Pontifícia Universidade Católica do Paraná
Software Engineering Research Group

Maturity in IT Service Management: a longitudinal study

Sheila Reinehr & Andreia Malucelli

Agenda

Maturity in IT Service Management: a longitudinal study

- Introduction
- Literature Review
- Research Method
- Results
- Conclusions
- References

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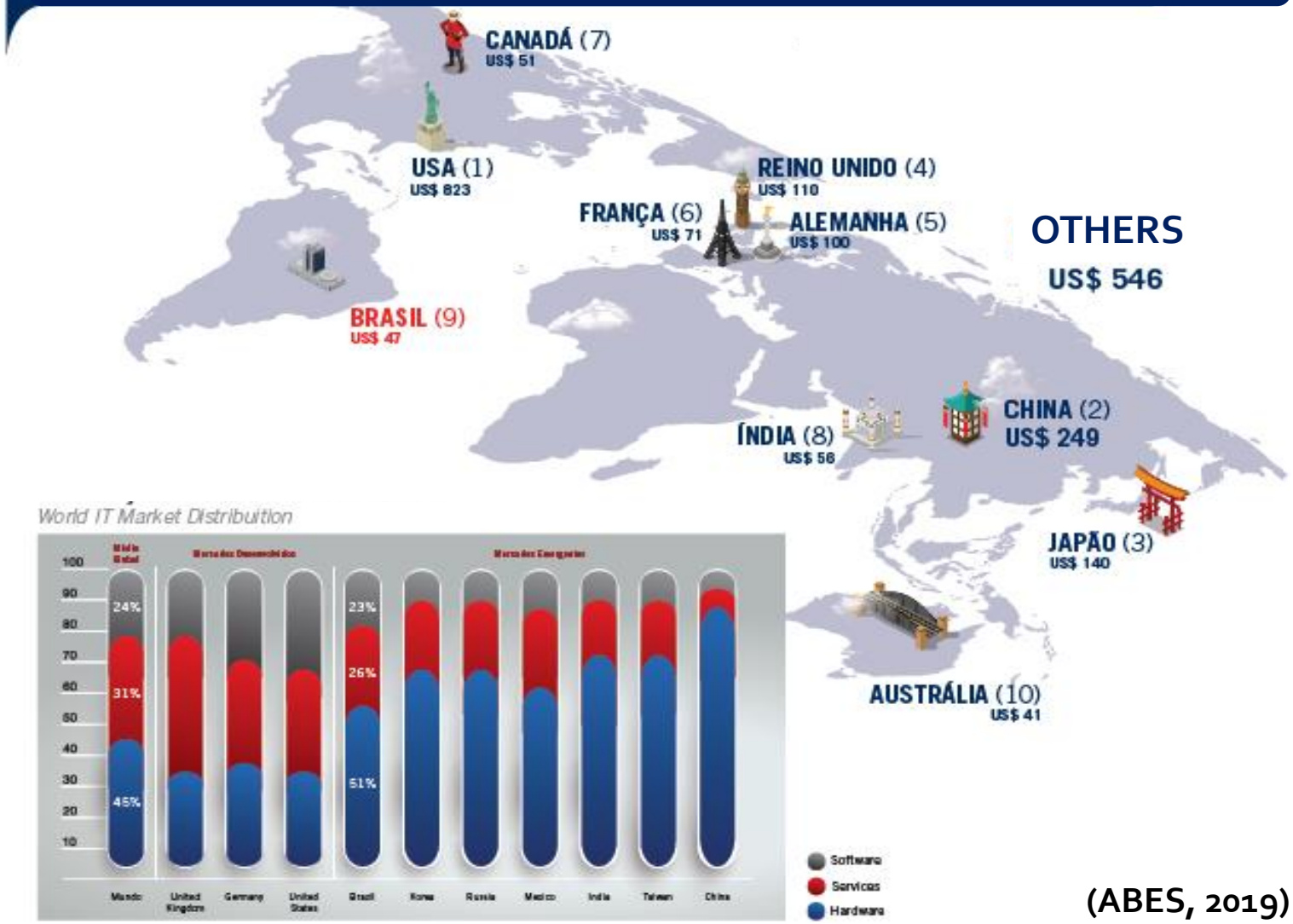
IT Global Market

IT GLOBAL MARKET (U$ 2,3 trillions)



(ABES, 2019)

Some history

2003

MPS.BR

Brazilian Software Process Improvement Program (SOFTEX, 2003)

2011

MMGSTI

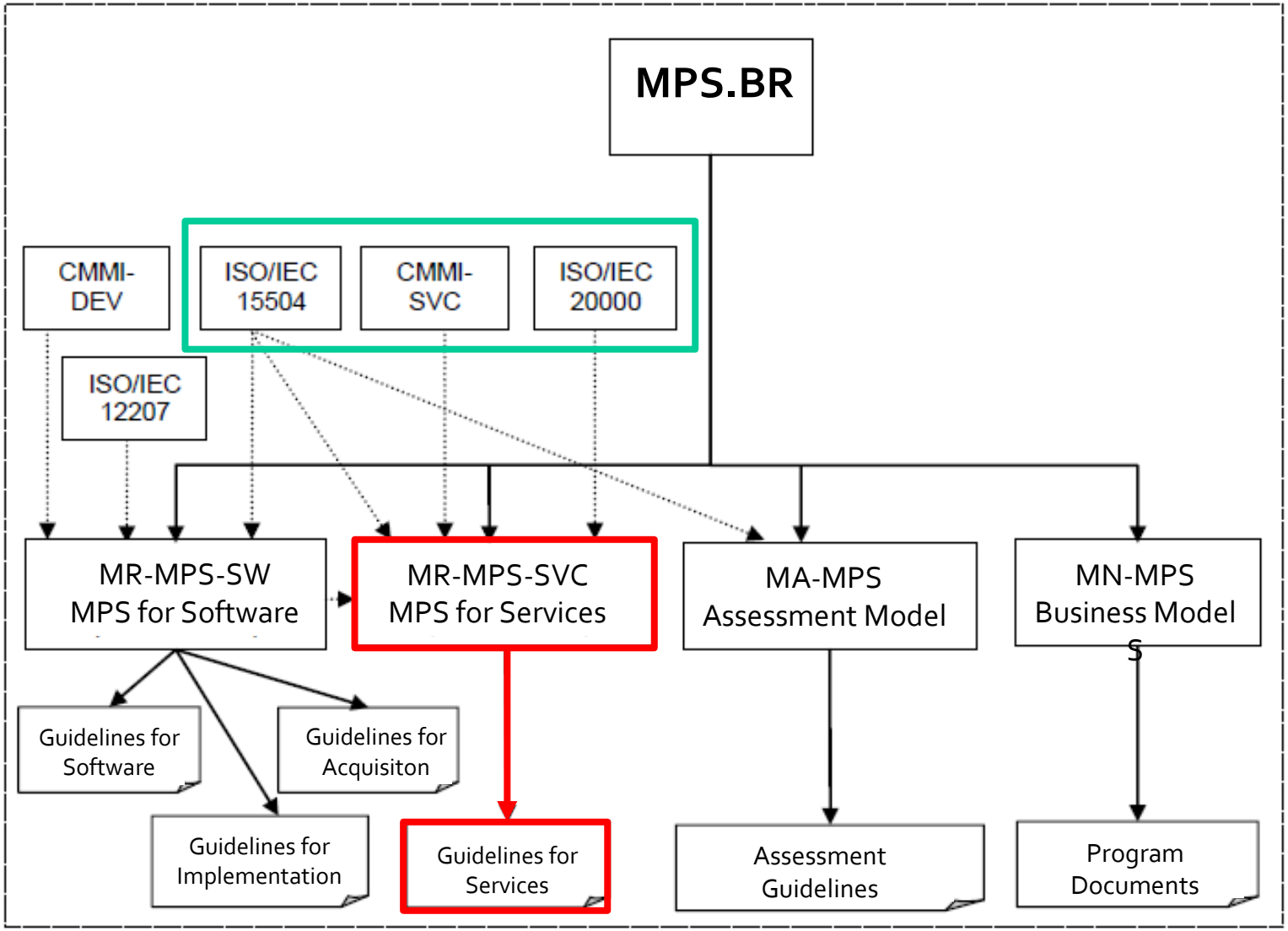
Masters Dissertation – Maturity Model for IT Service Management (MACHADO, 2011)

2012

MR-MPS-SV

MPS for Services was launched, based on the MMGSTI model

MR-MPS-SV (2012)



MR-MPS-SV (2015)

A

B

C
- Capacity Management
- Continuity and Avalilability Management
- Decision Management
- Deployment Management
- Risk Management
- Information Securoty Management
- Services Report

D
- Service System Development
- Services Budget and Accounting

E
- Organizational Process Assessment and Improvement
- Organizational Process Definition
- Change Management
- Human Resources Management

F
- Acquisition
- Configuration Management
- Quality Management
- Problem Management
- Service Operations Portfolio Management
- Measurement

G
- Incident and Service Request Management
- Service Operations Management
- Service Level Management

MR-MPS-SV

- From 2012 to 2018, MR-MPS-SV was gaining ground:
  - 63 companies officially assessed
  - 1 foreign company officially assessed
  - 267 professionals qualified through official training
  - 52 professionals who passed the certification exams to perform the roles of implementer (consultant) and appraiser of maturity in IT services.

