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VIII Encuentro Cotec Europa

Innovation ability of SMEs: a taxonomic approach



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Palacio Real de El Pardo
Madrid 3 de octubre 2012



Size class distribution of European companies (I)

- Main differential feature of IT, PT, ES: scarcity of big companies

Percentages	SMEs (0 - 249 empl.)	Big companies (> 250 empl.)
Italy	99.9	0.1
Portugal	99.9	0.1
Spain	99.9	0.1
France	99.8	0.2
Germany	99.5	0.5
United Kingdom	99.6	0.4

Source: SBS Eurostat, 2011





Size class distribution of European companies (II)

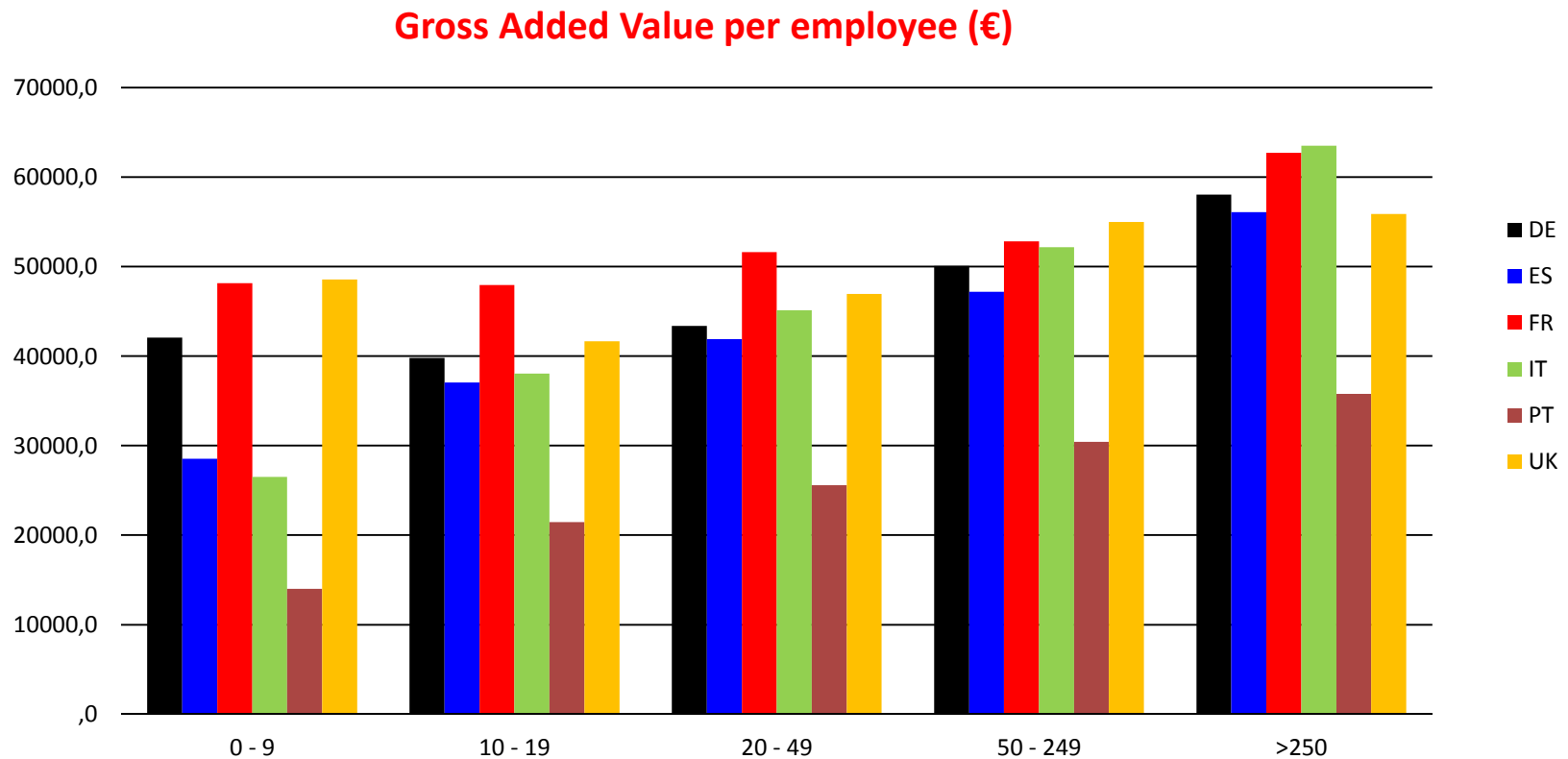
- Even amongst SMEs

	Microenterprises (0 - 9 empl.)	Small & medium enterprises (10 - 249 empl.)
Italy	94.6	5.3
Portugal	94.6	5.3
Spain	97.2	2.7
France	92.3	7.5
Germany	83.1	16.4
United Kingdom	87.5	12.1



Size class distribution of European companies (III)

