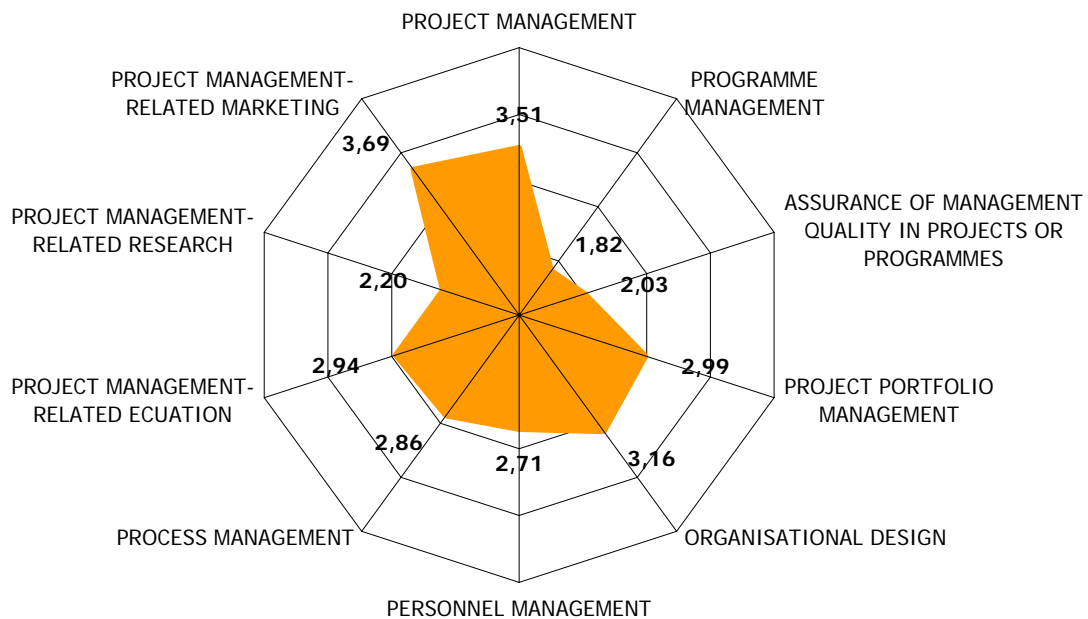


Final Report:

Analysis and Benchmarking of the Maturities of Project-oriented Nations



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1. Executive summary

1.1 Objectives of the research programme *project orientation [international]*

The research programme *project orientation [international]* has been performed by the PROJEKTMANAGEMENT **GROUP** of the Vienna University of Economics and Business Administration, Austria. The scientific director of the programme was Univ.Prof.Dkfm.Dr. Roland Gareis. The programme was partly financed by the European Regional Development Fund (ERDF) and the Leonardo Da Vinci Programme (Project no. T/05/B/PP-17015).

The main objectives of the research programme were the analysis and the benchmarking of about 250 project-oriented companies and of about 10 project-oriented nations by using the models "project-oriented company *mature*" and "project-oriented society *mature*". The results from the analyses were a basis for the definition of strategies to further develop the project-oriented companies and project-oriented nations.

More detailed information about the research programme and its projects can be found on the programme homepage: <http://www.poi.pmggroup.at>.

1.2 Research process

In the first phase the assurance of financing, the development of the research kit and the analysis tool took place. Three "international briefing workshops" and other marketing activities to acquire national cooperation partners were performed.

In the next phase seven national projects were performed. In each of these projects project-oriented companies by applying the model "project-oriented company *mature*" were analysed. This included a self-analysis by representatives of the companies and an external analysis of selected project management documents performed by the national research team. The results of the analyses were used for a benchmarking of project-oriented companies. A benchmarking report for each participating company was provided.

Furthermore, the project management-related services (education, research and marketing) in each nation were analysed by the national research team by internet search, personal contact to representatives of institutions and expert interviews. The model "project-oriented society *mature*" was applied for this analysis.

In the third phase an international benchmarking was performed. The national research results were benchmarked and discussed with representatives of cooperation partners in the "international benchmarking workshop" on May 5th, 2007.

The overall research results from the project management practices and the project management-related services from all nations were documented in this final report, which was published on the homepage of the PROJEKTMANAGEMENT **GROUP** in July 2007.

1.3 Results of the research

In the research programm *project orientation [international]* the practices of 182 project-oriented companies have been analysed and benchmarked. Furthermore the project mangement-related education, research and marketing services of seven nations (Austria, Finland, Germany, Lithuania, Romania, Slovakia and South Africa) have been analysed and internationally benchmarked.

1.3.1 Results of the project-oriented companies

As an overview of the research results the average *mature* ratios of 182 project-oriented companies are shown in Table 1. To show the range of the results the average figure is compared with the worst and the best project-oriented company (POC).

	Worst POC	Best POC	Ø 182 POC
<i>mature</i> ratio	1,42	4,56	2,75
PROJECT MANAGEMENT	1,65	4,44	3,27
PROGRAMME MANAGEMENT	1,66	4,77	1,88
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR PROGRAMMES	1,00	4,80	2,21
ASSIGNMENT OF A PROJECT OR PROGRAMME	1,92	4,33	3,09
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN PROJECTS	1,21	4,54	2,56
ORGANISATIONAL DESIGN	1,21	4,71	2,89
PERSONNEL MANAGEMENT	1,00	4,44	2,63
PROCESS MANAGEMENT	1,31	4,56	2,73

Table 1: Mature ratios of 182 project-oriented companies

The overall *mature* ratio of the 182 project-oriented companies is 2.75.

1.3.2 Benchmarking the maturities of project-oriented nations

The practices of the project-oriented companies and the project management-related education, research and marketing have been aggregated to get the overall maturity of the seven participating nations.

In the benchmarking table, Table 202, it is shown that Finland with 3.17 has the highest maturity and that the lowest mature ratio is 1.96 in Romania.

	Romania	Slovakia	Lithuania	Austria	Germany	South Africa	Finland
<i>mature</i> ratio	1,96	2,34	2,35	2,88	3,01	3,08	3,17
PROJECT MANAGEMENT	2,16	2,94	3,06	3,49	3,50	3,60	3,76
PROGRAMME MANAGEMENT	2,02	1,57	1,05	1,80	2,06	2,93	1,86
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR PROGRAMMES	1,88	2,54	1,73	2,01	1,98	3,31	2,95
PROJECT PORTFOLIO MANAGEMENT	2,11	2,99	2,61	2,98	2,95	2,96	3,56
ORGANISATIONAL DESIGN	1,89	2,34	2,87	3,14	2,99	2,87	3,54
PERSONNEL MANAGEMENT	1,93	2,16	2,60	2,70	2,61	3,14	3,03
PROCESS MANAGEMENT	1,76	2,28	2,82	2,83	3,12	2,95	3,11
PROJECT MANAGEMENT-RELATED EDUCATION	2,00	1,73	2,27	2,94	3,17	2,46	2,57
PROJECT MANAGEMENT-RELATED RESEARCH	1,32	1,32	2,17	2,20	2,73	2,85	3,02
PROJECT MANAGEMENT-RELATED MARKETING	2,31	2,56	1,42	3,69	4,11	3,61	3,25

Table 2: Benchmarking table of the mature ratios of the seven project-oriented nations

1.3.3 Strategies to further develop project-oriented companies and nations

Based on the results of the analyses each project-oriented company developed its strategies for the further development according to the maturity model "project-oriented company *mature*". The defined strategies were depending on the context, such as development of the project business of the company, overall strategies for personell development, etc.

The further development of the project-oriented nations depends on the project management-related strategies of the national education, research and marketing institutions.

2. The research programme *project orientation [international]*

2.1 Context of the research programme

During the last years there was a trend towards a stronger project orientation in companies, industries as well as nations. Projects and programmes became more important in order to adapt to the changing environments and therefore appropriate organisational forms to manage unique, short to medium term, strategically important processes of medium or large scope have to be chosen. Companies, which use projects and programmes, can be defined as "project-oriented companies". Projects and programmes are applied by different industries, but also in new areas such as non-profit organisations, associations, small municipalities, schools and even families and the appropriate management of these organisational form are not just micro-economic but also a macro-economic concern.

The maturities of project-oriented companies, industries and nations can be measured and benchmarked by applying maturity models design for each the different social systems. Knowing the maturity of a project-oriented system is the basis for further developing it.

Between 1999 and 2002 the PROJEKTMANAGEMENT **GROUP** (PMG) of the Vienna University of Economics and Business Administration, Austria under the scientific direction of Univ.Prof.Dkfm.Dr. Roland Gareis and the International Project Management Association (IPMA) conducted the research initiative "Project-oriented Society (POS)"¹ with the objectives to develop a maturity model for the project-oriented society, to analyse the competences of project-oriented societies and to develop strategies for the further development of these project-oriented societies. The research emphasis lied on the generation of hypotheses and on the development of models regarding the project-oriented society.

Building on the IPMA research initiative - POS - the PMG performed the pilot project *project orientation [austria]*² (2004-2005). In this project the above mentioned maturity model were further developed and tested by analysing and benchmarking 60 project-oriented companies from 12 different industries and analysing the project management-related services in Austria. Strategies to further develop the project-oriented companies as well as Austria as a project-oriented nation were defined.

In January 2005, the PMG initiated the research programme *project orientation [international]* based on the experience and results of "POS" and "*project orientation [austria]*".