Recent studies

- Albuquerque (2014)
  - *Study about the factors that influence the maintenance of software process in organizations that where assessed by reference models*
  - Categories:
    - Human Factors
    - Factors related to the improvement Project
    - Organizational factors
    - Factors related to the process itself

Recent studies

- Fontana (2014)
  - *Progressive Outcomes: a framework for maturing in agile software development*
  - Organizations that use agile methods mature differently from the way prescribed in traditional maturity models

Research Goal

- *The main objective of the study was to investigate the results obtained and the difficulties faced by companies that have implemented the MR-MPS-SV model and whose official assessment was successful, from the perspective of the various participants involved in this environment.*

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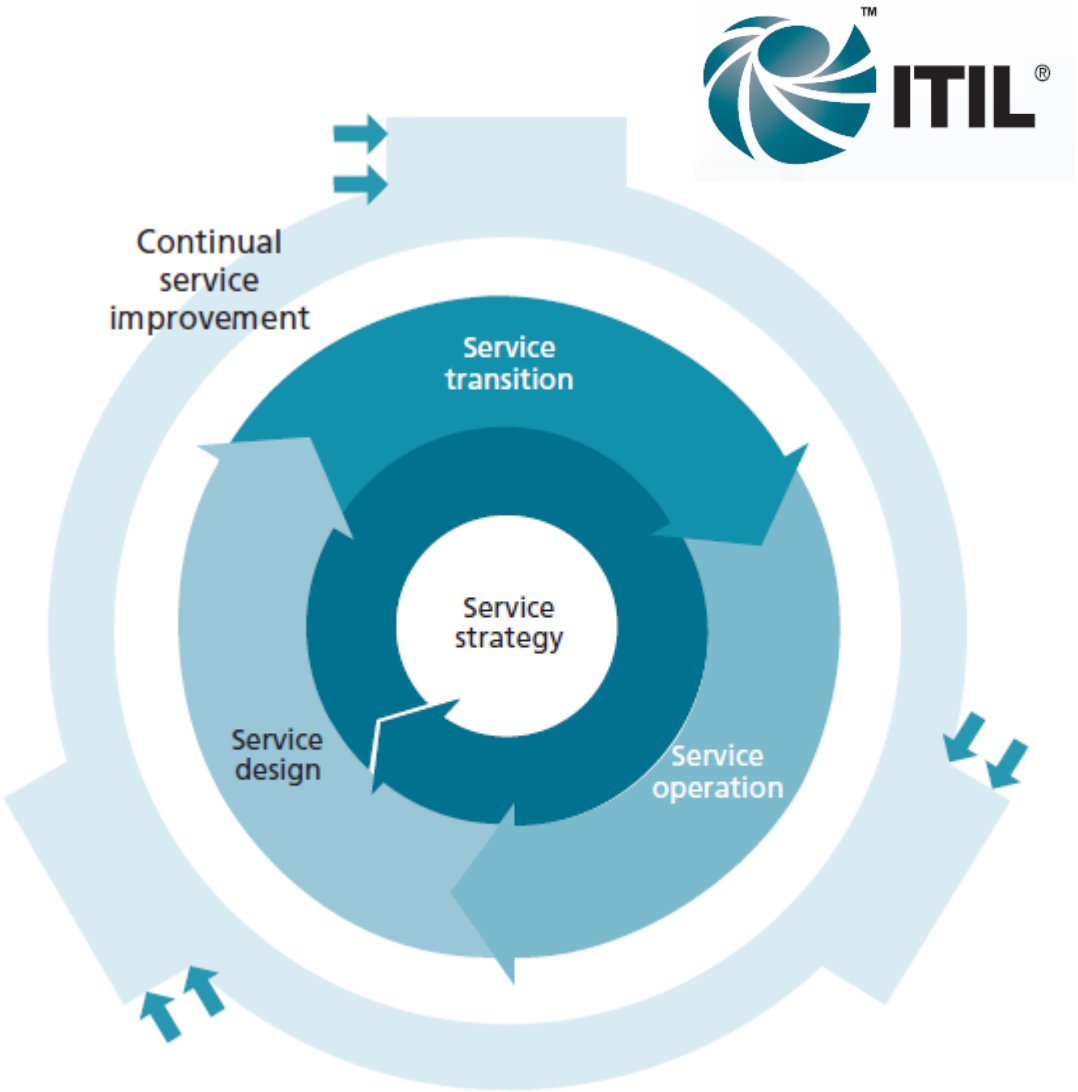
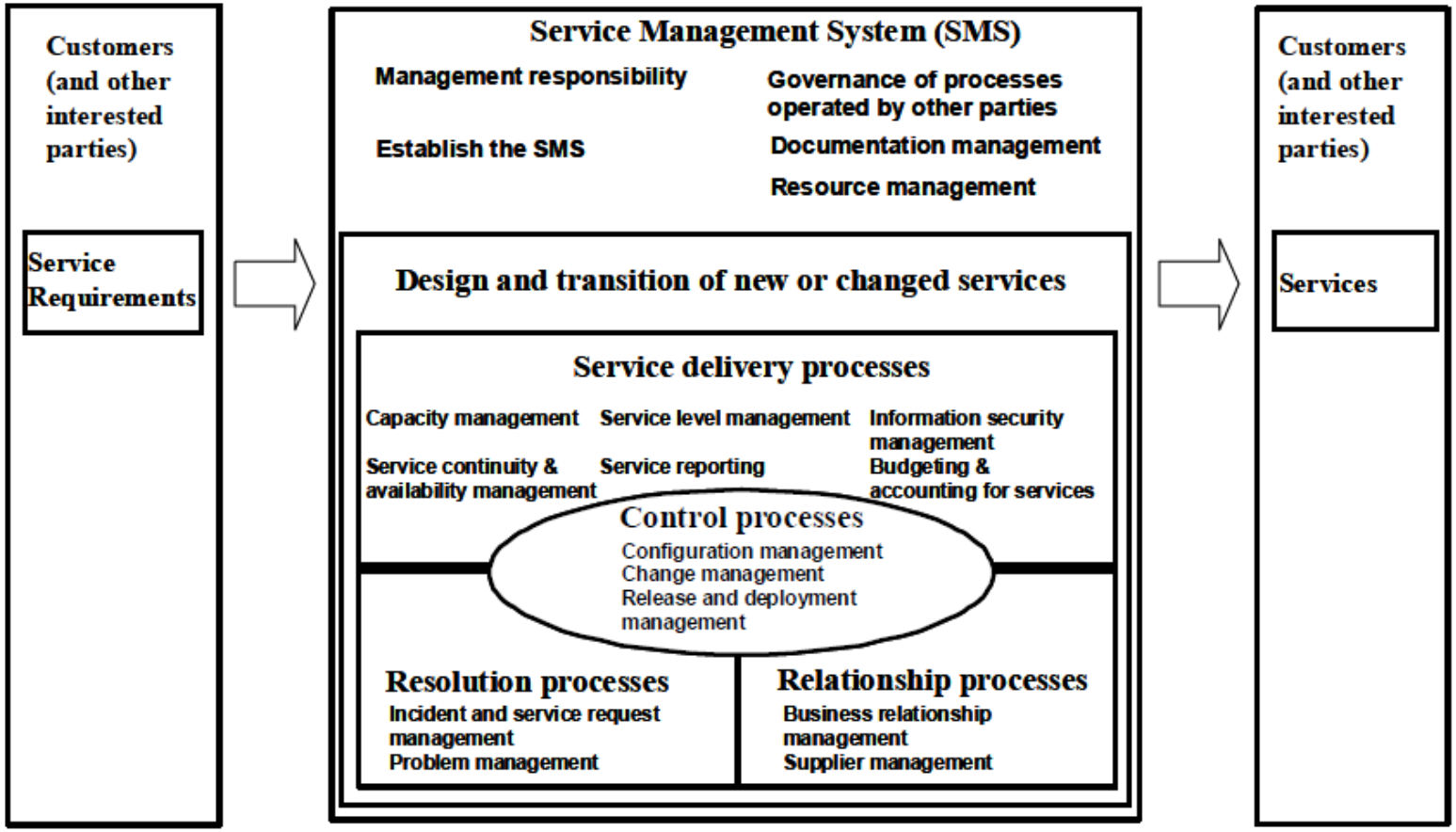
ITIL®

- De facto standard in industry
- Does not assess organizations
- Certify professionals, not processes



ITIL (TSO,2011)

ISO/IEC 20.000



ISO/IEC 20.000 (ISO/IEC, 2010).

CMMI-SVC®

MANAGED 2

Configuration Management
Measurement and Analysis
Project Monitoring and Control
Project Planning
Process and Product Quality Assurance
Requirements Management
Service Delivery
Supplier Agreement Management

DEFINED 3

Capacity and Availability Management
Decision Analysis and Resolution
Integrated Project Management
Incident Resolution and Prevention
Organizational Process Definition
Organizational Process Focus
Risk Management
Organizational Training
Service System Transition
Strategic Service Management
Service System Development
Service Continuity

QUANTITATIVELY MANAGED 4

Organizational Process Performance
Quantitative Project Management

OPTIMIZING 5

Causal Analysis and Resolution
Organizational Innovation and Deployment

CMMI-SVC (CMMI Product Team, 2010).

iMPS (2014)

- According to the study on the improvements obtained by the companies that apply the MR-MPS-SW, companies assessed at higher maturity levels (SOFTEX, 2014):
  - have more clients outside the country
  - have more hired personnel
  - develop larger projects
  - have larger production capacity
  - deliver products closer to the estimated delivery date
  - deliver them with higher quality (fewer bugs).
- Database:
  - 181 respondents from 148 different companies (from a database with 500 assessed companies)
- Results are related to companies that have implemented the software maturity model, it is conjectured that most benefits and difficulties are also to be found in companies that implement the service model.