- This is important because productivity grows with company size





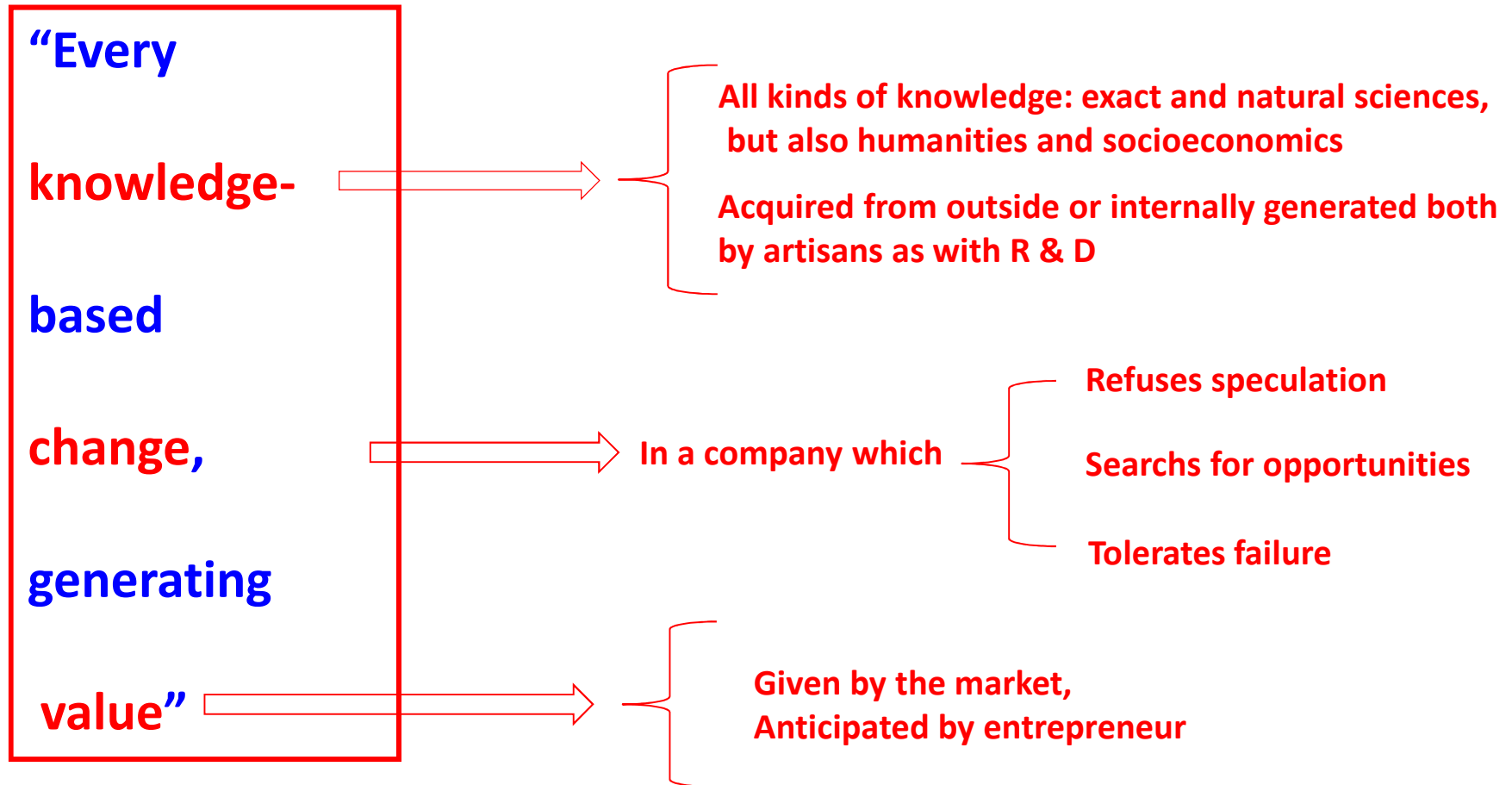
Innovation in SMEs

- Innovation has a double effect on SME's productivity:
 - Increases their added value
 - Fosters their growth, and a bigger size eventually increases their productivity
- The current concept of innovation covers everything that citizens (consumer, worker or entrepreneur) do to create new value using all kinds of knowledge.
- Up until now, this responsibility was only assigned to the company, and was limited to knowledge from the natural sciences. So this new concept is called "innovation in a broad sense"
- SMEs, founded by innovative citizens, have strong needs in marketing and organizational innovations (non-technological), and because of their small size, they can rarely allocate staff and resources exclusively to innovation. For this reason, the concept of "innovation in a broad sense" is well suited to SMEs.





A very general definition of "innovation in a broad sense" well adapted to SME's features





What do we need to know about "innovation in a broad sense"

- How do we generate and transfer the kind of knowledge underpinning "non-technological" innovations
- How innovation occurs when the company has no formalized structures for this operation (**innovation implicit in productive activity**)
- What are the different innovation behaviors of SMEs, which are a very large and diverse group





Non-technological innovation (I)

Pending questions

- **How to prepare the knowledge of the socio-economic sciences to be useful for innovation?**
 - In technological innovation we have the concept of "applied research", which generates technology.
- **How is this knowledge transferred to businesses, especially SMEs?**
- **How to encourage this new type of "applied research"?**





Non-technological innovation (II)

No answers yet

- There are very few known studies on this issue
- We have no references of seminal articles
- Cotec Spain is trying to find the way to stimulate the generation of answers to these questions





Implicit innovation in productive activity (I)

Pending questions

- How does knowledge reach to the organization?
- Which factors lead SMEs to use it to innovate?
- How the innovation task-force combines his work with other business functions in SMEs?
- Which are the key actors in the implicit innovation process?





Implicit innovation in productive activity (II)

Searching for answers

- There are few and still very preliminary
- The European Commission funded the PILOT project, addressing these questions
- The handed document includes an appendix devoted to this project





Different innovation behaviors among SMEs

- This is one of the topics addressed this year by Cotec Europe
- We have defined a model of "propensity to innovation in SMEs"
- This model has been evaluated in more than 1 000 Italian, Portuguese and Spanish SMEs





