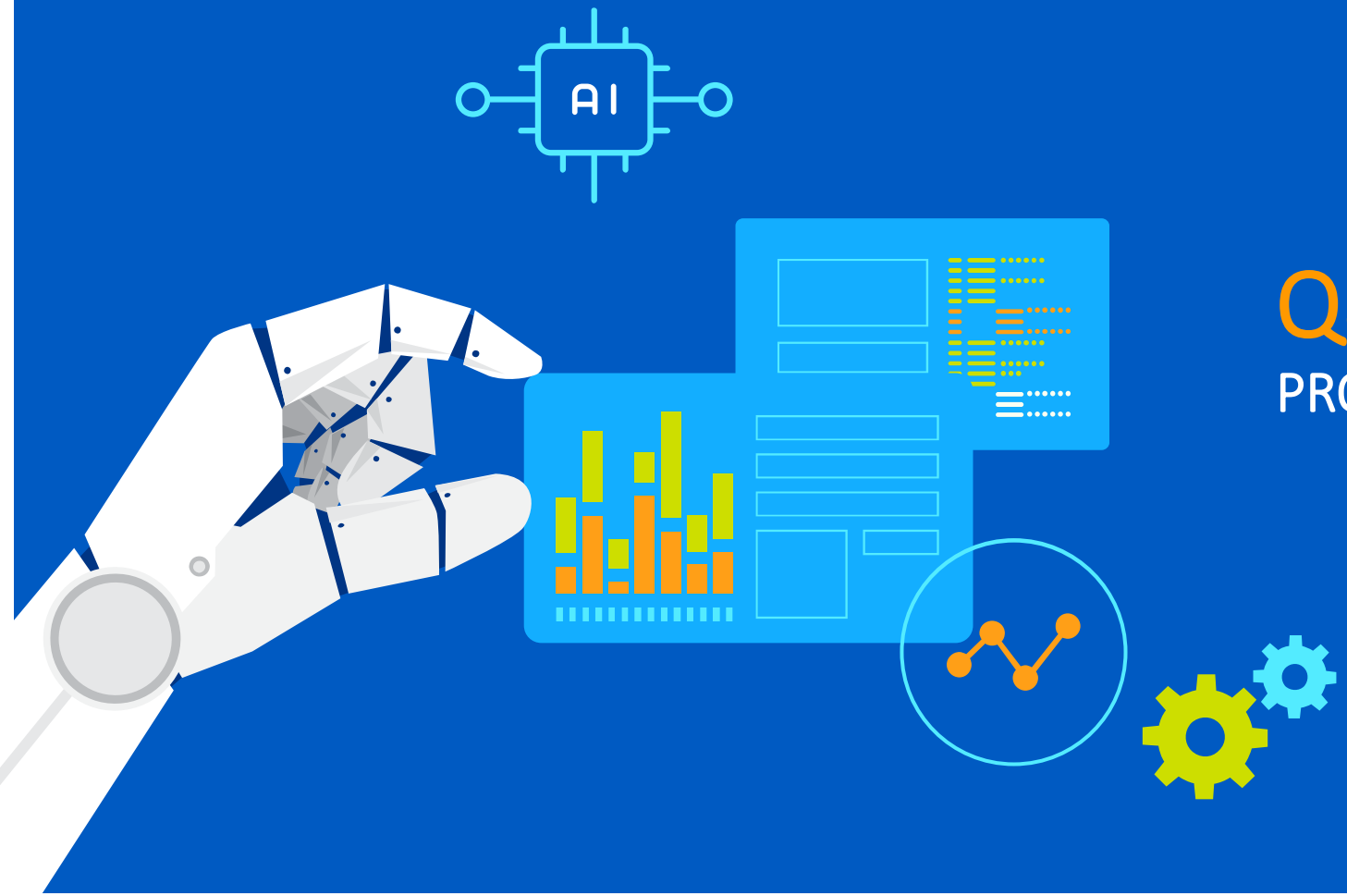
… thank you for your attention!





Q&A.

PROFESSOR JOÃO ÁLVARO CARVALHO

Universidade do Minho

Quidgest

ACADEMY.

G_DEVELOPER
Become a Genio genious!

G_ACCELERATOR
Leverage your best ideas!

G_RESEARCHER
Empower your Research career!

G_CORPORATE
Your strategy, your software!

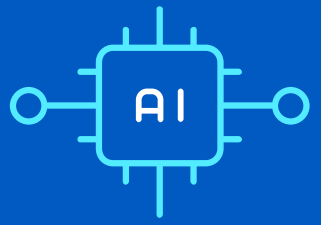
G_TRAINER
Boost your career with tech!

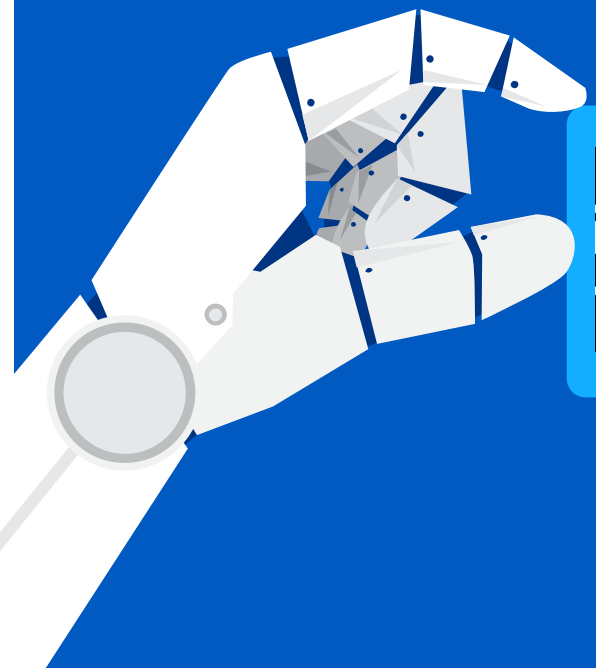
G_EXECUTIVE
Accelerating Digital Transformation

Universidade do Minho

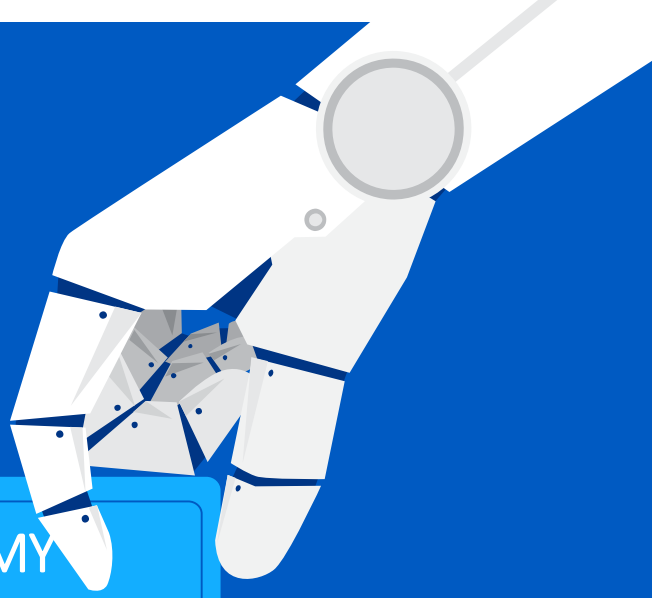
Quidgest

THANK YOU





Discover what type of GENIO training suits you best



QUIDGEST ACADEMY

academy@quidgest.com

bit.ly/typeofGENIO

quidgest.com

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