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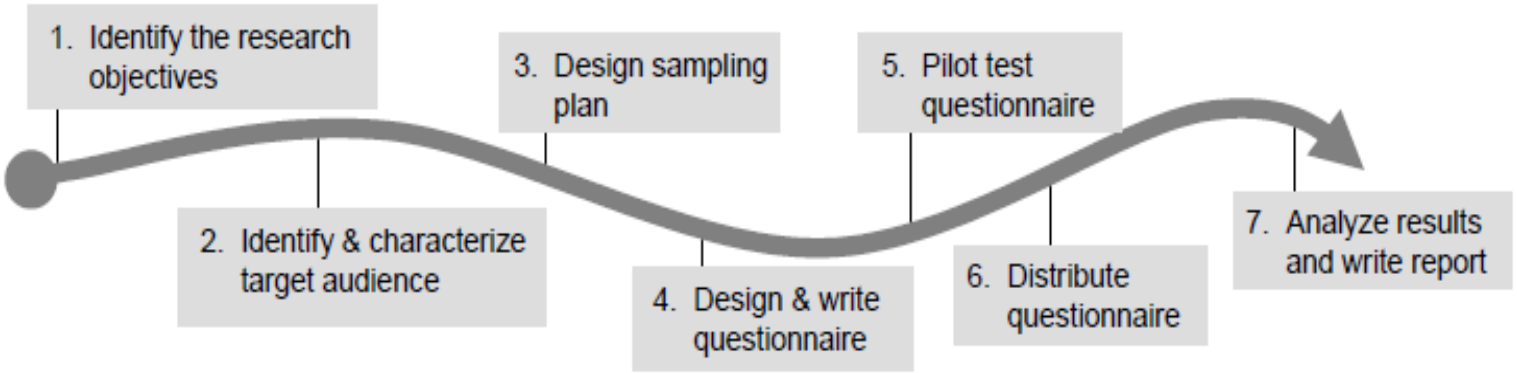
Research Method

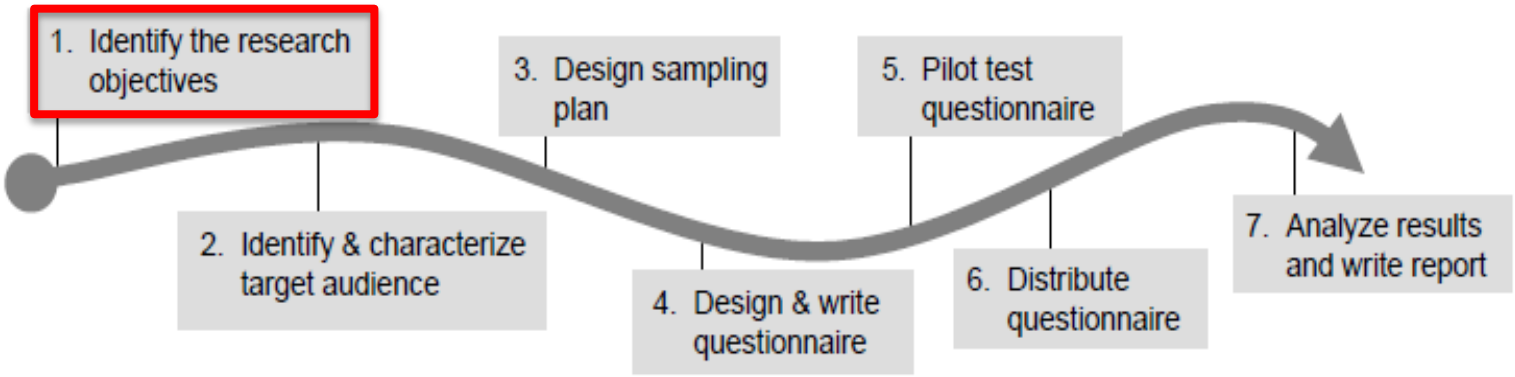
- Research Method selection:
  - Descriptive research
  - Data collected through questionnaires
  - Quanti-qualitative



Survey Research Method - Kasunic, (2005)

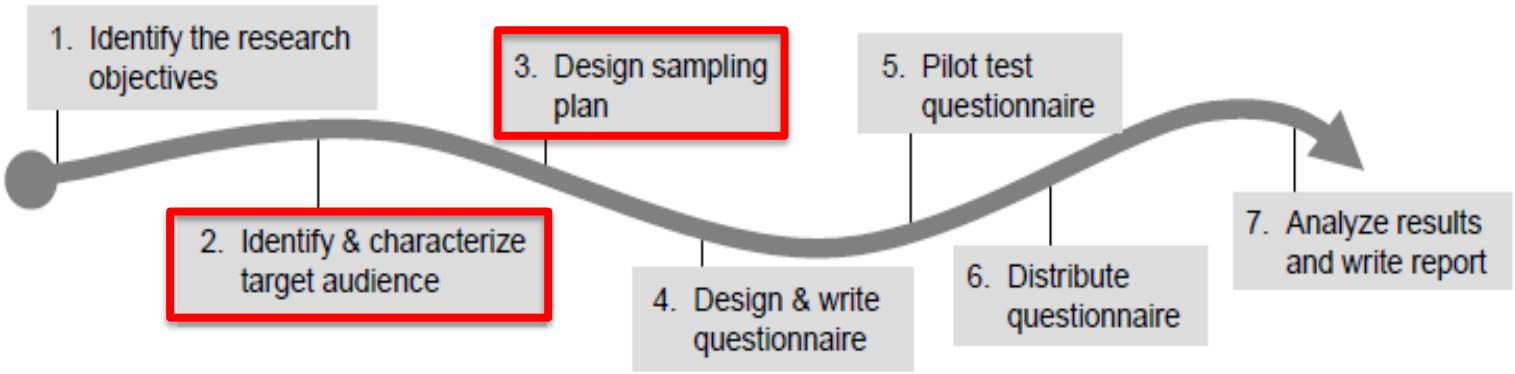
Research Method

- Research Goal
  - *The main objective of the study was to investigate the results obtained and the difficulties faced by companies that have implemented the MR MPS SV model and whose official assessment was successful, from the perspective of the various participants involved in this environment.*

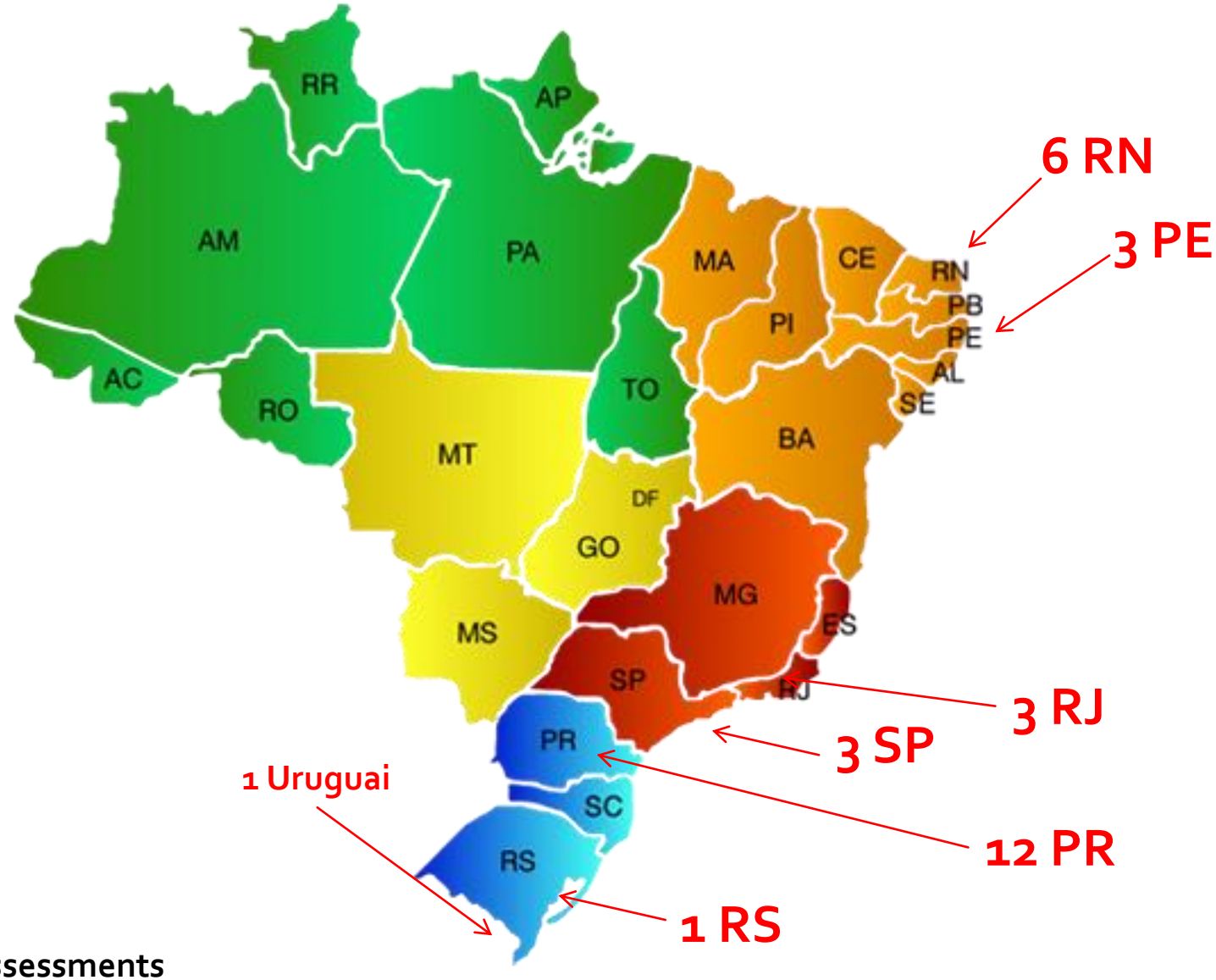


Research Method

- Initial focus on the 29 companies officially assessed using the MR-MPS-SV until the cut-off point of the research.
  - Sponsors
  - Team
  - Consultants