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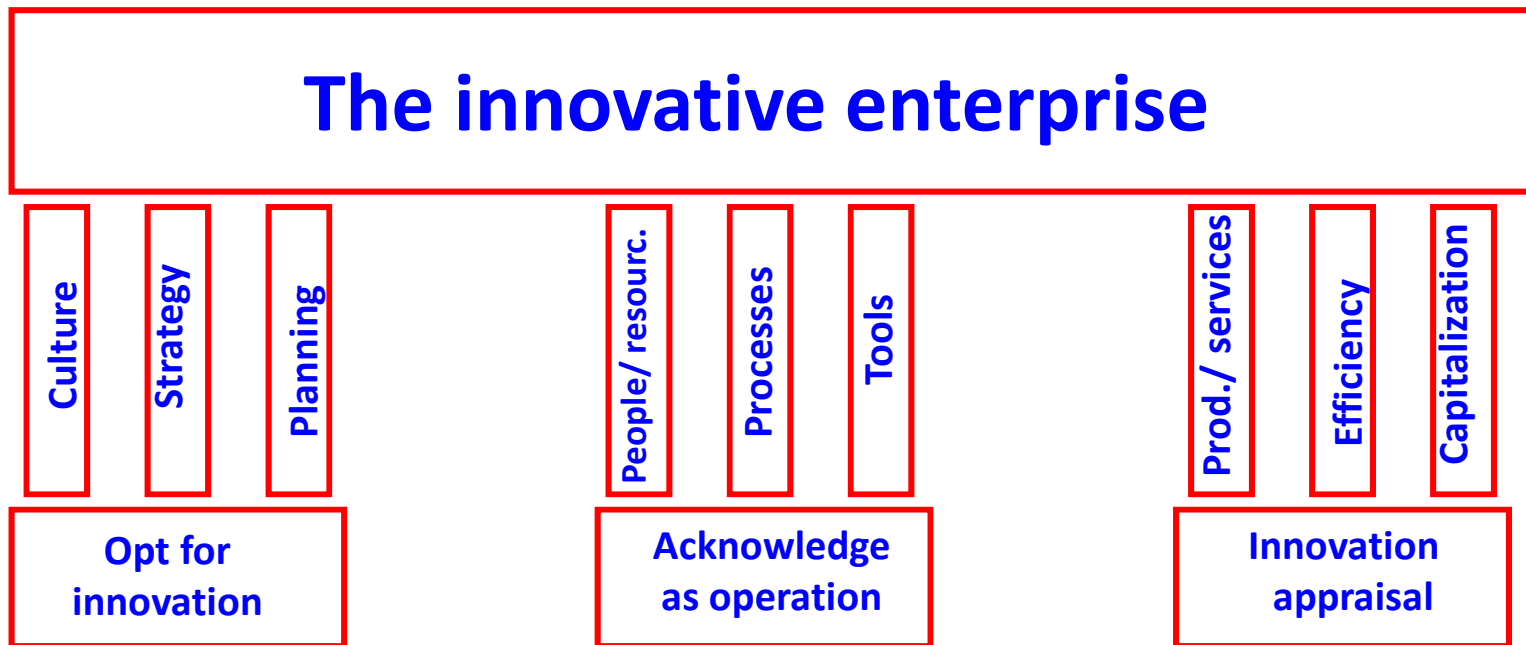
Cotec model of SMEs propensity to innovate



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Model of SMEs propensity to innovate





The Cotec model generation process (I)

First stage: Towards a general model for innovation in a broad sense

1. Conceptual design of a model of innovation in a broad sense
2. Preparation of a questionnaire for big companies involved in the project:
 - a) 50 questions
 - b) Designed so that each question was answered by expressing their agreement or disagreement on a scale from zero to one hundred
 - c) To be completed in a session following the techniques used for the EFQM Excellence Model (European Foundation for Quality Management)
3. The answers were processed with advanced statistical techniques. Verification of redundancies and definition of clusters
4. Checking the validity of the Cotec model in thirteen big corporations





The Cotec model generation process(II)

Second stage: Particularization for SMEs

1. Based on the information obtained on the redundancy and robustness of the responses of large companies, a simple (true/false) questionnaire aimed at SMEs with more than five employees was designed
2. First testing of the questionnaire in 45 SMEs
3. Analysis of the results with the same statistical tools: Definition of five clusters. Repeating this survey in successive waves, reaching one thousand Spanish SMEs
4. Surveys to Italian and Portuguese SMEs
5. In all the polling process, the clusters consistency was checked





Content of the questionnaire for SMEs

- The concern of management on the information flow of innovation within the company and with their environment
- How often innovation issues arise in management meetings
- The relationship with suppliers, customers and the technology community
- The responsibilities assigned to staff
- The weight of innovation in the company's strategic objectives
- The budget structure of the company
- Awareness of public programs supporting innovation
- Systematic innovation processes in place
- External relations
- Accounting practices
- The concern for the innovative image of the company