¹ Gareis R., Huemann M. (2001):

² Gareis, R., Gruber, C. (2005): Project management in Austria: Analysis of the maturity of Austria as a project-oriented nation, Chapter22.; Hallemann, M. (2005): Analyse projektmanagement-bezogener Dienstleistungen in Öesterreich.

2.2 Objectives of the research programme

The objectives of the reasearch programme *project orientation [international]*, which was conducted from January 2005 to July 2007, were:

- Analysis of the maturity of about 250 project-oriented companies and about 5 project-oriented industries in about 10 regions or nations
- Benchmarking of the project-oriented companies and project-oriented industries
- Analysis and benchmarking of about 10 project-oriented regions or nations
- Development of strategies for the further development of the project-oriented companies, industries, regions and nations
- Further development of the mature models of the project-oriented company and the project-oriented nation
- Publication and presentation of research results

2.3 Structures of the research programme *project orientation [international]*

The programme was started on 10th January 2005 and was finished on 9th July 2007 by the PROJEKTMANAGEMENT **GROUP** of the Vienna University of Economis and Business Administration, Austria.

The programme organisation was structured as follows:

- Scientific director & programme manager:
Univ.Prof.Dkfm.Dr. Roland Gareis
- Programme office:
Mag (FH) Eva Füssinger, Mag. Renate Prantner
- Project partners:
 - ISM University of Management and Economics,Lithuania
Prof. Alfredas Chmieliauskas
 - ROLAND GAREIS CONSULTING srl, Romania
Dr. Violeta Simionescu
 - PROJEKTMANAGEMENT GROUP, Austria
Mag (FH) Eva Füssinger
 - Project Management Association Finland, Finland
Rauno Puskala, Veikko Vällilä
 - Nordakademie University of applied Science, Germany
Prof.Dr. Arno Müller
 - Project Management Association of Slovakia, Slovakia
Prof. Igor Travník
 - University of the Free State, South Africa
Prof. Basie Verster

The programme was partly financed by the European Regional Development Fund (ERDF) and the Leonardo Da Vinci Programme (Project no. T/05/B/PP-17015). The PMG and cooperation fees covered the rest of the costs.

2.4 Cooperating project-oriented nations and companies

2.4.1 National cooperation partners

Project management-related education, research or marketing institutions were acquired to act as national cooperation partners. The following seven institutions signed a cooperation agreement in the framework of *project orientation [international]*, and performed a national research project:

- ISM University of Management and Economics, Lithuania
- ROLAND GAREIS CONSULTING srl, Romania
- PROJEKTMANAGEMENT GROUP, Austria
- Project Management Association Finland, Finland
- Nordakademie University of applied Science, Germany
- Project Management Association of Slovakia, Slovakia
- University of the Free State, South Africa

2.4.2 Cooperating project-oriented companies

182 companies different countries had the possibility to participate in the research programme and to analyse their project orientation in order to create a basis for the further development. The benefits of a cooperation were:

- Information about the maturity as a project-oriented company
- Benchmarking of the maturity of the own company with the ratios of other companies
- Documentation of the potentials for the further development of the maturity of the own project-oriented company in a specific analysis and benchmarking report
- Possibility to participate in the analysis of the maturity of the project-oriented industry, to which the company belongs to.

Industries

The 182 companies came from 12 industries. This is shown in Figure 1:

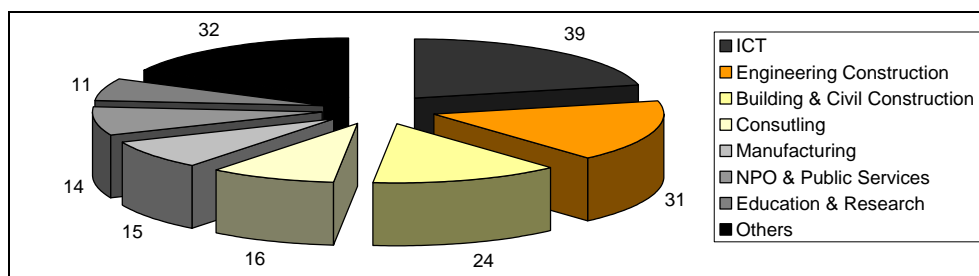


Figure 1: Number of project-oriented companies per industry

The 32 project-oriented companies from the section “Others” belong to the following industries:

- Banking & Insurance: 4
- Energy: 9
- Pharma & Biotechnology: 7
- Services: 8
- Transport & Logistics: 4

Company sizes

The analysed companies represent small, medium and large companies. The numbers of companies per category are illustrated in Figure 2:

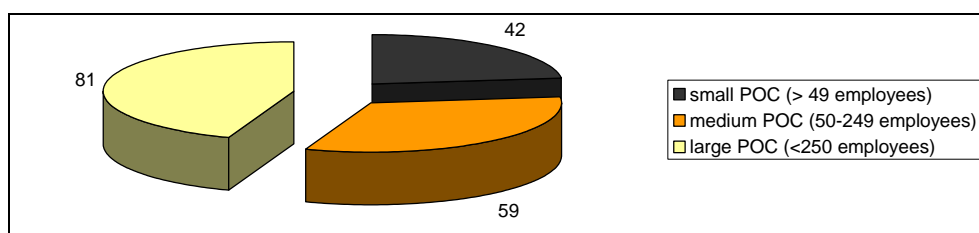


Figure 2: Number of project-oriented companies per company size

Project types

The analysis of the maturity for “project management” differentiated in internal and external projects. 80 companies decided to consider both project types, while 38 focused on internal projects and 64 on external projects. 118 sets of data for internal projects and 144 sets of data for external projects exist in the database. This is shown in Figure 3:

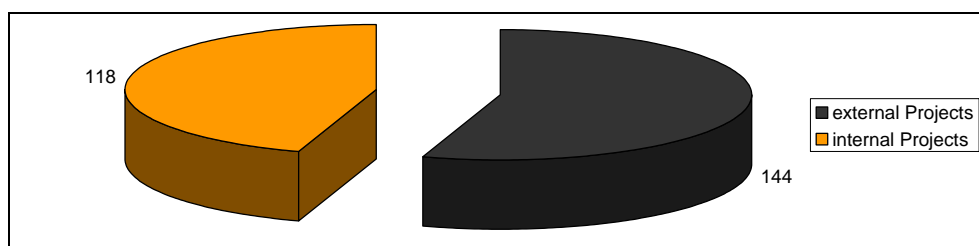


Figure 3: Number of internal project vs. external projects

3. Research hypotheses, maturity models and research approach

3.1 Research hypotheses

Underlying hypotheses for the research programme *project orientation [international]* were:

Hypothesis 1: Companies, industries and nations are becoming more project-oriented. Organising by projects and programmes creates a competitive advantage for these project-oriented systems. There is a correlation between the results and the maturity of a project-oriented system.

Hypothesis 2: Project-oriented companies are characterised by specific practices, such as project management, programme management, assurance of the management quality of projects and programmes, assignment of a project or a programme, project portfolio coordination and networking, organisational design, personnel management and process management.

Hypothesis 3: Professional management of the dimensions of the project-oriented company contributes to the success of projects and programmes.

Hypothesis 4: Project-oriented companies perform different project types, for which there are different management maturities.

Hypothesis 5: The maturities of project-oriented companies, industries and nations can be measured and benchmarked by applying maturity models. Different maturity models are required for analysing the maturities of different social systems. Maturities for different project-oriented social systems interrelate.

Hypothesis 6: There is no ideal maturity of a project-oriented social system. The competences required by a company, an industry or a nation depend on its context.

Hypothesis 7: Knowing the maturity of a project-oriented social system is the basis for further developing it.

3.2 Maturity models

The family of *mature* models³ is based on the approaches of *ROLAND GAREIS Management of the project-oriented Company*⁴ and *ROLAND GAREIS Management of the project-oriented Society*[®]:

- *personnel mature*
- *project mature*
- *programme mature*
- *project-oriented company mature*
- *project-oriented society mature*

³ Gareis, R., Huemann, M. (2007 forthcoming): Maturity Models for the project-oriented Company, Chapter 10.

⁴ Gareis, R. (2005): Happy Projects!, p. 54.

In the research programme *project orientation [international]* the models "project-oriented company *mature*" and "project-oriented society *mature*" have been applied.

3.2.1 Model: project-oriented company *mature*⁵

The model "project-oriented company *mature*" can be visualized by a spider web with the dimensions project management, programme management, assurance of the management quality of a project or programme, assignment of a project or programme, project portfolio coordination and networking between projects, organisational design, personnel management, and process management (see Figure 4). The dimensions of "project-oriented company *mature*" can be described briefly and can be operationalized in the questionnaire of the model: "project-oriented company *mature*".

The axes of the spider web in Figure 4 represent the dimensions of the model "project-oriented company *mature*".