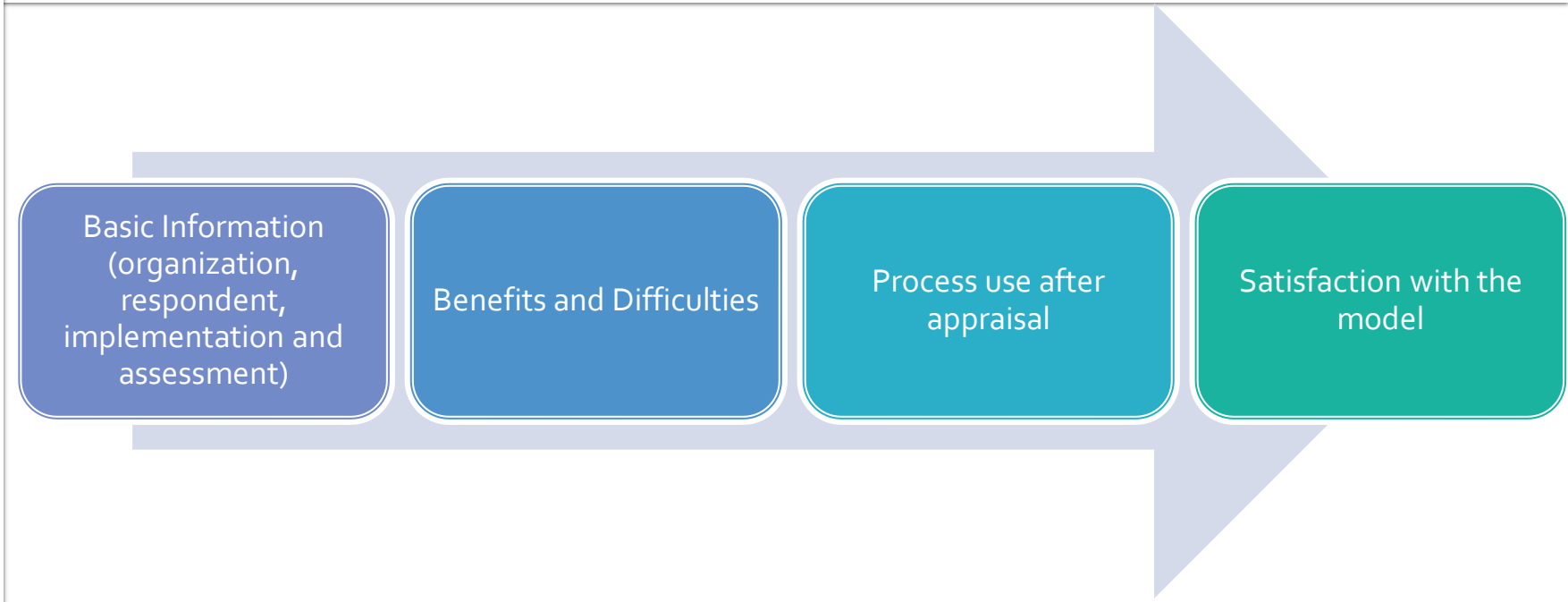


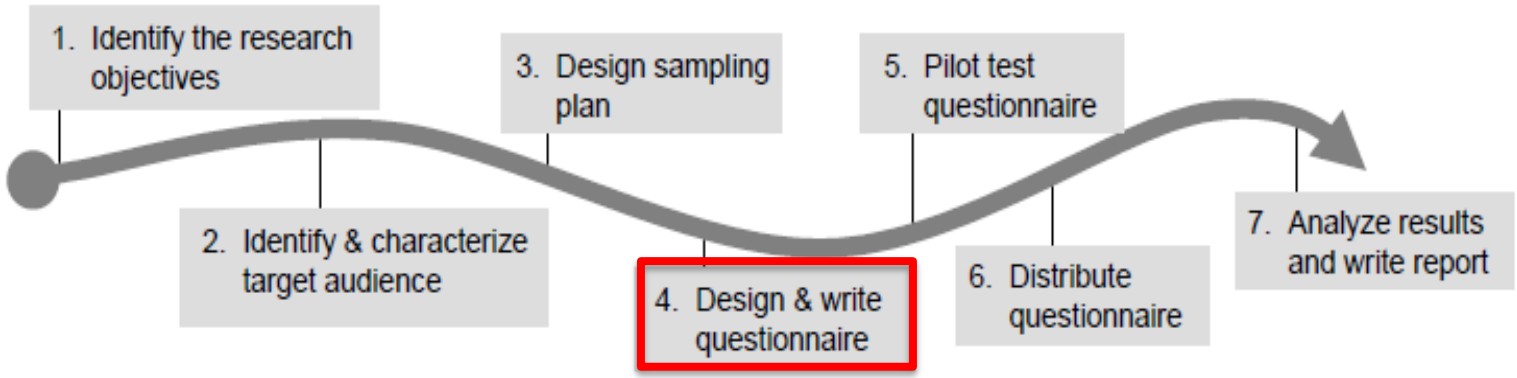
Avaliações MPS-SV



MR-MPS-SV assessments

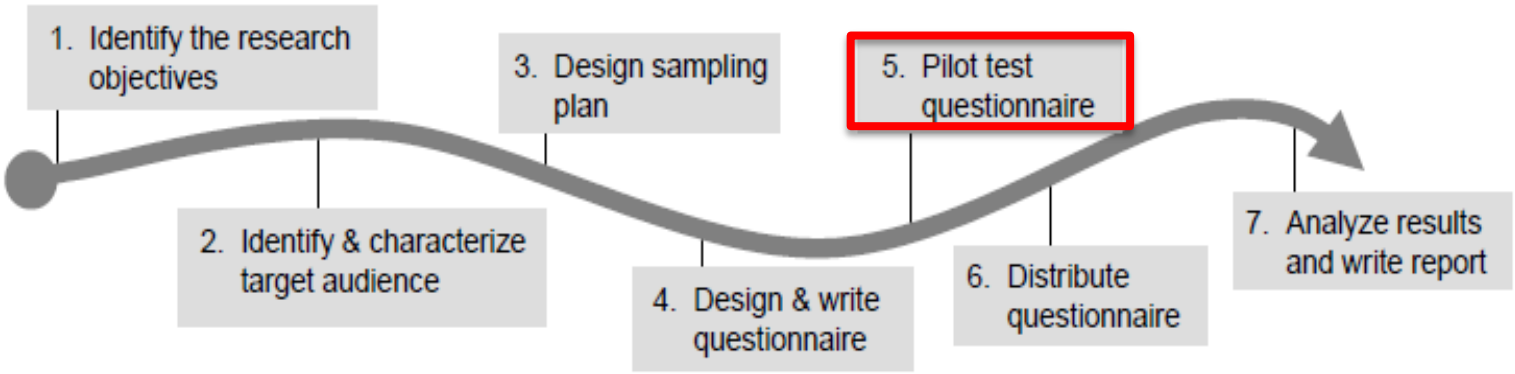
Research Method





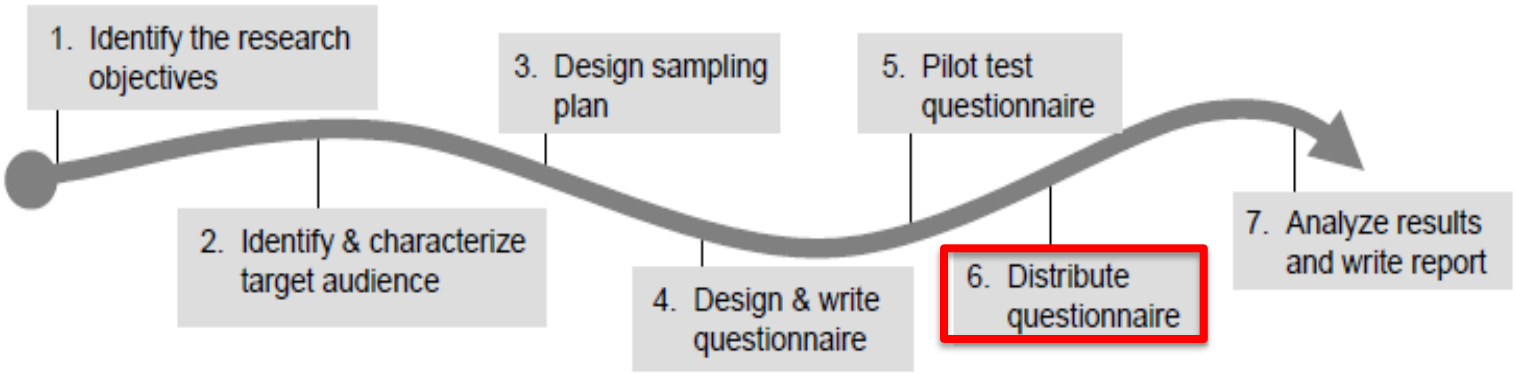
Research Method

- Critical analysis performed by:
  - Specialist with 20 years of experience in software and services process improvement
  - Specialist with extensive experience in Software Engineering and research in Software Engineering



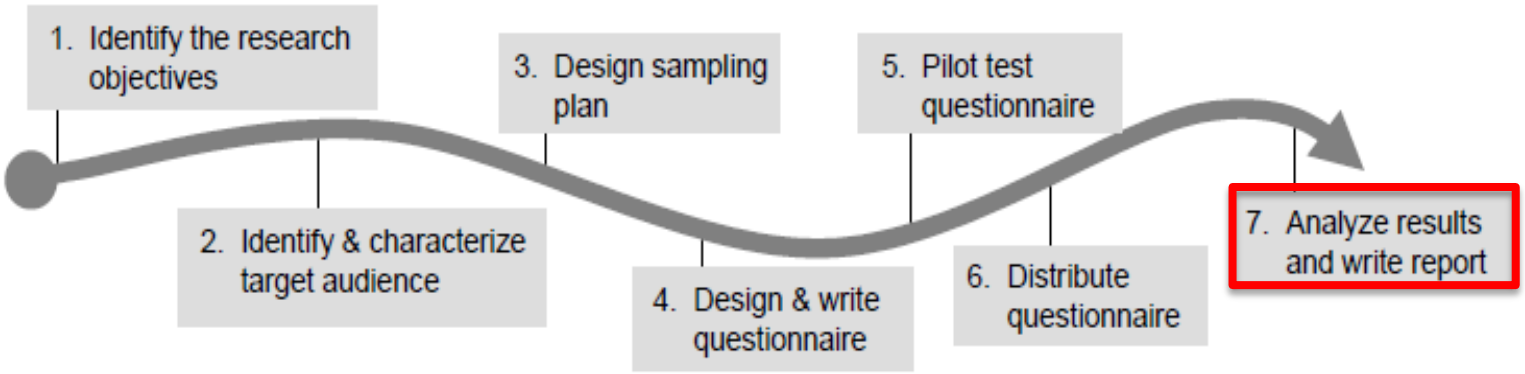
Research Method

- Distribution:
  - Questionnaire was implemented in Qualtrics tool and distributed to the organizations by the consultants that were responsible for the implementation of the MR-MPS-SV.