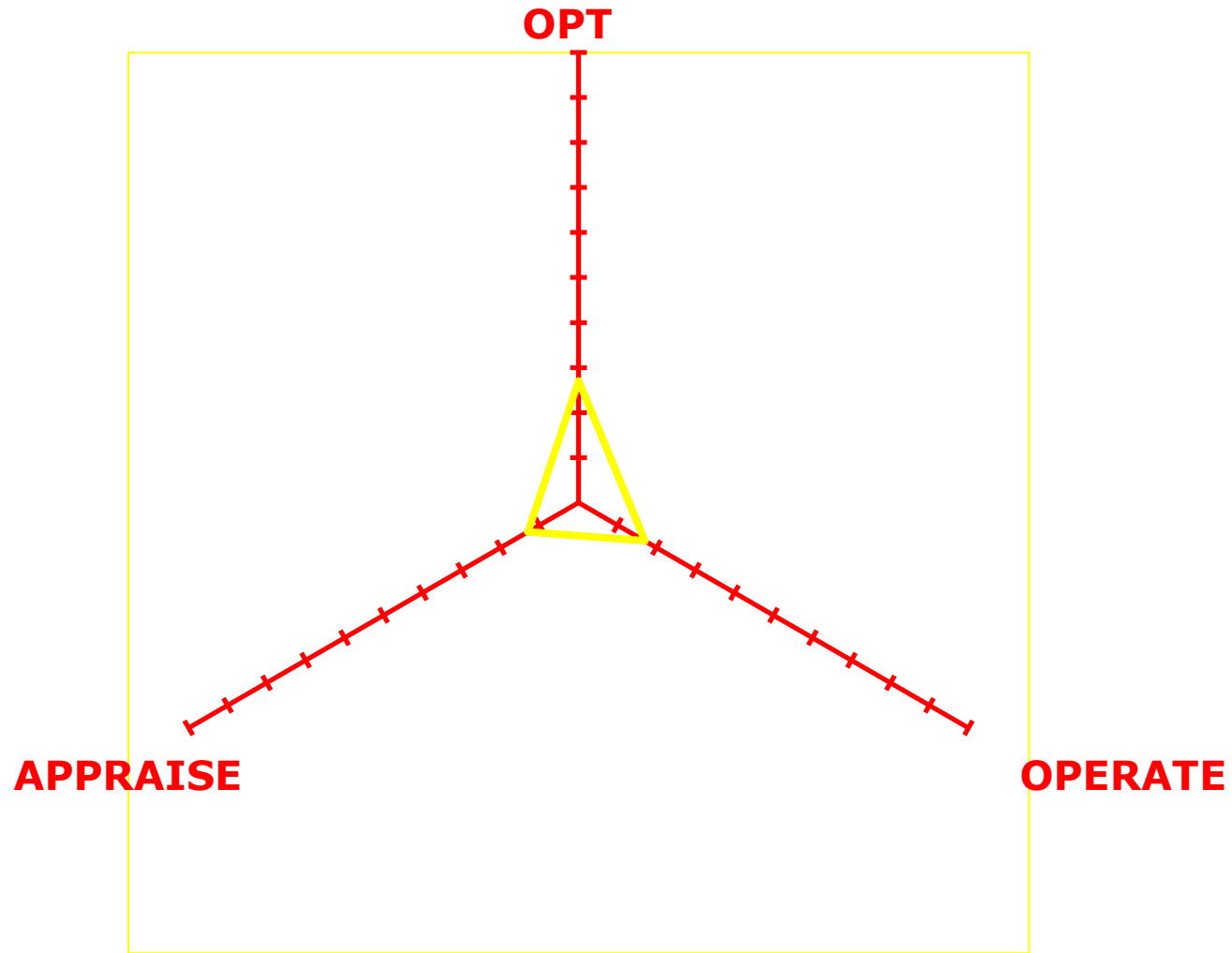
The five clusters of Cotec model

1. Consistent innovation
2. Latent innovation
3. Image innovation
4. Scarce innovation
5. No innovation



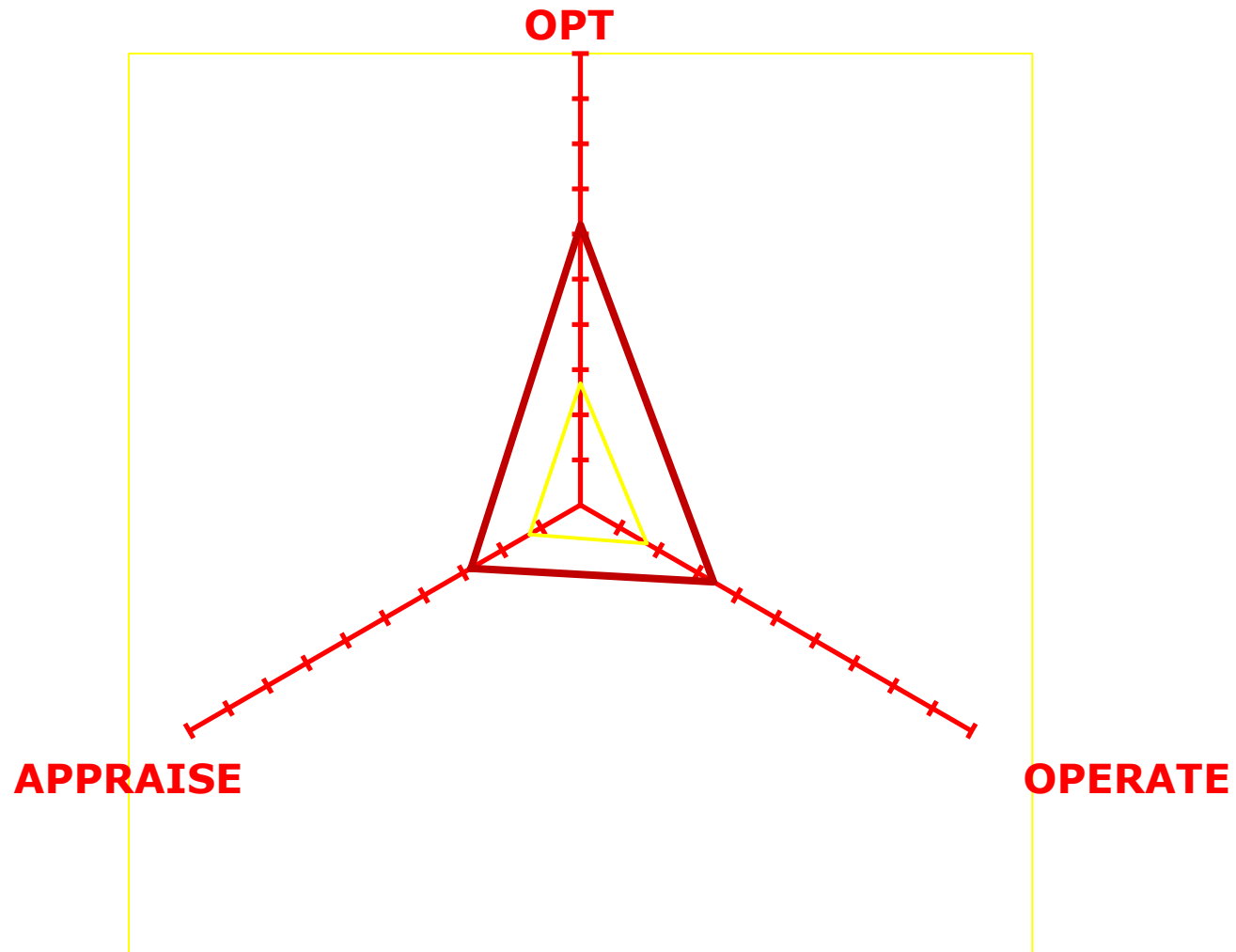


Cluster "No innovation"