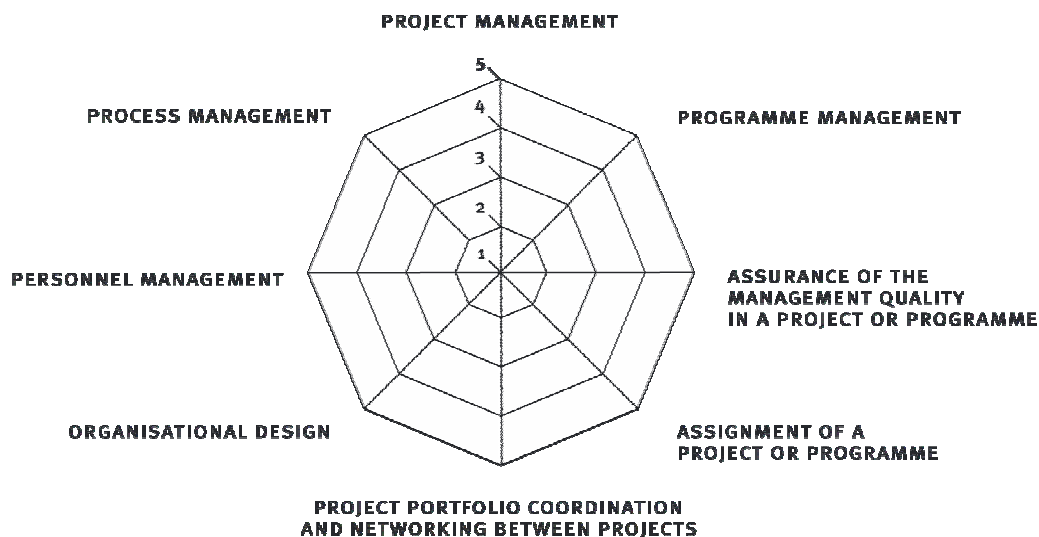


Figure 4: Spider web of the model "project-oriented company *mature*"⁶

3.2.1.1 Dimensions of "project-oriented company *mature*"

Project management

A project is a temporary organisation for the performance of a relatively unique, short to medium term, strategically important process of medium or large scope. The process consists of the sub-processes project start, project coordination, project controlling, resolving a project discontinuity and the project close-down.

Programme management

A programme is a temporary organisation for the fulfilment of a unique process with a large scope. Programme management has the sub-processes programme start, programme coordination, programme controlling, programme marketing, the resolution of a programme discontinuity and the programme close-down.

⁵ Gareis, R., Huemann, M. (2007 forthcoming): Maturity Models for the project-oriented Company, Chapter 10.

⁶ Gareis, R. (2006): Happy Projects!, p. 51.

Assurance of the management quality of a project or programme

Management consulting and management auditing are performed in order to assure the management quality in the projects and programmes.

Assignment of a project or programme

In the assignment process, the decision, whether or not to invest, and the decision about the appropriate organization form (line organization, project or programme), to initialize such an investment, are made.

Project portfolio coordination and networking between projects

In the project portfolio coordination priorities between projects are set, and the internal and external resources are coordinated. Networking between projects has the objective to create synergies in a subset of projects from the project portfolio.

Personnel management

This dimension of the maturity model considers the recruiting, disposition and (continuous) development of project management personnel such as project or programme owner, project or programme manager, project or programme team member, project contributor, etc.

Organisational design

This dimension considers the existence of a Project Management Office, of a Project Portfolio Group and of Expert Pools, as well as the existence of project and programme management guidelines, templates, and standard project plans.

Process management

A process is a clearly defined sequence of tasks in which several roles of one or more organisations are involved. It can be differentiated into primary, secondary and tertiary processes. For repetitive projects processes can be identified and described.

3.2.1.2 Questionnaire of the model: project-oriented company *mature*

The questionnaire "project-oriented company *mature*"⁷ includes 74 questions. The questions are structured according to the dimensions of the spider web. The maturity model is based on *ROLAND GAREIS Management of the project-oriented Company*⁸.

⁷ PROJEKTMANAGEMENT GROUP (2006): Questionnaire: Maturity of the project-oriented Company.

⁸ Gareis, R. (2005): Happy Projects!, p. 54.

Table 3 shows an example of a question of the dimension "project management":

A 1.1. In the project start process the following methods are used for project planning I		
	Internal Projects	External projects
Project objectives plan		
Work break-down structure (WBS)		
Work package specifications		
Project milestone plan		
Project bar chart		
CPM schedule (if required)		

1= never, 2=seldom, 3=sometimes, 4=often, 5=always

Table 3: Example of a question of the dimension "project management"⁹

Questions regarding the dimension "project management" differentiate between external projects (services projects for external clients) and internal projects (marketing projects, infrastructure projects, organisation and personnel projects for internal clients).

As can be seen in Table 3 five possibilities for answering exist (from always to never). In answering the questions regarding the application of methods the following assumptions are made:

Always	90 - 100% of the situations
Often	60 - 90% of the situations
sometimes	30 - 60% of the situations
Seldom	10 - 30% of the situations
Never	0 - 10% of the situations

Table 4: Assumptions regarding the answering possibilities¹⁰

The questionnaire allows a quantitative analysis as it asks e.g. for the application of certain project management methods and not for the quality of the resulting project management documents.

Based on the answers a maturity ratio for a project-oriented company can be calculated. It is a weighted sum of the maturities of the dimensions. As "project management" is considered the most important dimension, it has the weight of 20%. The dimensions "assignment of a project or programme" and "organisational design" are weighted with 15%, the rest with 10%. The criteria for assigning these weights are the number of questions per dimension and the importance of the dimension for the project-oriented company. The individual

⁹ PROJEKTMANAGEMENT GROUP (2006): Questionnaire: Maturity of the project-oriented company, p. 6.

¹⁰ PROJEKTMANAGEMENT GROUP (2006): Questionnaire: Maturity of the project-oriented company, p. 2.

questions in each question group have the same weight. If, for example, there are five questions in a question group each question will be weighted with 20%.

The following types of illustration are used for the evaluation of the results:

- Tables for each question group to compare companies.
- Spider web to illustrate the *mature* ratios per dimension as well as of the total maturity of the project-oriented company by the area of the spider web.
- *mature* ratios to measure the maturities of the project-oriented company. The maximum project-oriented company maturity is 5.

3.2.1.3 Research process: Analysis and benchmarking of a project-oriented company

At the beginning of the analysis a briefing workshop with representatives of a project oriented companies (head of a PM Office, project manager, project owner, etc.) took place. There the analysis process, the model “project-oriented company *mature*” and the questionnaire were explained by the research team.

Then at least five representatives of the project-oriented company carried out the self analysis. The questionnaire was either filled out individually (5-10 people) by using the online tool or in a group by participating in a moderated analysis workshop. It was the aim of the workshop to discuss the different answers and find a consensus.

For the external analysis the project-oriented company provided relevant documents such as project management templates, project and programme management guidelines, project management documents of 2-3 projects, etc. These documents were analysed by a member of the research team. The researcher controlled whether the answers of the questionnaire corresponded with the existing documents.

The results were evaluated by the research team and individual analyses and benchmarking reports were prepared.

3.2.2 Model: project-oriented society *mature*¹¹

Regions and nations which regularly use projects and programmes as temporary organisations for the performance of relatively unique processes can be perceived as being project-oriented. Regions and nations are becoming more project-oriented. Projects and programmes are applied by different industries, but also in new areas such as non-profit organisations, associations, small municipalities, schools and even families. Project and programme management are not just a micro-economic but also a macro-economic concern.

The maturity of a project-oriented region/nation can be analysed by applying the model “project-oriented society *mature*”. In this model the practices of project-oriented companies and the project-management-related services of education, research and marketing institutions are considered.

¹¹ <http://www.poi.pmggroup.at/index.php?id=78> (27.02.2007)

3.2.2.1 Dimensions of “project-oriented society *mature*”

The model “project-oriented society *mature*” is based on the model “project-oriented company *mature*”. It therefore considers the dimensions of the project-oriented company (project management, programme management, project portfolio management, personnel management, organisational design and process management) plus dimensions describing project management-related services, namely:

- Project management-related education
- Project management-related research
- Project management-related marketing

The dimensions “assignment of a project or programme” and “project portfolio coordination and networking” of the model: project-oriented company *mature* are summarised to “project portfolio management” in the model: project-oriented society *mature*.

The following figure 5 shows the model “project-oriented society *mature*” with the dimensions of the project-oriented company (black) and the project management-related services (orange).

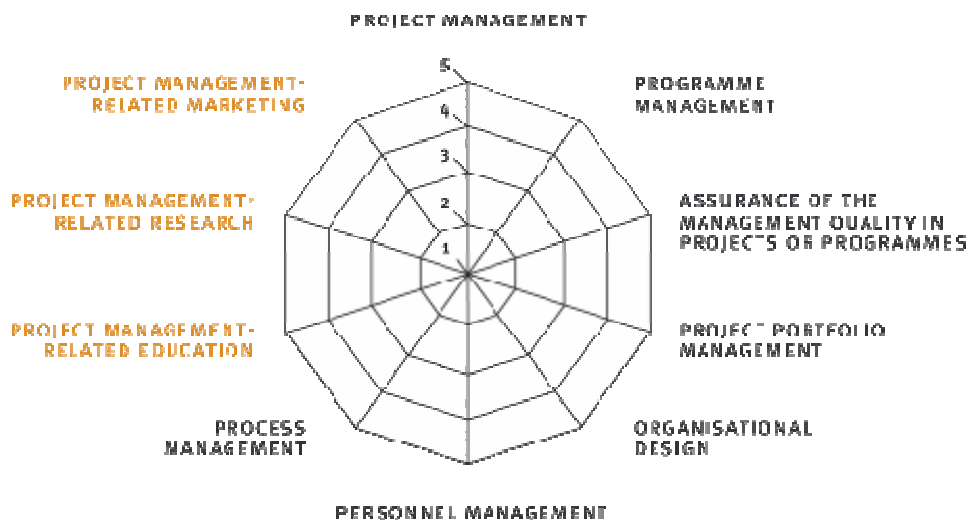


Figure 5: Spider web of the model “project-oriented society *mature*”¹²

The additional dimensions referring to the project management-related services in a society are described below:

Project management-related education:

Formal project management-related education programmes are provided by different institutions, such as e.g. secondary schools, vocational schools, universities and consulting organisations, and might lead to academic degrees in project management. The project management approach taught and the number of courses vary in different programmes.