Research Method

- Results Analysis:
  - Analysis was made exporting data from Qualtrics to MS-Excel



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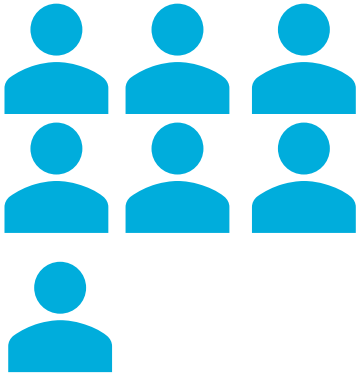
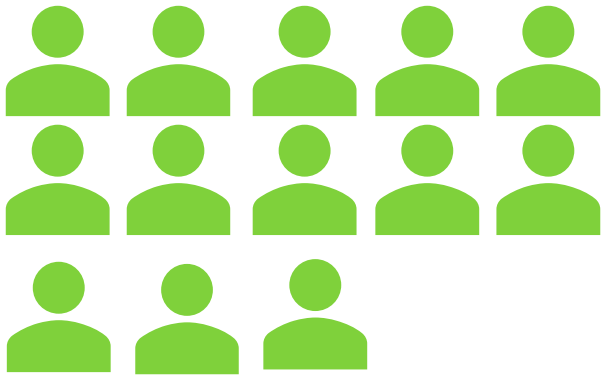
Respondents