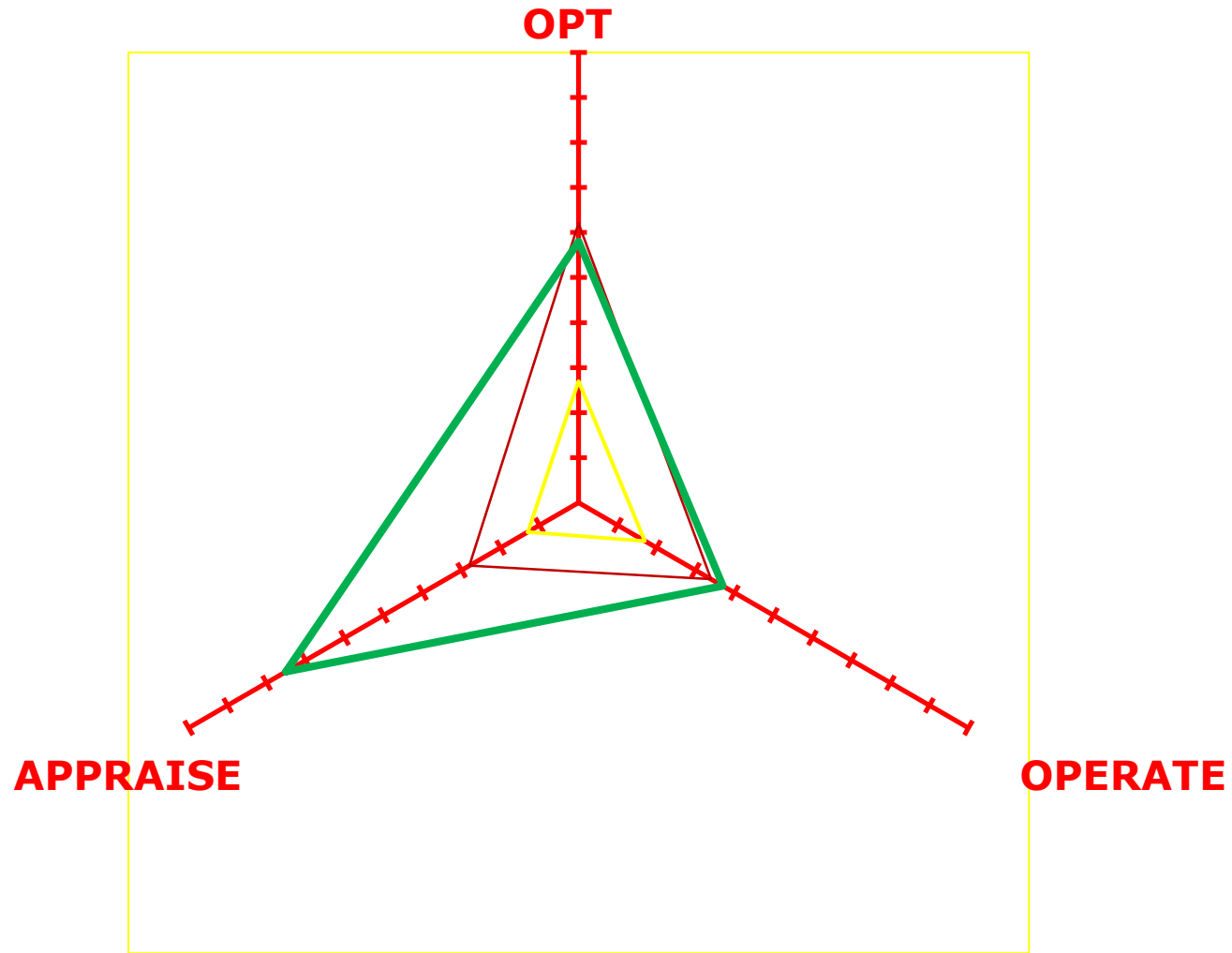


Cluster "Scarce innovation"