Project management-related research:

Project management-related research projects and programmes, project management-

¹² Gareis, R. (2006): Happy Projects!, p. 53.

related publications and research events are provided by research institutions. There might be specific national funds dedicated to project management-related research.

Project management-related marketing:

Project management-related marketing in the project-oriented society is provided by project management associations, but also by universities and consulting companies. Project management associations provide services such as membership service, certifications of project managers, project management events, provision of project management standards, etc.

3.2.2.2 Questionnaire: project-oriented society *mature*

To analyse a project-oriented society the questionnaire "project-oriented company *mature*" and the additional questionnaire "project-oriented society *mature*"¹³ are applied.

In Table 5 an example of a question of the dimension "project management-related education" is shown:

A 1. How many of the following institutions offer formal project management education programmes ¹⁴ (% of total number of institutions)?	
Secondary schools (such as grammar schools, ...)	
Vocational schools (such as commercial schools, schools concerning business matters, technical schools, ...)	
Universities of applied science	
Universities	
Postgraduate educational institutions	
Continuing education (e.g. consulting companies, training institutions)	

1=none (less than 5 %), 2=few (5-9 %), 3=some (10-19 %), 4=many (20-29 %), 5=a lot (more than 30 %)

Table 5: Example of a question of the dimension "project management-related education"¹⁵

3.2.2.3 Research process: Analysis of a project-oriented society

For the analysis of the maturity of a project-oriented nation on the one hand the results of the analyses of the project-oriented companies were aggregated. On the other hand the project management-related services were analysed. This was done by analysing relevant documents of project management-related education, research and marketing institutions such as education curricula, web pages, publications, etc. Interviews with representatives of these institutions were conducted in order to get the missing information.

Regarding the analysis of project management-related research information about publications such as diploma and PhD theses and books has been gathered. Publications in

¹³ PROJEKTMANAGEMENT GROUP (2007): Questionnaire: Maturity of the project-oriented nation.

¹⁴ "Formal project management education programmes" are defined as programmes, in which the emphasis is placed on project and programme management and is counted for at least 6 ECTS (European Credit Transfer System).

¹⁵ PROJEKTMANAGEMENT GROUP (2007): Questionnaire: Maturity of the project-oriented nation, p. 3.

national and international journals have been analyzed, queries in the database of universities have been made and editors were contacted.

For the analyses of project management-related marketing the activities of the Project Management Institute (PMI) and the national associations of the IPMA-International Project Management Association have been analyzed.

For the calculation of the maturity ratios of "project-oriented society *mature*" all dimensions have been equally weighted.

3.3 Research approach

The systemic-constructivistic research approach applied is based on the following three fundamental paradigms:

- the epistemological paradigm: Radical Constructivism
- the organisational paradigm: Social Systems Theory
- the methodological paradigm: Qualitative Social Research

3.3.1 Epistemological paradigm: Radical Constructivism

Based on Ernst von Glasersfeld¹⁶ the Radical Constructivism does not deny the existence of an ontological reality but claims that it can not be subject of perception in the sense of a picture. The reason is the specific function of human sensory perception and the human brain which is considered a self-referential system without the possibility of a direct contact with the environment.

Reality therefore is a social construction that individuals, groups and organisations specifically create for themselves. The constructions are the result of negotiation processes that are determined by the balance of power.

The validity criterion for constructions of reality and therefore also for scientific models is "viability". It can not be the extent up to which the model matches reality as the latter can not be perceived. Viability does not mean "true" or "false", but comprises the explanatory and prognostical potential for the research question itself and the potential for further development in the sense of new questions or application in other research areas.

Viability itself is also a social construction. The validation of scientific models is a matter of consensus within the scientific community. Research therefore requires the exchange within the scientific community.

3.3.2 Organisational paradigm: Social Systems Theory

Self-referential systems create the elements they consist of with the help of these elements. Niklas Luhmann¹⁷ has applied the biological concept of self reference developed by

¹⁶ von Glasersfeld, E. (1992): Konstruktion der Wirklichkeit und des Begriffs der Objektivität.

¹⁷ Luhmann, N. (1995): Social Systems.

Maturana/Varela¹⁸ to social systems. According to his understanding social systems are closed concerning the mode of operation. They are not determined by their environment as the environment produces only a stimulus for the system. The construction of "information" completely depends on the system's specific structures and processes.

Systems can only be analysed together with their specific environment which is constitutive for the identity of the social system. Relevant environments can be divided into "internal environments" (in the case of projects for example project leader, project team) and "external environments" (business units of the company conducting the project, clients, suppliers, other projects, ...).

The smallest units of social systems are its communications (and decisions), not the persons. Persons are relevant informal environments to the social system.

Self-referential social systems operate according to their own "closed" structure. Management intervention can - but not necessarily does - have the intended effects. Major management responsibility is to offer interpretation possibilities and develop the reflection potential of the system in order to enable it to control its change processes.

3.3.3 Methodological paradigm: Qualitative Social Research

Assuming that the research objects such as groups, projects, companies and societies construct their own realities the understanding of this construction process and its underlying structures becomes the major challenge for the researcher. This requires interpretation of verbal or observation data considering not only the evident contents but also context information.

Due to the complexity of the research objects and in order to avoid the danger of reductionism and the loss of relevant information a variety of variables has to be considered. The research process remains open for the integration of new variables. Its cycles consist of hypothesis formulation, data collection, interpretation, and reflection.

The amount of variables limits the number of research objects to a selection of case studies. Viability of results comes from a multi-method approach which allows the comparison of results from different methods and from the analysis of cases. The major empirical methods are e.g. non-standardised interviews, observation, and qualitative document analysis.

The work in research teams integrates different points of view and therefore additional interpretation possibilities and a chance to reduce the individual "blind spot".

The research process focuses on the generation of hypotheses and the cyclic reintegration of these hypotheses into the empirical work to arrive at viable models. It does therefore not follow the two stage scheme of the qualitative approach in the tradition of Critical Rationalism (K. Popper).

¹⁸ Maturana, H., Varela, F. (1991): Der Baum der Erkenntnis.

3.3.4 The implementation of the paradigms in the research proposed

Following these three fundamental paradigms had an impact on the research process, the design, the working forms applied and the results that were expected from the research programme.

The implementation of Radical Constructivism

Following the Radical Constructivism caused an interpretative approach and the application of quality criteria of Qualitative Social Research. Furthermore constructivism was also considered on the contents side of the research. The terms projects, project management process, the project-oriented company, the maturity models were explicitly perceived as social constructs, of which the research team developed shared perceptions.

The implementation of the Social Systems Theory

On the contents side objects of consideration like projects, portfolio of projects, the project-oriented company, the project-oriented society were perceived as social systems. The social systems theory implied the use of qualitative research methods in the research process. To understand the behaviour of a social system communication patterns of the systems were observed, for which again an interpretative approach was applied. The examination of the context was necessary for understanding observations. That means system-environment relations and the "history" of a system had to be considered in the research. For this purpose different data of the different project-oriented societies were provided.

The implementation of Qualitative Social Research

The emphasis lied on the generation of hypotheses and the cyclic reintegration of these hypotheses into the empirical work. Models (e.g. the maturity models) were developed, applied and interpreted.

The empirical work was based on questionnaire-based self-analyses performed by representatives of project-oriented companies. Different project-oriented industries, company sizes and project types were taken into account.

The analyses of the project management-related services were carried out in an open and cyclic way. It consisted of several loops of information gathering, hypotheses generation and reflection in each national research team.

The information gathering followed a multi-method approach: moderated workshops, group discussions, questionnaires, observation in workshop situations, documentary analysis were applied. The interpretation of data was done in teams. The companies were confronted with the interpretations of the research team. Thus the constructs were further developed and examined. Research work was carried out in different team structures (programme team, national research teams, etc.) to allow for many different perceptions and interpretations.

The different international workshops allowed for a communication process to understand and benchmark the results of the different project-oriented companies and nations.

4. Results of the project-oriented companies

In this research 182 project-oriented companies from 16 different nations have been analysed in national projects. These results are interpreted and furthermore benchmarked by company size (small, medium and large) and by industries.

4.1 Analysis of the project-oriented companies

As an overview of the research results the average *mature* ratios of 182 project-oriented companies are shown in Table 6. To show the range of the results the average figure is compared with the worst and the best project-oriented company (POC).