7 SPONSORS



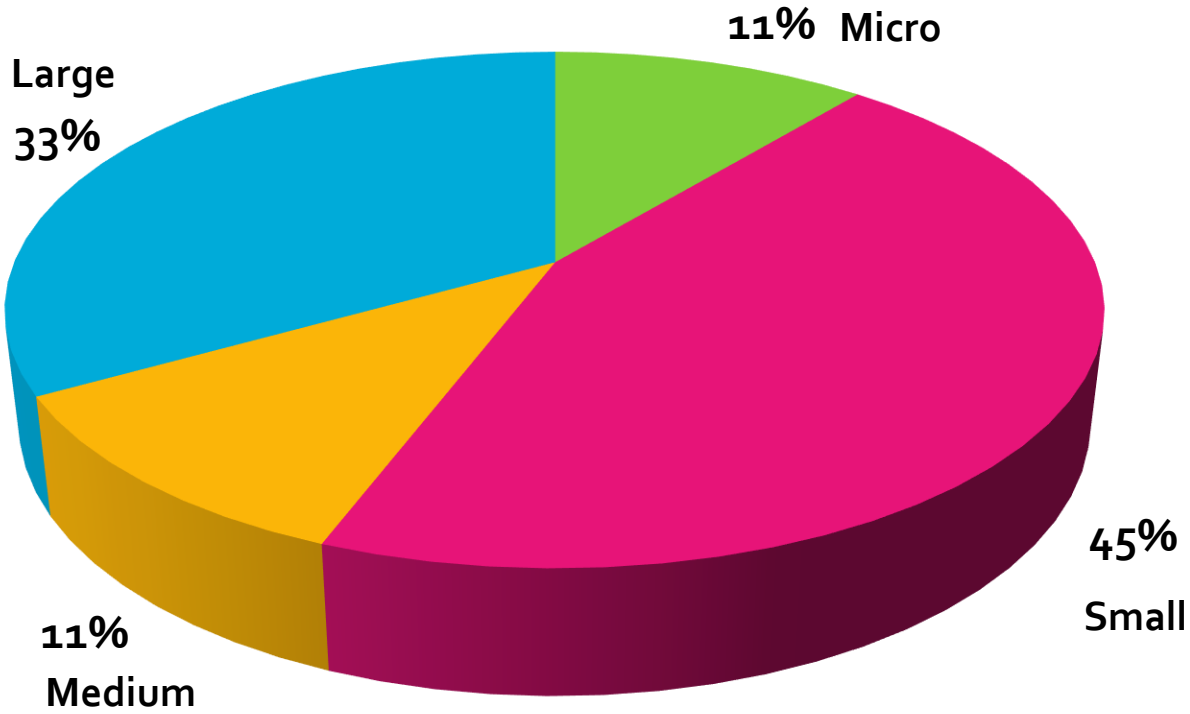
13 SEPG MEMBERS

3 SPONSORS FROM IMPLEMENTATION AND ASSESSMENT ORGANIZATIONS

2 TECHNICAL PEOPLE

Average time: 9,5 years

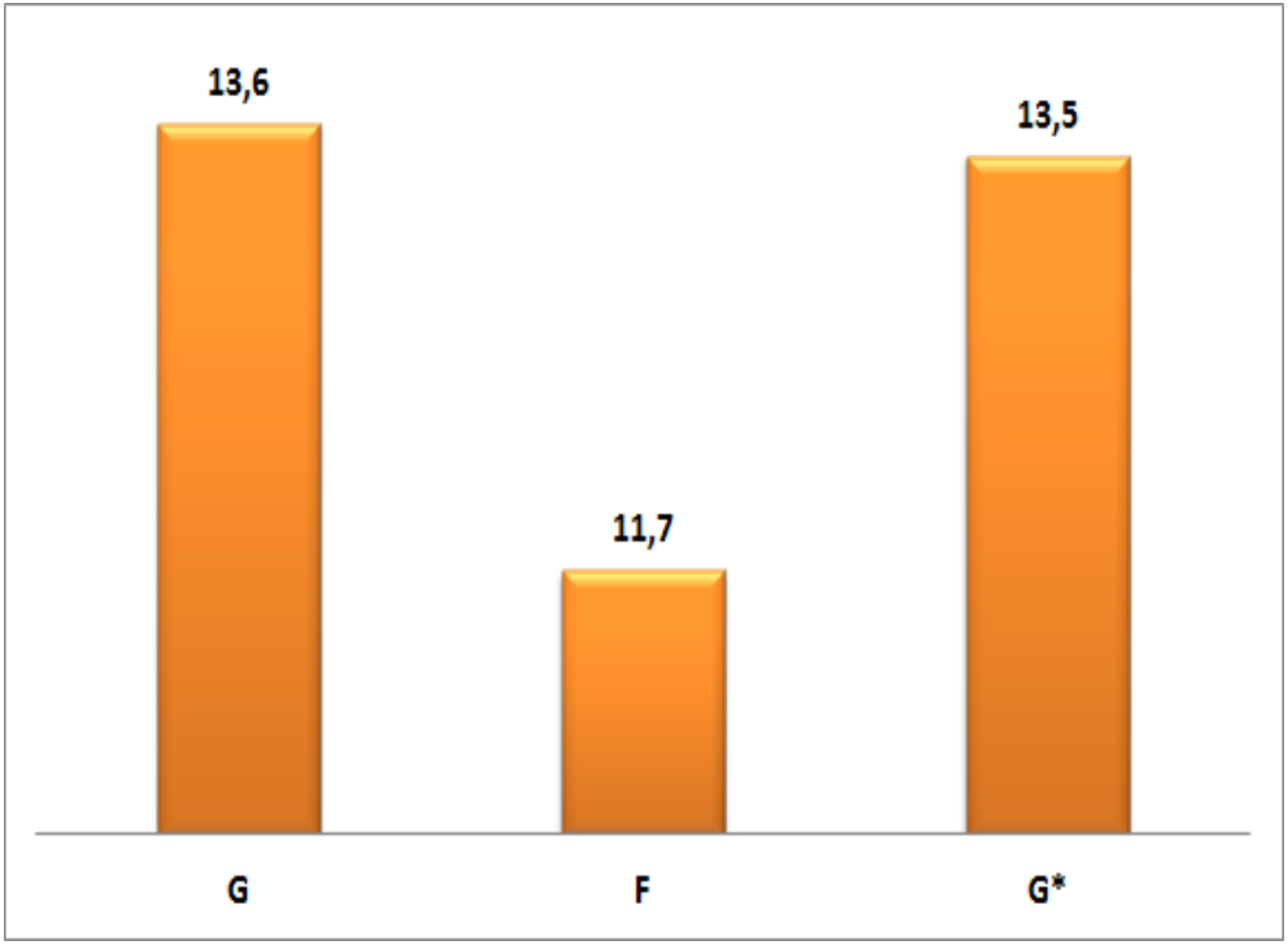
Organizations Size



Size by Employees

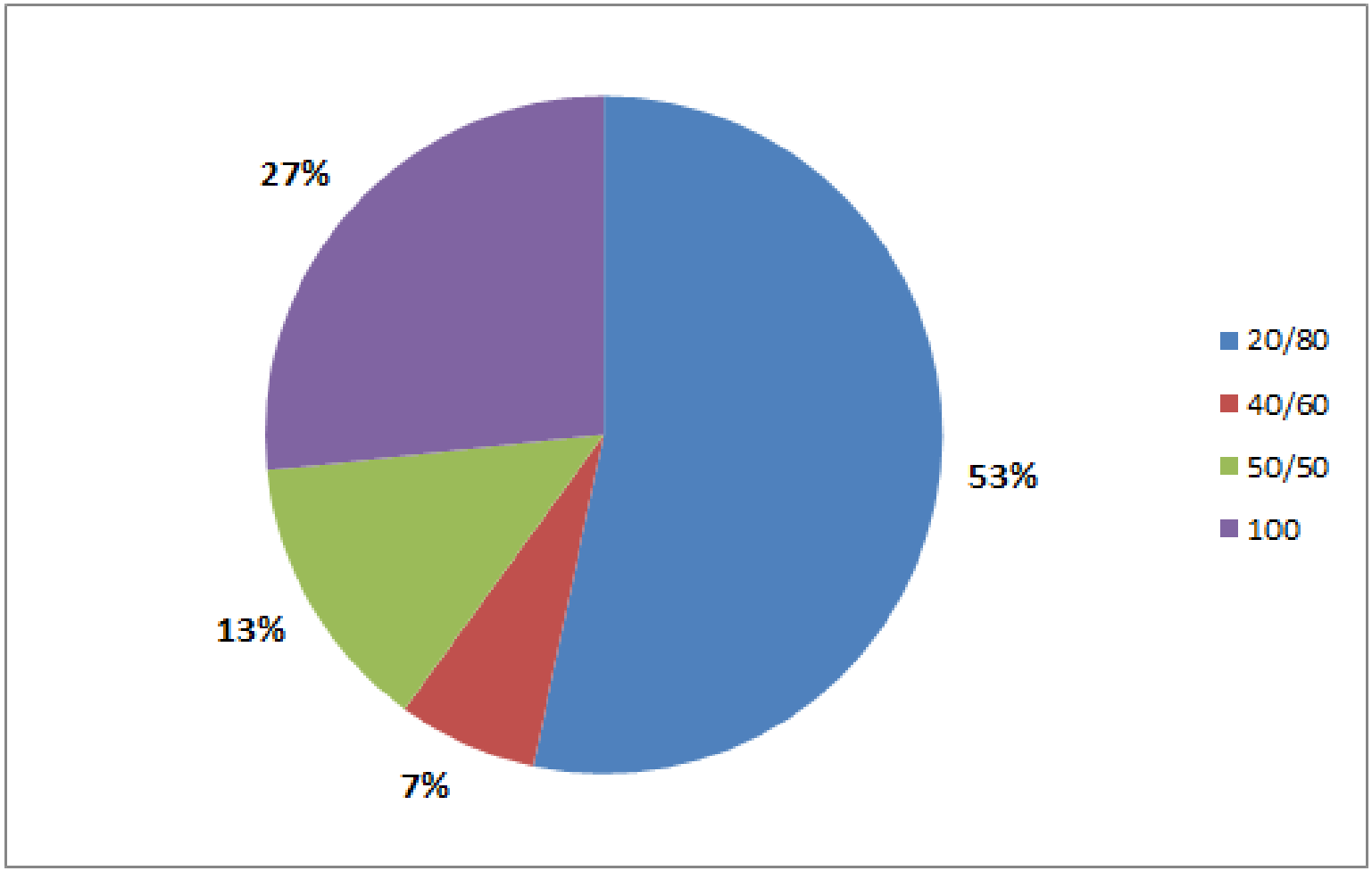
01 – 09: Micro
10 – 49: Small
50 – 99: Medium
100 + :Large

Implementation



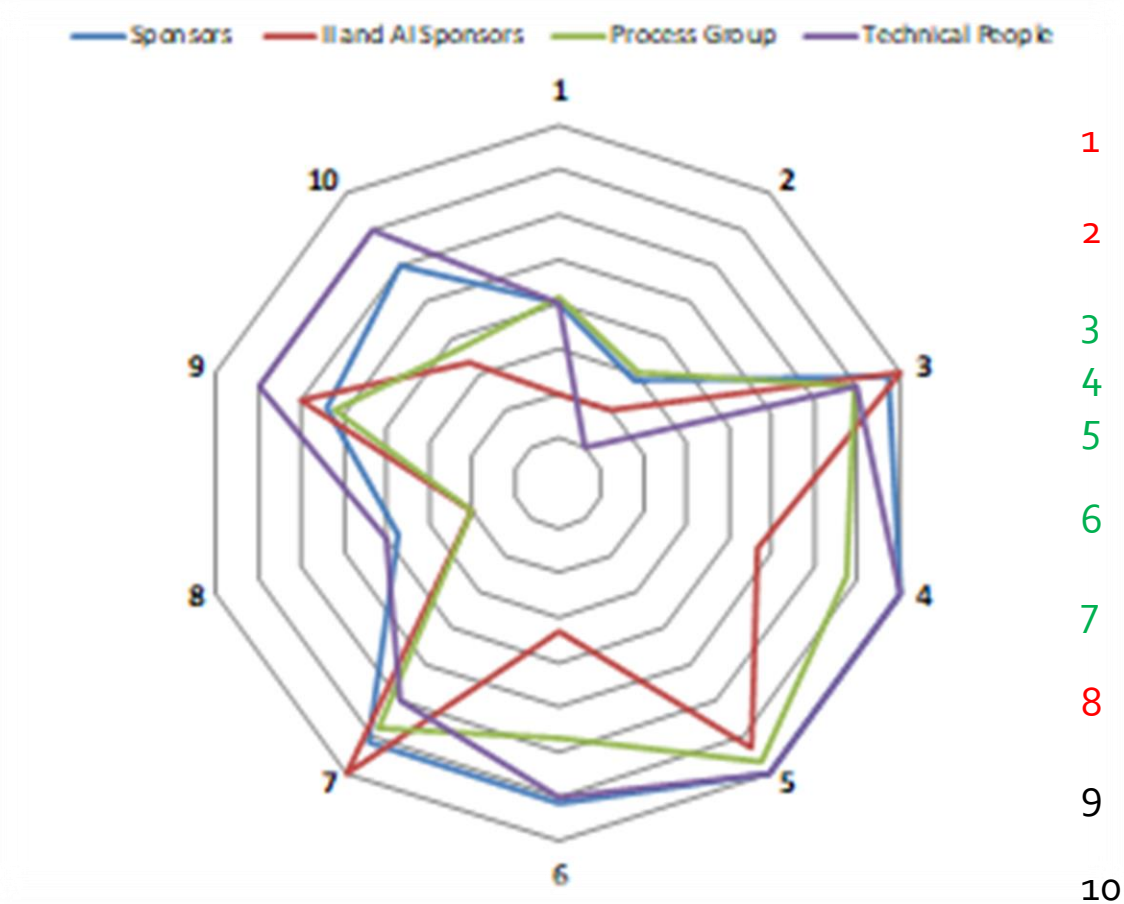
Average Implementation Time (months)

Financial Support



Financial Support (Organization/External)

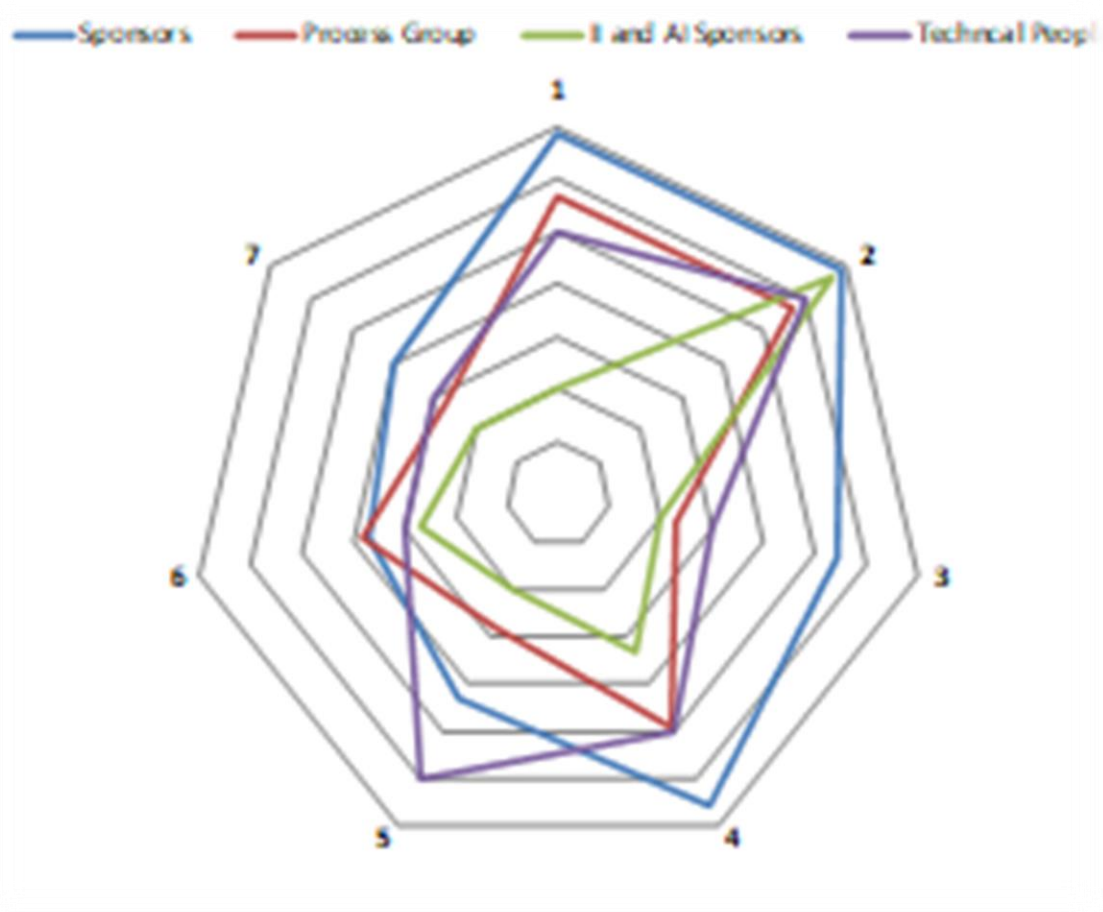
Implementation Motivators



1 The market was demanding certification
2 Competitors were implementing the MR-MPS-SV or similar model
3 To standardize the processes
4 To improve company productivity
5 To improve the quality of the services provided by the company
6 To improve the company's profitability
7 To improve our image to the company's customers
8 To reduce the number of company employees
9 To increase the number of customers
10 To increase the number of services offered