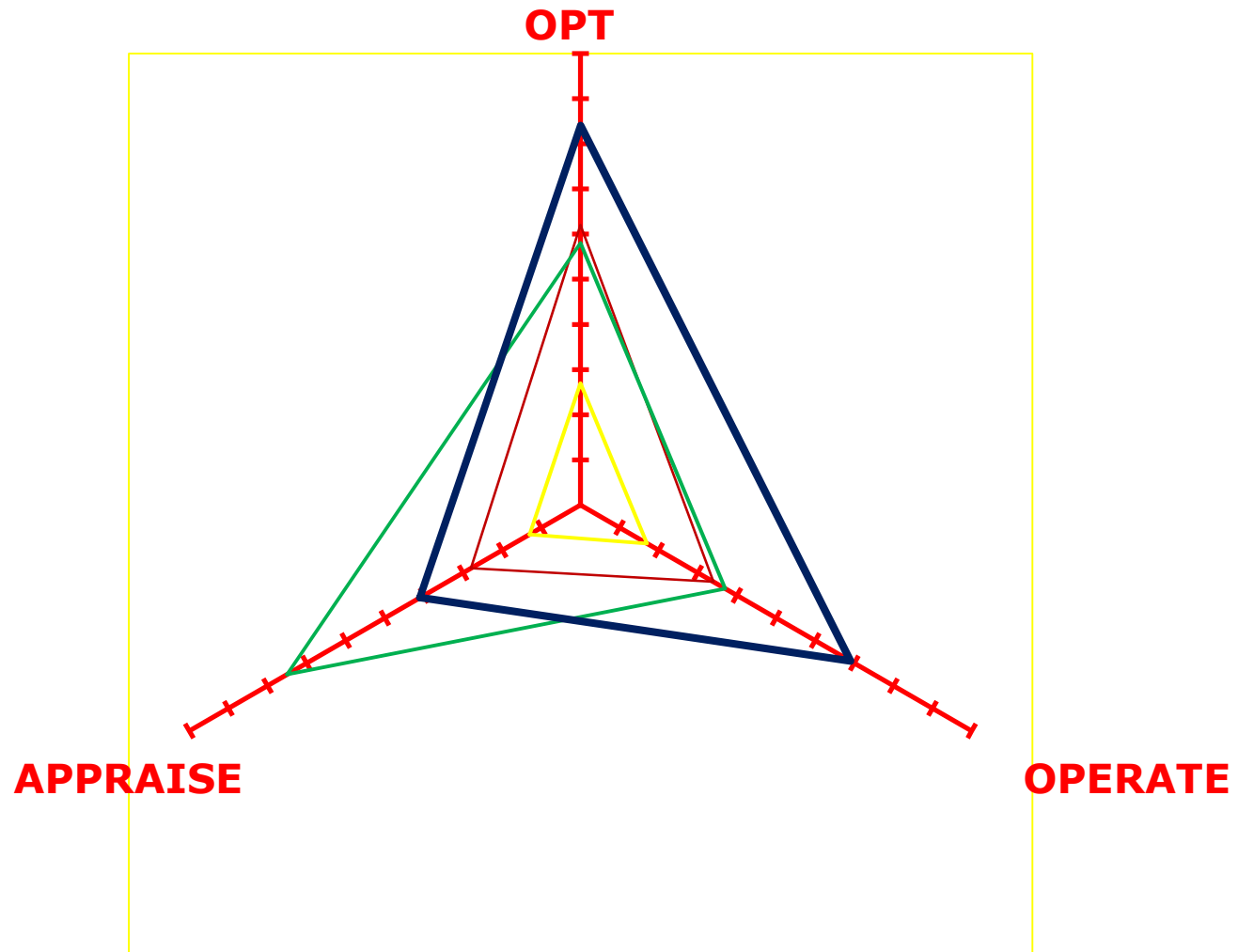


Cluster "Image innovation"



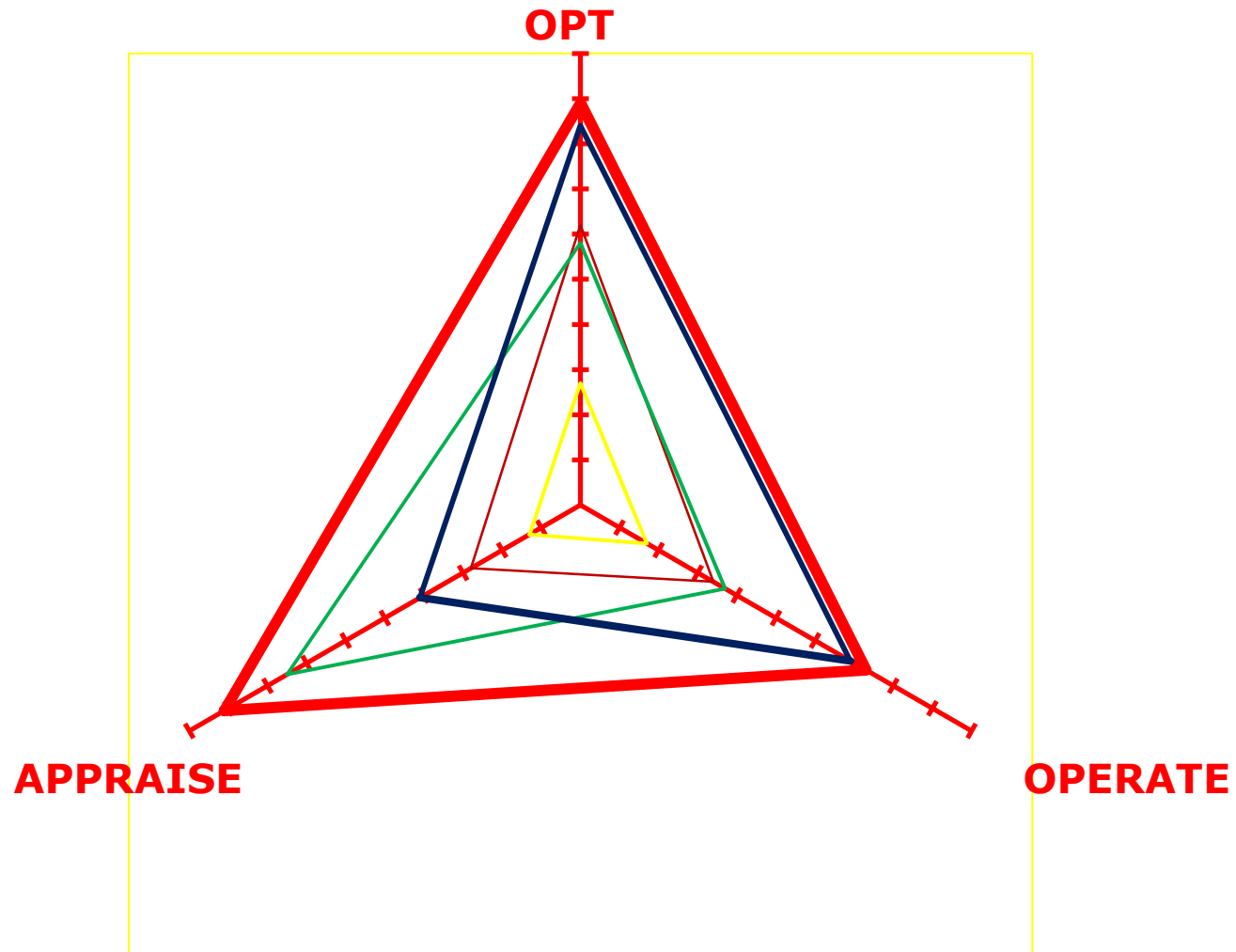


Cluster "Latent innovation"