	Worst POC	Best POC	Ø 182 POC
<i>mature</i> ratio	1,42	4,56	2,75
PROJECT MANAGEMENT	1,65	4,44	3,27
PROGRAMME MANAGEMENT	1,66	4,77	1,88
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR PROGRAMMES	1,00	4,80	2,21
ASSIGNMENT OF A PROJECT OR PROGRAMME	1,92	4,33	3,09
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN PROJECTS	1,21	4,54	2,56
ORGANISATIONAL DESIGN	1,21	4,71	2,89
PERSONNEL MANAGEMENT	1,00	4,44	2,63
PROCESS MANAGEMENT	1,31	4,56	2,73

Table 6: Mature ratios of 182 project-oriented companies

4.1.1 Project management

The 182 project-oriented companies show with 3.27 a high *mature* ratio in “project management”. 64 out of the 182 companies only considered their external projects and 80 considered internal as well as external projects. External projects, in general, get more management attention than internal projects. In the following Table 6 the results regarding the project management maturity are shown.

	Worst POC	Best POC	Ø 182 POC
Part A: Project management	1.65	4.44	3.27
A 1. Project start process	1.39	4.58	3.28
A 2. Project coordination process	1.62	5.00	3.69

A 3. Project controlling process	1.21	4.33	3.15
A 4. Project close-down process	1.25	3.58	2.71
A 5. Resolving a project discontinuity	2.83	4.67	3.06
A 6. Project management process and project results	2.26	4.35	3.51
A 7. Management of small projects	1.00	4.60	3.50

never	1	seldom	2	sometimes	3	Often	4	always	5
very bad	1	bad	2	ok	3	Good	4	very good	5

Table 7: Mature ratios of the dimension "project management"

The most attention internationally is given to the sub-process "project coordination" (3.69), while the other sub-process show *mature* ratios around 3.00. Furthermore the quality of the project results is rated as "good" and the differentiation between projects and small projects is "often" given.

The results for the "project start" at the next level of detail of the questionnaire are illustrated in the Table 8:

	Worst POC	Best POC	Ø 182 POC
A 1. Project start process	2.39	4.58	3.28
A 1.1. In the project start process the following methods are used for project planning I	1.50	5.00	3.61
A 1.2. In the project start process the following methods are used for project planning II	2.17	4.67	3.55
A 1.3. In the project start process the following methods are used for considering the project context relationship	1.00	4.67	3.09
A 1.4. In the project start process the following methods are used for designing the project organisation	1.00	4.83	3.37
A 1.5. Consideration of representatives of 'external companies' as project team members	1.40	3.40	3.30
A 1.6. In the project start process the following methods are used for developing a project culture	1.00	4.50	2.89
A 1.7. In the project start process the following methods are used for project marketing	1.67	5.00	3.13

never	1	seldom	2	sometimes	3	often	4	always	5
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Table 8: Mature ratios of the "project start process"

In the project start process most of the project management methods for project planning are used "often", while those considering the project context relationships, the designing of the project organisation, for developing a project culture and project marketing are only used "sometimes".

4.1.2 Programme management

The detailed results of the dimension “programme management” are demonstrated in the following Table 9. The overall result of the 182 project-oriented companies is 1.88.

	Worst POC	Best POC	Ø 182 POC
Part B: Programme management	1.66	4.77	1.88
B 1. Use of programme management methods in the programme start	1.43	5.00	1.87
B 1.1. Use of methods for the programme planning, the design of the programme context and the programme organisation	1.33	5.00	1.98
B 1.2. Roles in the programme organisation	2.00	5.00	1.94
B 1.3. Developing the programme culture	1.00	5.00	1.78
B 1.4. Programme marketing	1.40	5.00	1.77
B 2. Other Programme management processes	1.36	4.64	1.89
B 2.1. Programme coordination	1.83	5.00	2.04
B 2.2. Programme controlling process	1.00	3.86	1.92
B 2.3. Programme close-down	1.29	4.71	1.82
B 2.4. Methods for resolving a programme discontinuity	1.33	5.00	1.77
B 3. Design of the programme management process	2.18	4.68	1.90
B 3.1. Duration and frequency of the programme management sub-processes	1.00	4.50	1.81
B 3.2. Performance of roles in programme management	1.33	4.50	1.89
B 3.3. Quality of the programme environment relationships	2,67	5.00	1.98
B 3.4. Quality of the programme results	2.33	4.67	1.87

never	1	seldom	2	sometimes	3	often	4	always	5
very bad	1	bad	2	ok	3	good	4	very good	5

Table 9: Mature ratios of the dimension “programme management”

The average *mature* ratios of the 182 project-oriented companies in regards to all questions in the dimension “programme management” are between 1.77 and 2.04. This shows that programme management as an organisational form in project-oriented companies is scarcely established.

4.1.3 Assurance of the management quality in a project or programme

The average *mature* ratio in the dimension "assurance of the management quality in a project or programme" of the 182 companies is 2.21.

	Worst POC	Best POC	Ø 182 POC
Part C: Assurance of management quality in a project or programme	1.00	4.80	2.21
C 1. Management consulting of projects and programmes	1.00	4.80	2.29
C 1.1. Objects of consideration of management consulting of projects or programmes	1.00	5.00	2.52
C 1.2. Methods for the management consulting of projects or programmes	1.00	4.40	2.15
C 1.3. Design of the management consulting of projects or programmes	1.00	5.00	2.21
C 2. Management auditing of projects and programmes (or 'health check' or 'peer view')	1.00	4.80	2.13
C 2.1. Objects of consideration of the management auditing of projects or programmes	1.00	5.00	2.24
C 2.2. Methods for the management auditing of projects or programmes	1.00	4.40	2.08
C 2.3. Design of the management auditing for projects or programmes	1.00	5.00	2.06

never	1	seldom	2	sometimes	3	often	4	always	5
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Table 10: Mature ratios of the dimension "assurance of management quality in a project or programme"

The two methods for the assurance of management quality in a project or programme, management consulting and management auditing of projects and programmes, exist "seldomly" in the 182 companies. Although the maturity in management consulting is slightly higher, in comparison to the *mature* ratio in management auditing.

4.1.4 Assignment of a project or programme

The average *mature* ratio for "assignment of a project or programme" of the 182 project-oriented companies is 3.09. More detailed results are shown in Table 11:

	Worst POC	Best POC	Ø 182 POC
Part D: Assignment of a project or programme	1.92	4.33	3.09
D 1. Methods for assigning a project or a programme I	2.33	3.67	2.73
D 2. Methods for assigning a project or a programme II	1.67	3.67	3.21
D 3. Design of a assigned project process I	1.00	5.00	3.29
D 4. Design of a assigned project process II	2.67	5.00	3.15

never	1	seldom	2	sometimes	3	often	4	always	5
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Table 11: Mature ratios of the dimension “assignment of a project or programme”

The methods for the assignment of a project or programme such as an investment proposal and business case analysis and project or programme proposals are done “sometimes”, while project and programme assignments exist “often”. Investment portfolio score cards and analysis of alternative project portfolio on the other hand are “seldomly” used.

The results of the design of the assignment process are all very similar with either a level of 3.00 or 4.00.

4.1.5 Project portfolio coordination and networking between projects

The dimension “project portfolio coordination and networking between projects” has a *mature* level of 2.56. This is displayed in the following Table 12:

	Worst POC	Best POC	Ø 182 POC
Part E: Project portfolio coordination and networking between projects	1.92	4.54	2.56
E 1. Methods for project portfolio coordination and networking between projects	2.33	3.17	2.55
E 2. Management of chains of projects	1.67	5.00	2.41
E 3. Design of the project portfolio coordination	1.00	5.00	2.96
E 4. Design of networking between projects	2.67	5.00	2.34

never	1	seldom	2	sometimes	3	often	4	always	5
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Table 12: Mature ratios of the dimension “project portfolio coordination and networking between projects”

Methods for the project portfolio coordination and for the networking between projects are on an average used "sometimes", while the methods of management of chains of projects is "seldomly" done.

Regarding the design of the project portfolio coordination specific measures such as decisions by the Project Portfolio Group (or similar organisational units) are "sometimes" taken. In comparison to the ratios of the design of networking between projects, which is a level lower.

4.1.6 Organisational design

Table 13 displays that the dimension "organisational design" in 182 project-oriented companies is 3.89:

	Worst POC	Best POC	Ø 182 POC
Part F: Organisational design	1.21	4.71	2.89
F 1. Organisational structure of the project-oriented company	1.33	4.50	2.63
F 2. Organisational processes of the project-oriented company I	1.00	4.25	2.80
F 3. Organisational processes of the project-oriented company II	1.00	4.50	2.72
F 4. Infrastructure of the project-oriented company	1.29	5.00	3.03
F 5. Culture of the project-oriented company	1.67	5.00	3.55
F 6. Further development of the project-oriented company	1.00	5.00	2.61

not existing	1	existing informally	2	existing - limited relevance	3	existing - very relevant	4	continually optimised	5
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Table 13: Mature ratios of the dimension "organisational design"

The organisational structure and the organisational processes of the project-oriented company for e.g. expert pools, a Project Management Office or project management templates are "existing with limited relevance" or "informally".

In regards to organisational design the culture of the project-oriented company - such as team work and customer orientation as a core competence - is the most important aspect and is therefore "existing and very relevant".

Infrastructure such as project management software and moderation tools and the further development of the company as a project-oriented company is "limited relevant".

PM Office

Figure 6 shows that in 45% of the 182 companies analysed a PM Office has been formally established and that in 34% of these companies this organisational unit is not existing.