(0) I do not know
(1) It was not relevant
(2) It was weakly relevant
(3) It was relevant
(4) It was strongly relevant

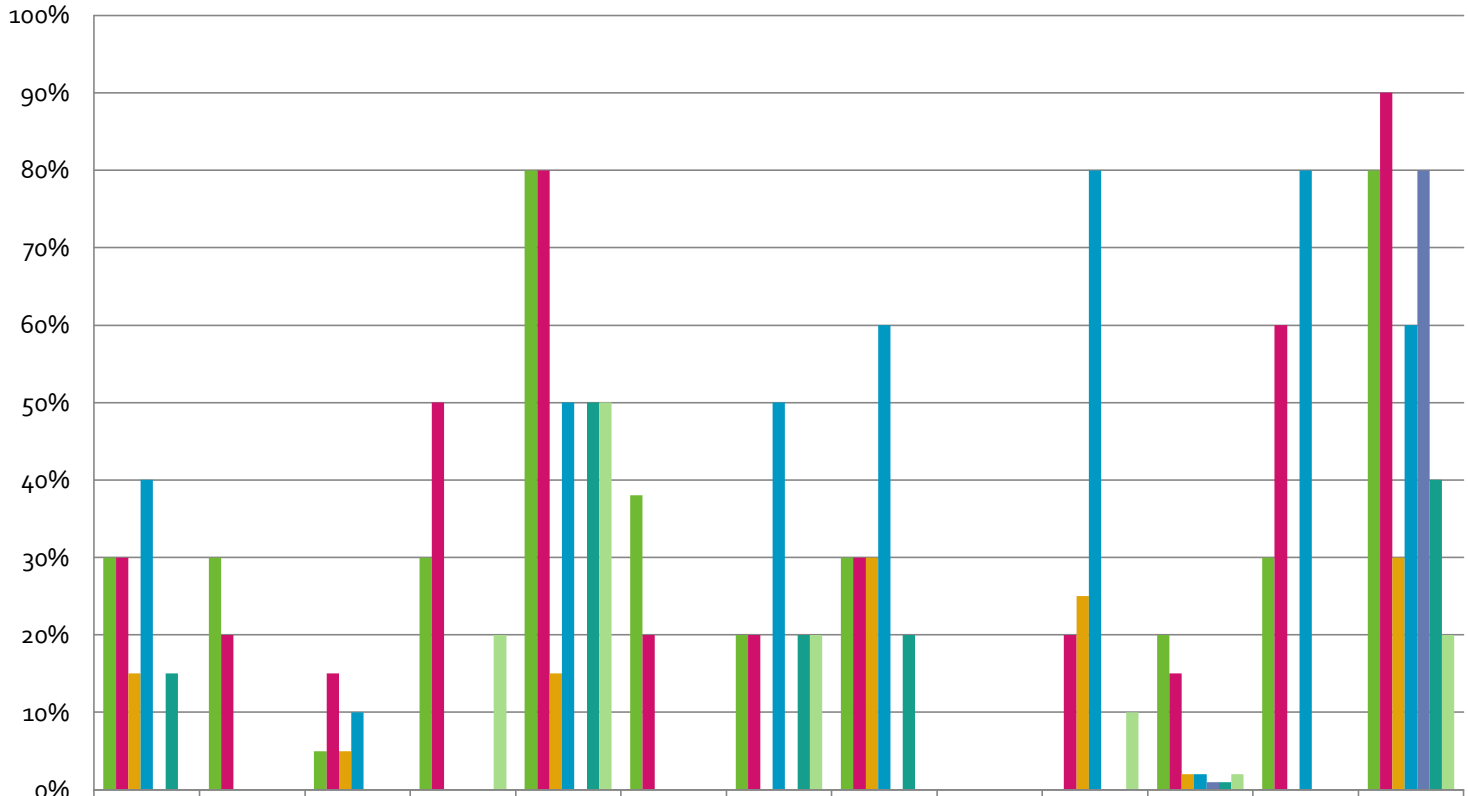
Perceived Benefits



1 Productivity
2 Quality
3 Profitability
4 Image
5 Employee Reduction
6 Number of Clients
7 Number of Services

(0) I do not know
(1) the benefit was not perceived
(2) the benefit was partially perceived
(3) the benefit was perceived
(4) the benefit was strongly perceived

Perceived Benefits (SEPG)

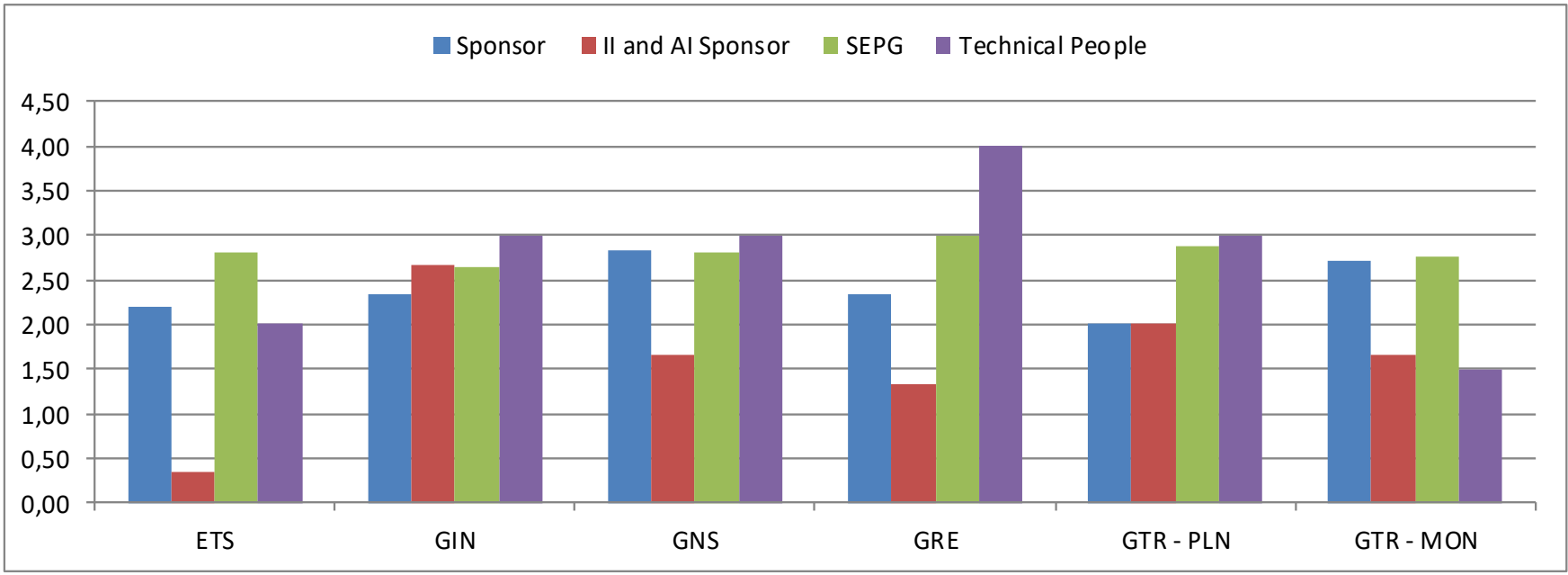


	1	3	4	6	8	9	10	11	12	15	16	17	18
Productivity	30%	30%	5%	30%	80%	38%	20%	30%	0	0	20%	30%	80%
Quality	30%	20%	15%	50%	80%	20%	20%	30%	0	20%	15%	60%	90%
Profitability	15%	0%	5%	0	15%	0	0	30%	0	25%	2%	0%	30%
Image	40%	0%	10%	0%	50%	0%	50%	60%	0%	80%	2%	80%	60%
Employee Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	80%
Number of clients	15%	0%	0%	0%	50%	0%	20%	20%	0%	0%	1%	0%	40%
Number of Services	0%	0%	0%	20%	50%	0%	20%	0%	0%	10%	2%	0%	20%

Difficulties Faced

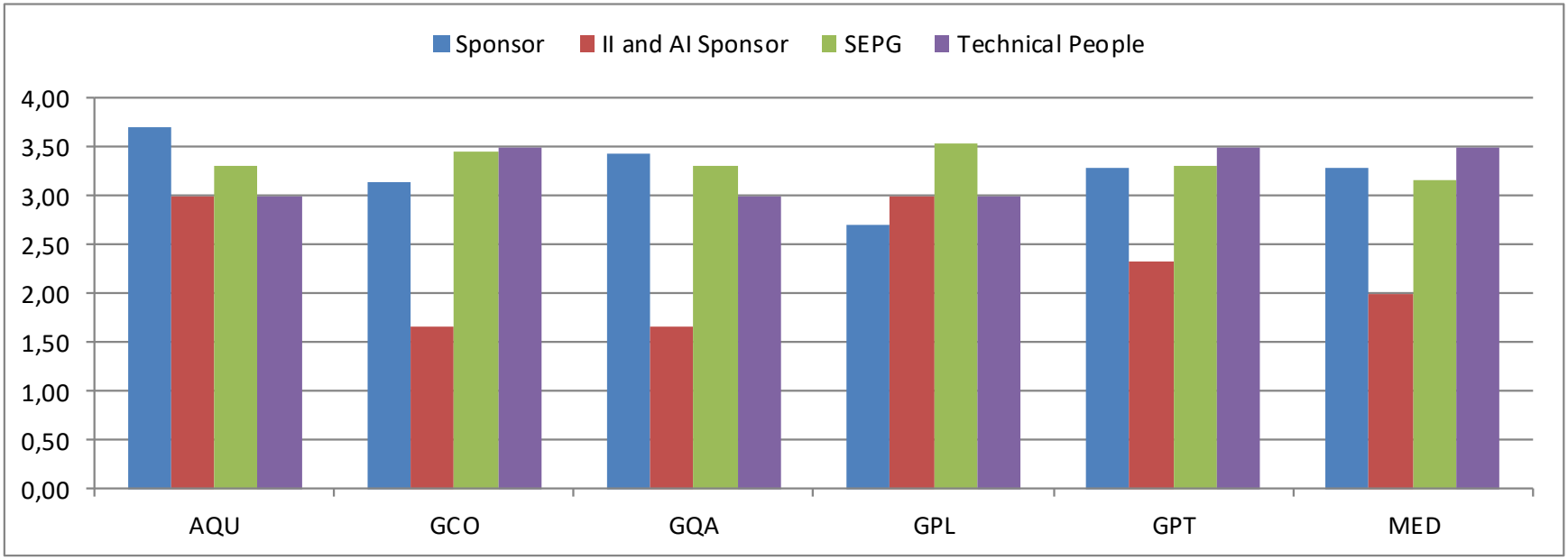
- We used 48 factors found by Albuquerque et al. (2018)
- For II and AI, most relevant were:
  - high cost of the process
  - lack of resources (human and financial)
  - Workload
  - deadline pressure
  - lack of standardization
- In the other companies, most relevant were:
  - lack of human resources in terms of time
  - lack of human resources in terms of number of people
  - Workload
  - high cost of the process
  - complexity of the model
  - extensive documentation
  - lack of standardization.