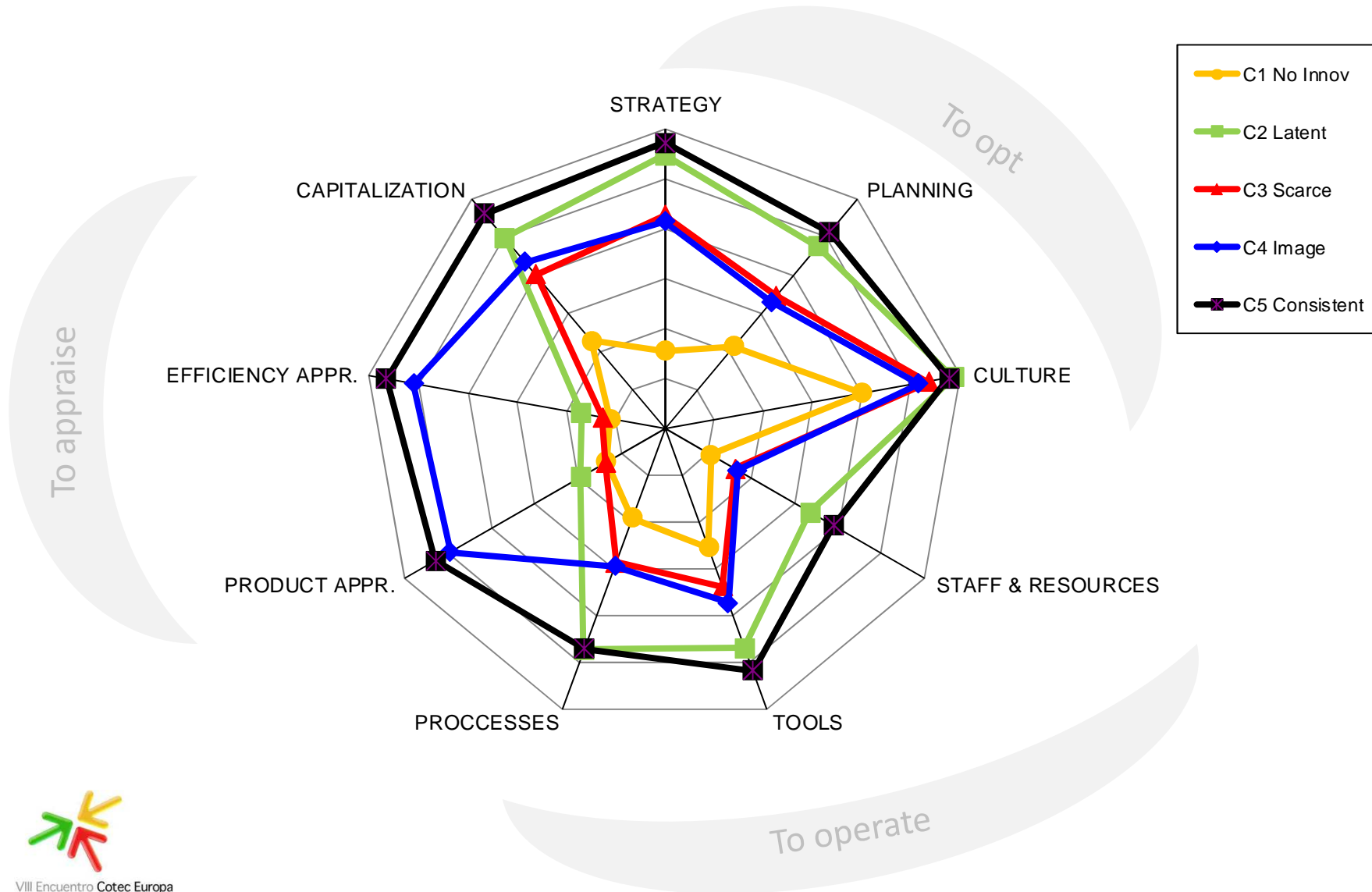




Cluster "Consistent innovation"