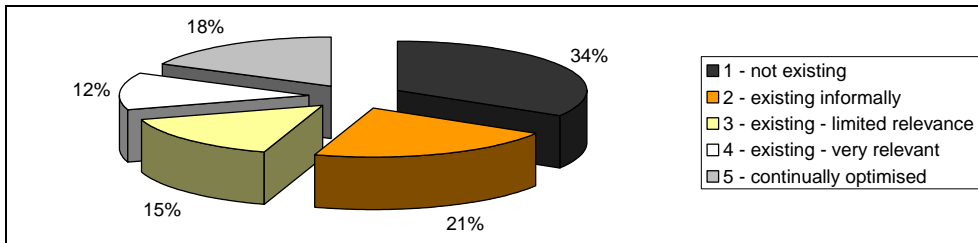


Figure 6: Establishment of PM Offices in the 182 companies

Figure 7 displays that from these 82 companies, which have formally established a PM Office, 59 % are large-sized companies. This clearly shows that large companies have more possibilities and resources of implementing organisational structure to become more project-oriented.

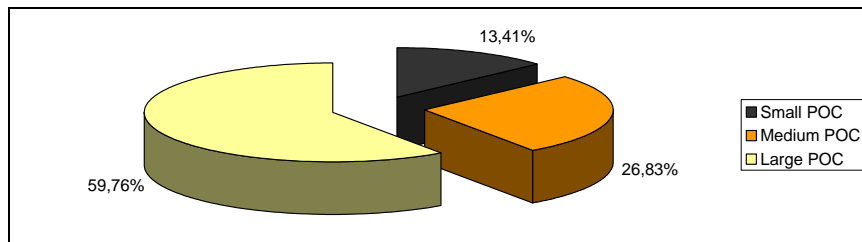


Figure 7: Company sizes vs. 82 formally established PM Offices

Project Portfolio Group

45% of the 182 companies have formally established a Project Portfolio Group. Figure 8 illustrates that not as many companies continually optimise this organisational unit (only 13%) and that 38% do not even have formally or informally established a Project Portfolio Group.

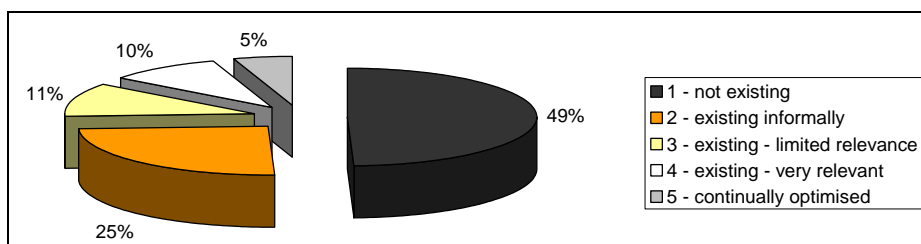


Figure 8: Status of formally established Project Portfolio Groups in 182 companies

In regards to company sizes, the percentage of the establishment of Project Portfolio Groups in large-sized companies is with 82 % (Figure 9).

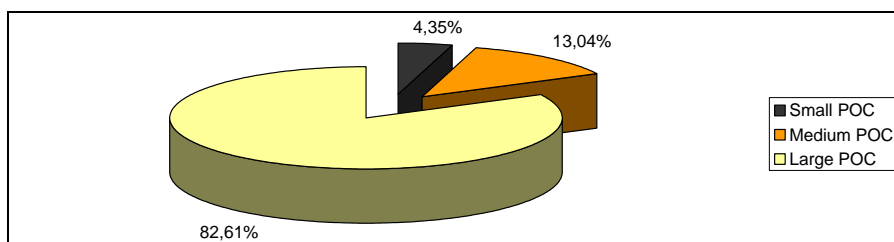


Figure 9: Company sizes vs. 81 formally established Project Portfolio Groups

Formal descriptions of the processes project and programme management as well as project portfolio management

The direct comparison of the existence of formal descriptions of the processes “project management” and “programme management” to “project portfolio management” and “networking of projects” can be seen in Figure 10.

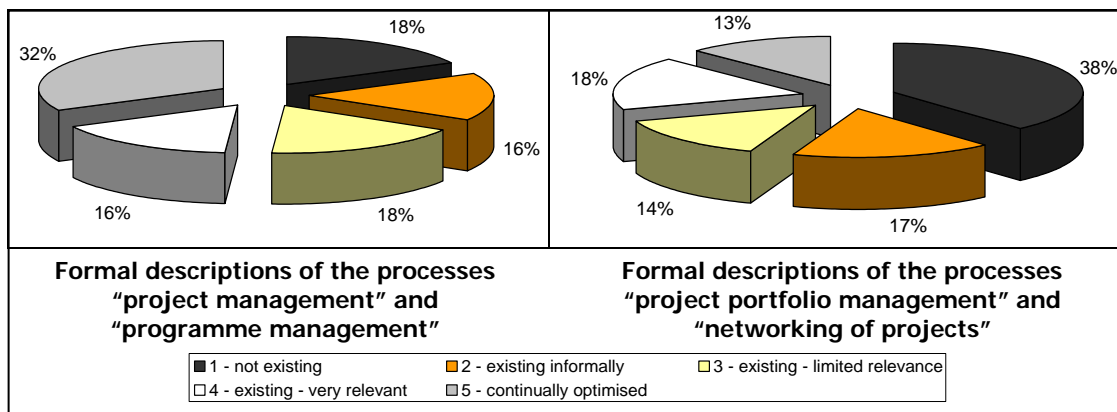


Figure 10: Comparison of formal description of processes

4.1.7 Personnel management

The result of the dimension “personnel management” in the project-oriented company is shown in Table 14. The average *mature* ratio of the 182 project-oriented companies is 2.63.

	Worst POC	Best POC	Ø 182 POC
Part G: Personnel management	1.00	4.44	2.63
G 1. The 'project manager' as a profession	1.00	5.00	2.54
G 2. Recruiting project and programme managers	1.00	4.00	2.47
G 3. Leading project and programme management personnel	1.00	5.00	3.20
G 4. Incentive systems in the project-oriented company	1.00	2.75	2.51
G 5. Development of project and programme management personnel	1.00	5.00	2.55
G 8. Design of the personnel management processes	1.00	4.75	2.22

not existing	1	existing informally	2	existing - limited relevance	3	existing - very relevant	4	continually optimised	5
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G 6. Project management competencies (knowledge and experience) of the project and programme management personnel (in comparison with IPMA or PMI standards)	1.00	4.75	2.65
G 7. Project management competencies (knowledge and experience) of executives of the project-oriented company	1.00	4.25	2.89

very low	1	low	2	average	3	high	4	very high	5
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Table 14: Mature ratios of the dimension “personnel management”

The project manager as a profession - role descriptions for the roles in the project-oriented company, career path in project management - exist in the 182 project-oriented companies "with limited relevance" or "informally".

Recruiting of project and programme managers is done "informally". A very similar *mature* ratio exists in regards to incentive systems - project premiums or project incentives - and to the design of the personnel management processes - career planning or marketing of "project manager" as a profession.

The project management competences (knowledge and experience) of project and programme management personnel (project/programme owners, project/programme managers and project team members) and executives of the project-oriented company in Austria is "average".

Career path in project management

One question about the "project manager" as a profession was "Do career path in project management exist in the company?". From Figure 11 it can be seen that in 40% of the 182 companies analysed no career path in project management does exist and that 27% have informally established one. Only in 20% of the companies this career path exists with relevance or is continually optimised. These results proof that the project management as a profession and a discipline is in its beginning of development.

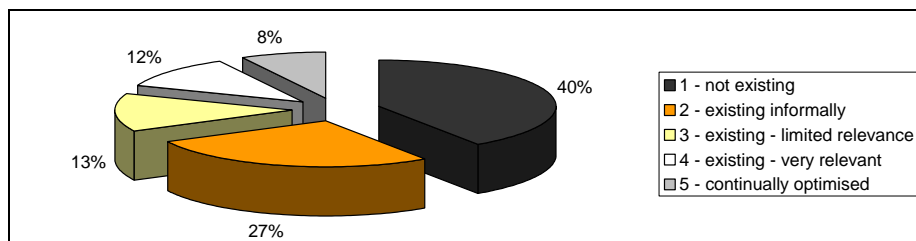


Figure 11: Career path in project management in 182 companies

Project management training

Figure 12 deals with the project management training of the different project management personnel in order to develop their project management knowledge competences. While 68% of the companies offer training for project/programme managers and 55% for project team member, only 33% develop their project/programme owner formally.