Level G process usage



(0) I do not know
(1) It is not used anymore
(2) It is partially used
(3) It is largely used
(4) It is totally used

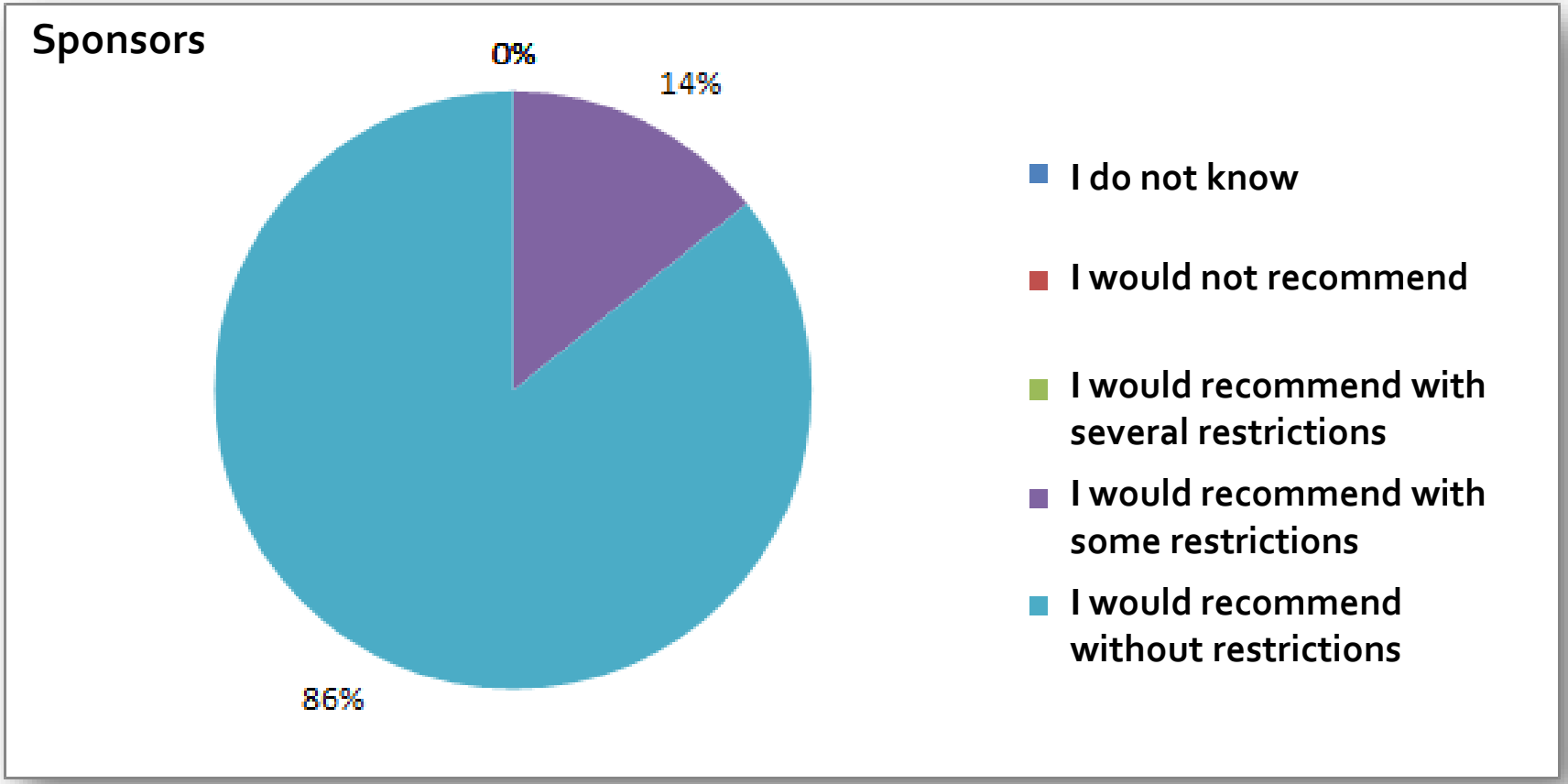
Level F process usage



(0) I do not know
(1) It is not used anymore
(2) It is partially used
(3) It is largely used
(4) It is totally used

Level of satisfaction with the model

Question: Would you recommend the model to a friend?



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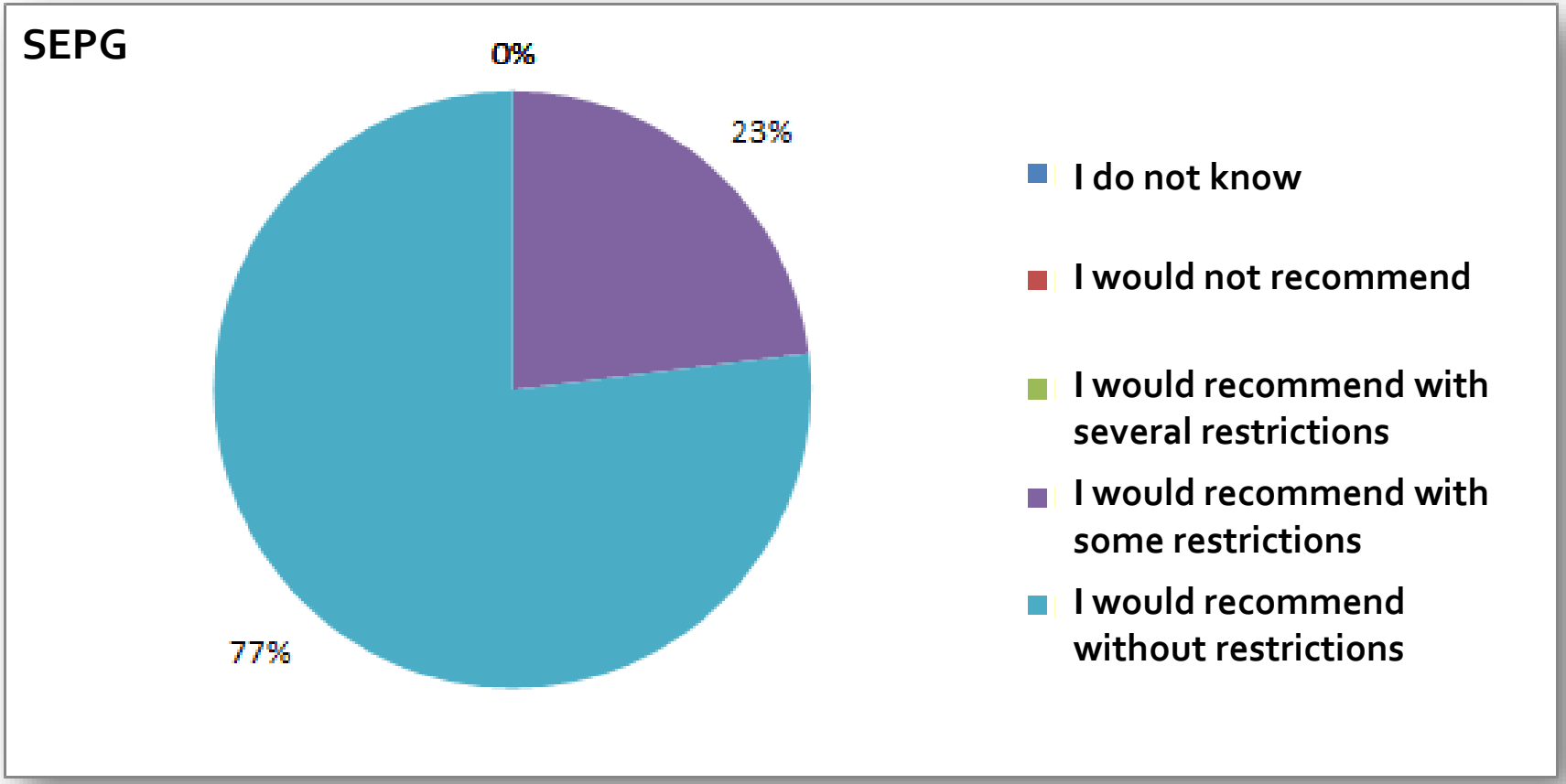

Some quotes

- *"Because it works"*
- *"Because I trust the model"*
- *"Because of the benefits we have reached"*
- *"Because it is excelent"*
- *"Today we have concrete data about the operations support sector"*

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Conclusions

- High level of satisfaction with the model
- Significative improvements in productivity, quality, organizations image, profitability
- The model that was proposed as an academic research conquered the Market and efectively contributes to organizations improvements

Acknowledgments

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