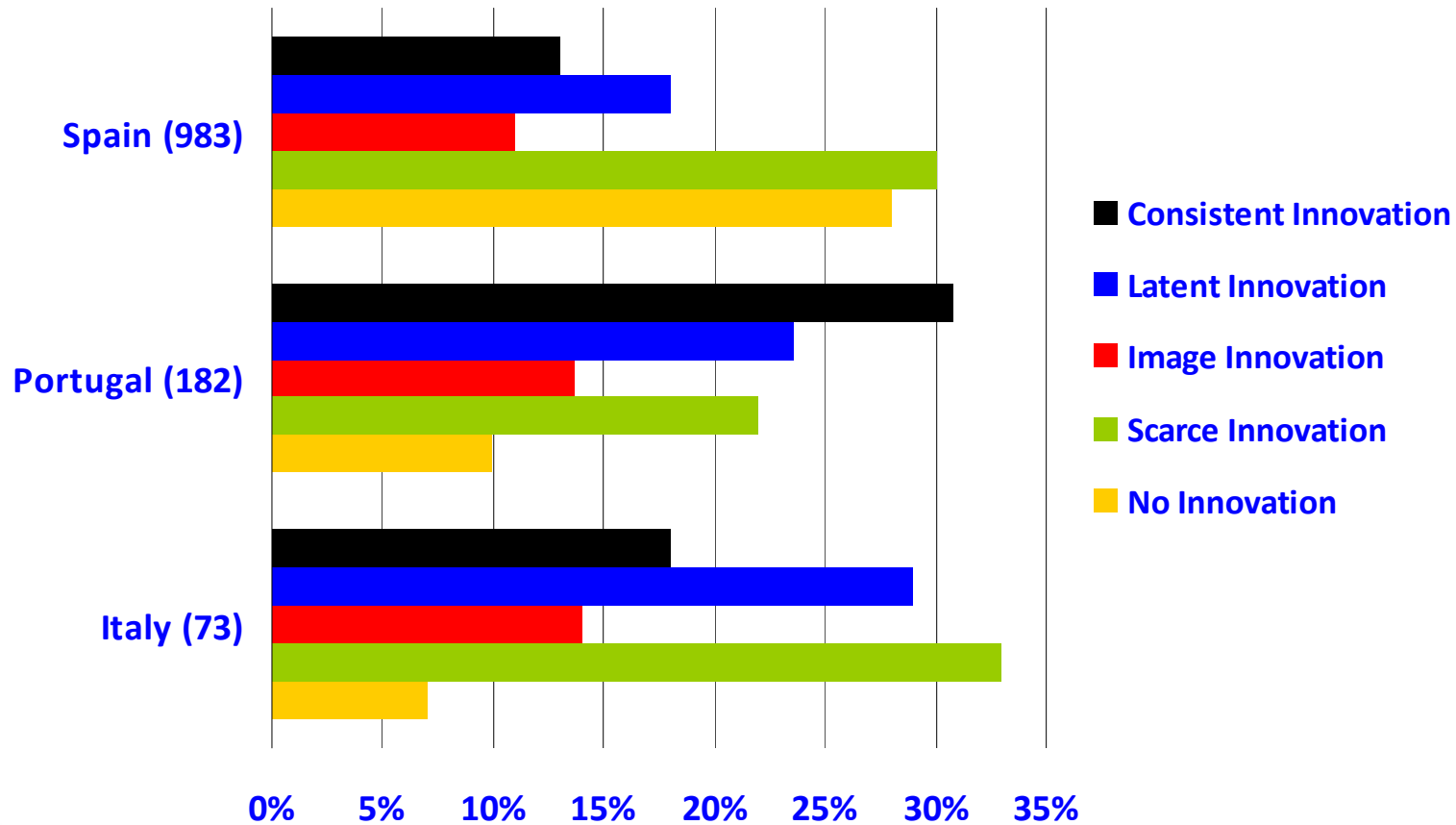


Average values of the nine innovation features on the five clusters



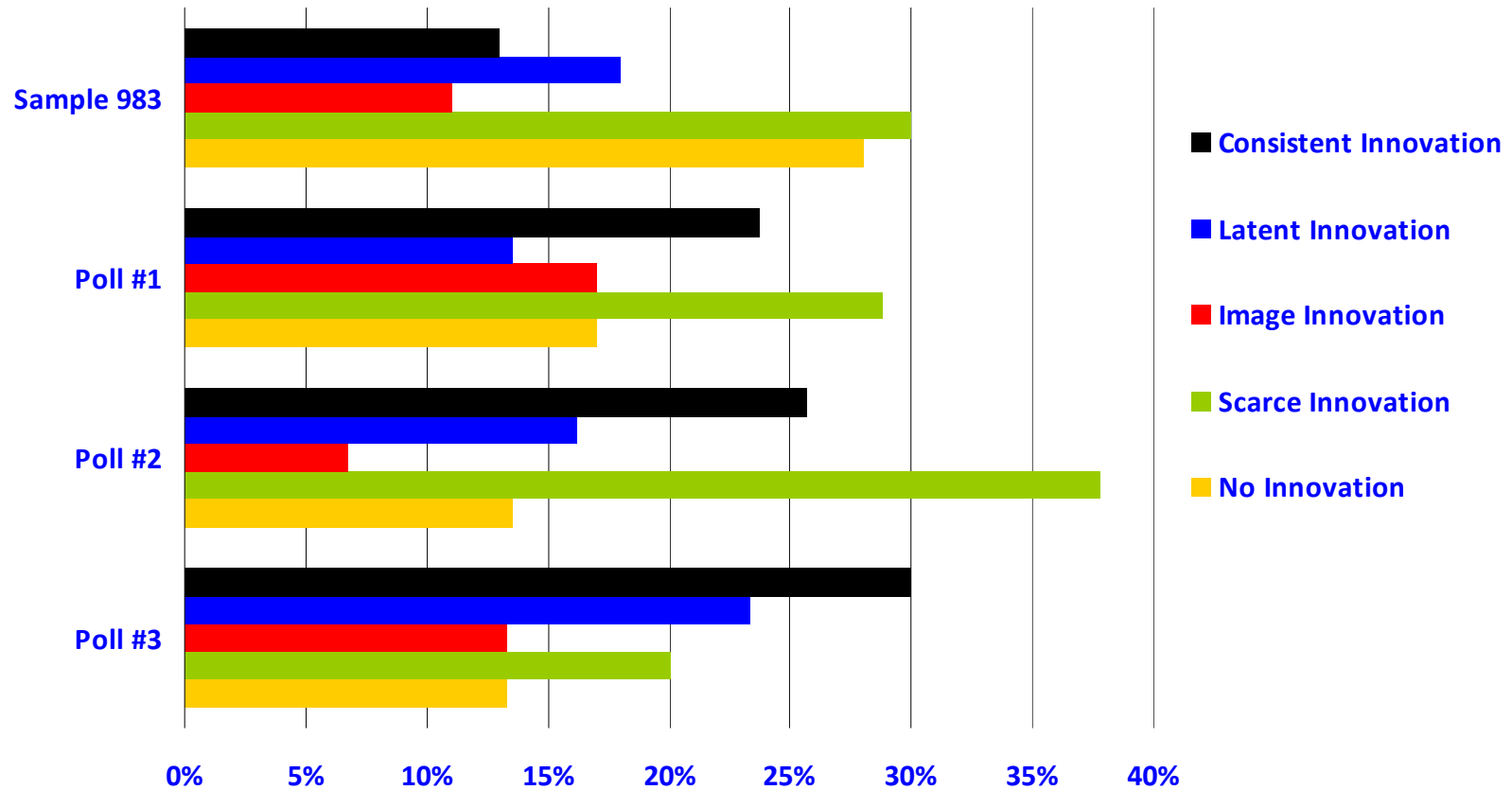


SMEs distribution in clusters (Three countries samples)





SMEs distribution in clusters (Different Spanish polls)





Usefulness of this model

- **The model:**
 - **Has proved its usefulness in assessing the propensity to innovate of a particular SME**
 - **Leads to a series of recommendations for each SME to decide which are helpful in its particular case, to improve their position**
 - **Confirmed that both self and expert-guided evaluations are possible**
- **The model should help to:**
 - **Define business strategies**
 - **Create specific policies for different clusters**





Model availability

- Software for "self-evaluation" based on this model has been developed to be used via Internet
- "Events" for different applications were created and additional ones may be created upon request
- There is an event created for general use, which can be accessed at Directorate General of SME, Ministry of Industry, Energy and Tourism website (<http://www.ipyme.org/esES/CompetitividadEmpresarial/Paginas/Cotec.aspx>)
- Once a company has completed the questionnaire, a report is sent by email with the cluster where the company fits and the results in graphic form (three and nine variables).





Conclusion

- All countries are "SMEs countries", the important issue is getting these SMEs bigger to be more productive
- Innovation is plainly using all kinds of knowledge to create value. Thus we speak of "innovation in a broad sense"
- There are still many pending questions to fully understand "innovation in a broad sense"
- It is possible to evaluate the innovative attitude of an SME. It is a first step to help SMEs to have a better understanding of the innovative process, so they can use it better to increase their competitiveness
- A more detailed understanding of SMEs innovation specificities will help to design more efficient private and public policies