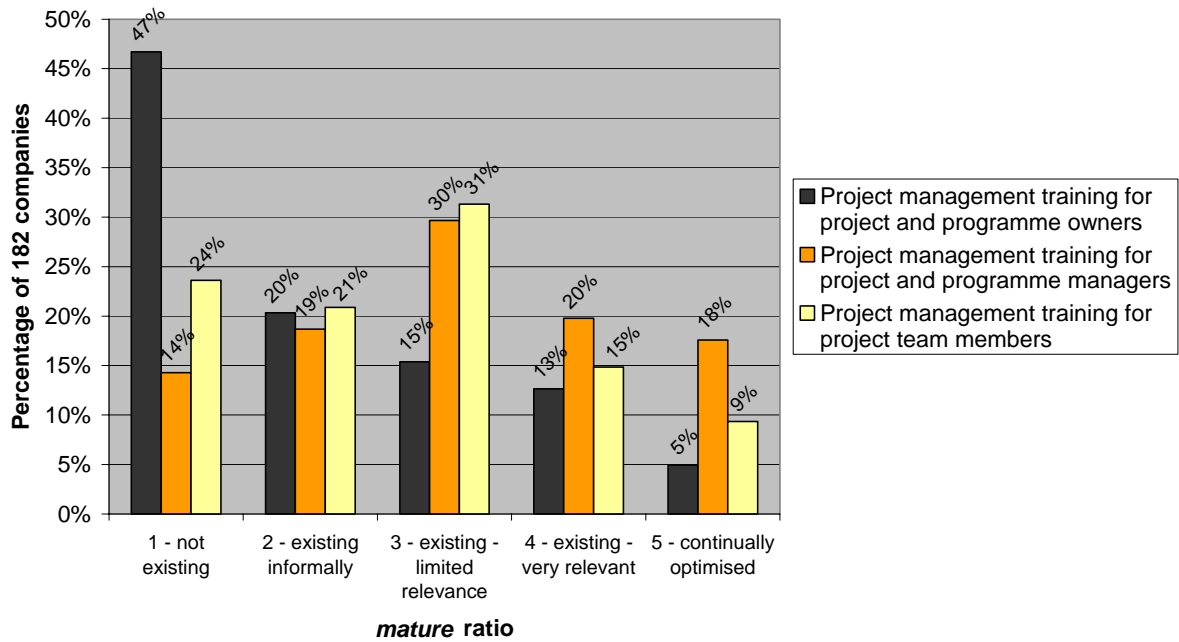


Figure 12: Project management training in regards to project/programme roles

Project management competences

The focus is on the project management competencies (knowledge and experience) of the project and programme management personnel in comparison with IPMA or PMI standards. In the 182 project-oriented companies participating in this research, the biggest lack is with programme managers. This can be explained that the process of “programme management” is rather new and that many companies haven’t introduced it yet.

The results in Figure 13 support those in Figure 12 as the project management competences of the project managers are higher then those of project team members and project/programme owners.

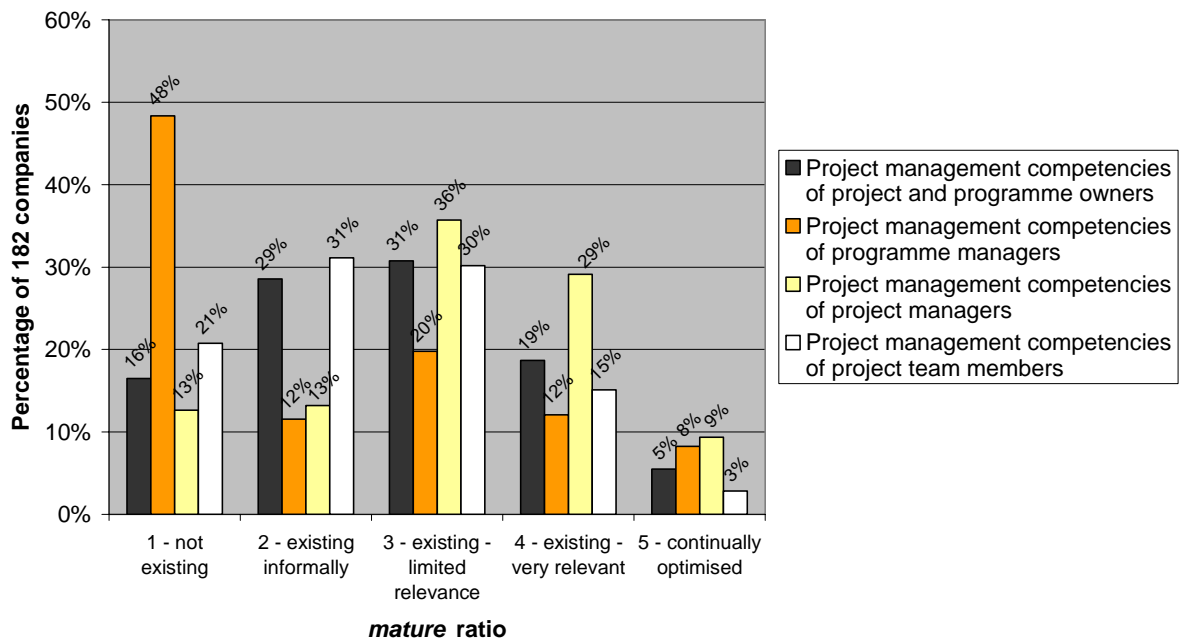


Figure 13: Project management competences in regards to project/programme roles

The competences of the executives of the project-oriented company have also been analysed, but are not interpreted in this report.

4.1.8 Process management

The average *mature* ratio of the dimension "process management" of 76 project-oriented companies, shown in Table 15, is 2.83.

	Worst POC	Best POC	Ø 182 POC
Part H: Process management in the project-oriented company	1.31	4.56	2.73
H 1. Definitions and types of processes	2.00	5.00	3.19
H 2. Macro-process management	1.00	5.00	2.73
H 3. Micro-process management	1.00	4.80	3.10
H 4. Optimisation of the processes	1.00	3.25	2.83
H 5. IT-infrastructure for process management	1.00	5.00	2.61
H 6. Organisation for process management	1.25	5.00	2.52
H 7. Personnel management for process management	1.00	4.00	2.18
not existing 1 existing informally 2 existing - limited relevance 3 existing - very relevant 4 continually optimised 5			
H 8. Process management competencies (knowledge and experience) in relation to national and international standards	1.80	4.40	2.68
very low 1 low 2 average 3 high 4 very high 5			

Table 15: Mature ratios of the dimension "process management"

Process definitions and types of processes, the methods for macro and micro-process management as well as the methods for the optimisation of processes "exist with limited relevance". Moreover, the IT Infrastructure as well as the organisation for process management "exists with limited relevance". Personnel management for process management such as a career path "exists informally".

Process management competencies (knowledge and experience) of top managers and process management personnel are on an "average" level.

4.2 Benchmarking of project-oriented companies by company size

The companies have been differentiated by company size. The criteria for this classification and the number of companies analysed in each category are as follows:

- Small-sized companies: 42
- Medium-sized companies: 59
- Large-sized companies: 81

The results of the benchmarking by company size are shown in Figure 14:

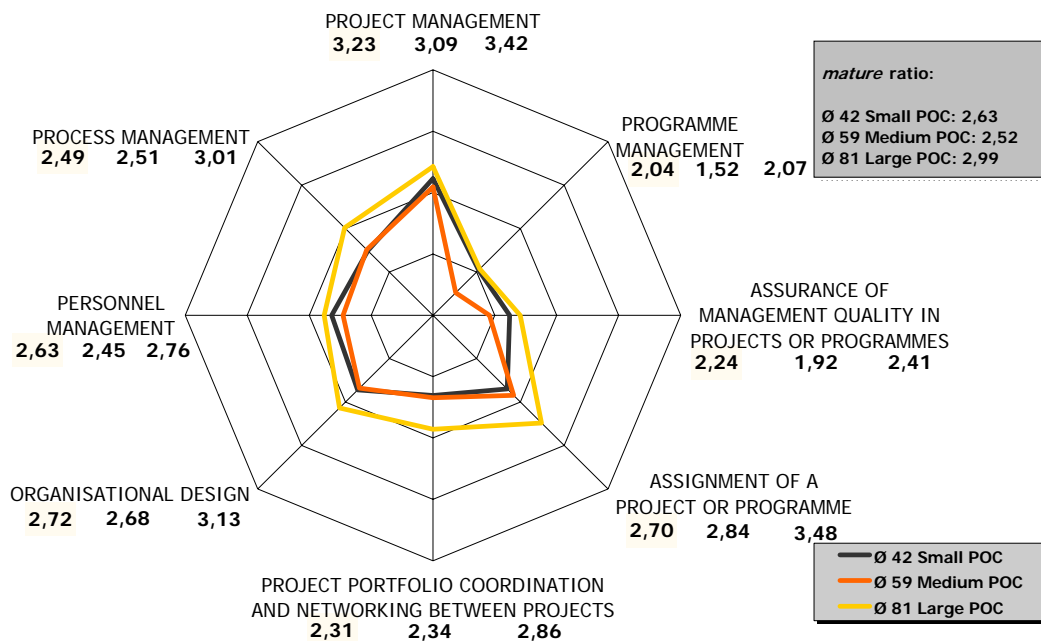


Figure 14: Mature ratios of 182 companies by company sizes

Figure 14 shows that large project-oriented companies have a higher overall maturity than small and medium ones. Large project-oriented companies perform programmes and the formal processes of management-consulting and management-auditing to assure the management quality of projects and programmes. Large companies have more possibilities regarding the "organisational design" such as a PM Office, Project Portfolio Group etc. and take extensive measures regarding the development of their employees.

4.3 Benchmarking of project-oriented companies by industry

The 182 project-oriented companies analyzed were clustered into different industries. The number of the companies of each industry was different, but the minimum was 4 project-oriented companies:

- Banking & Insurance: 4
- Building & Civil Construction: 24
- Consulting: 16
- Education & Research: 11
- Energy: 8

- Engineering Construction: 31
- Information & Communication Technology (ICT): 39
- Manufacturing: 15
- NPO/Public Sector: 14
- Pharma & Biotechnology: 7
- Services: 8
- Transport & Logistics: 4

The following Table 16 shows the results of the 12 industries in comparison with the average maturity of the 182 project-oriented companies (POC).

	Ø 14 NPO & Public Services	Ø 4 Banking & Insurance	Ø 8 Services	Ø 4 Transport & Logistics	Ø 16 Consulting	Ø 15 Manufacturing	Ø 182 POC	Ø 31 Engineering Construction	Ø 24 Building & Civil Construction	Ø 39 ICT	Ø 11 Education & Research	Ø 7 Pharma & Biotechnology	Ø 9 Energy
<i>mature ratio</i>	2,45	2,50	2,55	2,57	2,74	2,74	2,75	2,75	2,80	2,82	2,86	2,90	2,97
PROJECT MANAGEMENT	3,02	3,23	3,24	2,96	3,33	3,33	3,27	3,05	3,49	3,28	3,30	3,39	3,49
PROGRAMME MANAGEMENT	1,91	1,73	1,00	2,52	1,74	1,91	1,88	1,69	1,98	1,92	2,60	2,08	1,85
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR ASSIGNMENT OF A PROJECT OR PROGRAMME	2,08	1,67	1,93	2,11	2,28	1,89	2,21	2,28	2,26	2,32	2,23	2,05	2,60
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN	2,91	2,79	2,99	2,56	2,75	3,24	3,09	3,13	3,19	3,09	3,05	3,67	3,45
ORGANISATIONAL DESIGN	2,20	2,11	1,97	2,54	2,48	2,52	2,56	2,66	2,38	2,72	2,82	2,92	2,95
PERSONNEL MANAGEMENT	2,46	2,72	2,82	2,68	3,11	2,78	2,89	2,88	2,86	3,00	2,91	3,19	3,03
PROCESS MANAGEMENT	2,25	2,10	2,53	2,28	2,88	2,43	2,63	2,65	2,77	2,73	2,75	2,57	2,64
	1,99	2,69	2,85	2,43	2,60	2,94	2,73	3,07	2,58	2,85	2,62	2,33	2,96

Table 16: Benchmarking by project-oriented industries

The Energy industry (Ø 9 POCs) has with 2.97 the highest maturity ratio. The NPO/Public Services (Ø 14 POCs) with 2.45 the lowest one. The difference of the maturity of the best industry and the worst industry is 0.52. This low variation in *mature* ratios of the different industries can be explained by focusing on industries of great importance to the nations analysed. E.g South Africa focused on its Building & Civil Construction industry, while Finland focused on its Engineering Construction industry.

It can be interpreted, that the market situation influences the maturity of project-oriented industries. The high competition in the Information & Communication Technology (ICT) industry probably leads to a high maturity of this industry, on the other hand the formal requirements for the Research industry might also positively influence its maturity. Industries, which mainly carry out external projects (Building & Civil Construction, Engineering Construction), show a lower maturity in the dimension of “programme management”. In the public sector, in Non-Profit-Organisations (NPO) and in research the project orientation might gain in importance in the near future.

The biggest differences between the analysed project-oriented industries arose in the dimensions “programme management”, “assurance of the management quality in a project or programme”, “project portfolio coordination and networking between projects”, “organisational design”, personnel management” and “process management”.

5. Analysing the project-oriented nations

The analyses of the project-oriented nations dealt with the analyses of the project management practices and the analyses of the project management-related services in different nations. In this chapter the research results of each of the seven participating nations are shown in detail.

5.1 Maturity of Austria as a project-oriented nation

5.1.1 Organisation and objectives of the research project in Austria

The research in Austria was performed in two projects: *project orientation [austria]*, which was the pilot project for the research programme, and *project orientation [austria II]*. The second project was started on 9th January 2006 and was finished on 15th June 2007 by the PROJEKTMANAGEMENT **GROUP** of the Vienna University of Economics and Business Administration, Austria. It included the results of the pilot project, therefore only *project orientation [austria II]* is mentioned further on. The project was partly financed by the European Regional Development Fund (ERDF).

Project owner was Univ.Prof.Dkfm.Dr. Roland Gareis (PROJEKTMANAGEMENT **GROUP**), project manager was Mag.(FH) Eva Füssinger (PROJEKTMANAGEMENT **GROUP**). Project team members were Mag. Andrea Cerny (PROJEKTMANAGEMENT **GROUP**), Stefan Fink (University of applied Science Vorarlberg), Dipl.-Ing. Martin Meusburger (University of applied Science Vorarlberg), Mag. Renate Prantner (PROJEKTMANAGEMENT **GROUP**), Milena Staeva (PROJEKTMANAGEMENT **GROUP**), Ralf Strampfer (PROJEKTMANAGEMENT **GROUP**) and Sona Zajackova (PROJEKTMANAGEMENT **GROUP**).

The objectives of the research project *project orientation [austria II]* were:

- Analysing and benchmarking 80 Austrian project-oriented companies including the results of *project orientation [austria]*
- Performing regional observation, differentiation by company size and project types
- Analysing of Austria as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Austria as a project-oriented nation
- Preparing Austria for the international benchmarking with other nations, especially the boarder region of Austria with the boarder region of Slovakia
- Presenting and publishing of the research results

5.1.2 Analysis of project-oriented companies in Austria

In the spider web of the model "project-oriented company *mature*", Figure 15 the average *mature* ratios of the 76 Austrian project-oriented companies are displayed by the orange area. The overall *mature* ratio accounts for 2.85.

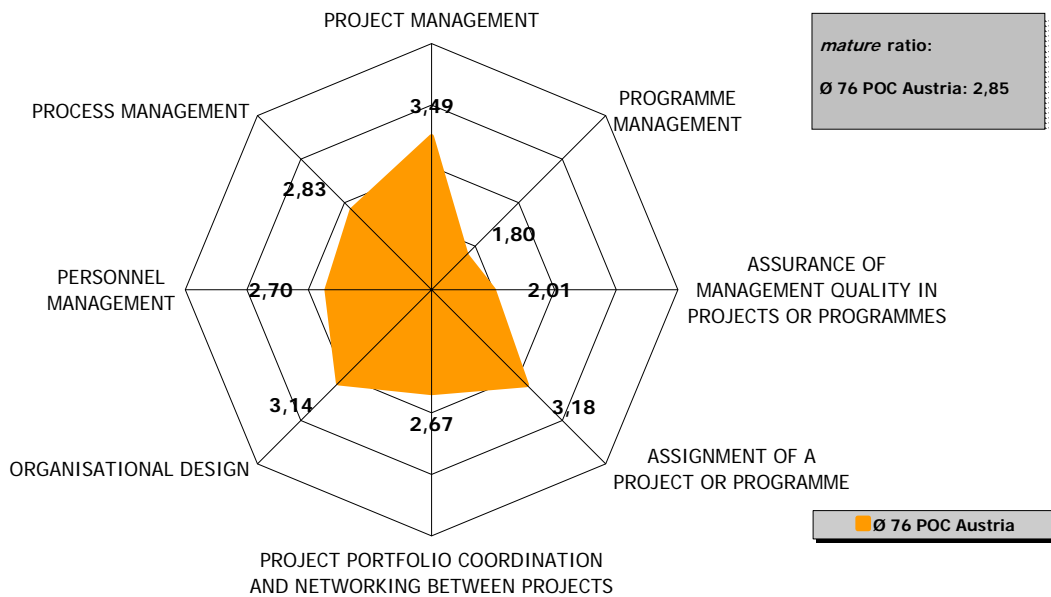


Figure 15: Average mature ratios of 76 analysed project-oriented companies in Austria

An overview of the research results regarding the different industries and the average *mature* ratios of the 76 analysed project-oriented companies are given in the benchmarking Table 17:

	Ø 7 POC NPO/ Public Services	Ø 7 POC Building & Civil Construction	Ø 9 POC Manufacturing	Ø 5 POC Pharma & Biotechnology	Ø 5 POU Consulting	Ø 76 POC Austria	Ø 12 POC Engineering Construction	Ø 4 POC Energy	Ø 6 POC Research	Ø 14 POC ICT
<i>mature ratio</i>	2,47	2,53	2,75	2,75	2,83	2,85	2,81	2,88	3,17	3,41
PROJECT MANAGEMENT	3,27	3,68	3,44	3,45	3,97	3,49	3,18	3,37	3,63	3,96
PROGRAMME MANAGEMENT	1,60	1,53	1,73	1,46	1,57	1,80	1,16	1,69	2,42	2,61
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR	1,76	1,37	1,89	1,84	1,55	2,01	2,07	1,95	2,13	2,75
ASSIGNMENT OF A PROJECT OR PROGRAMME	3,30	2,70	3,10	3,58	2,52	3,18	3,11	3,44	3,43	3,68
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN	2,04	1,79	2,37	2,58	2,87	2,67	2,80	2,77	3,51	3,29
ORGANISATIONAL DESIGN	2,63	2,84	2,87	3,03	3,61	3,14	3,14	3,04	3,46	3,67
PERSONNEL MANAGEMENT	2,18	2,50	2,46	2,52	2,98	2,70	2,85	2,55	3,07	3,19
PROCESS MANAGEMENT	1,73	2,43	3,17	2,25	2,22	2,83	3,45	3,40	2,93	3,26

Table 17: Mature ratios of different industries in Austria

The dimensions “project management”, “assignment of a project or programme” and “organisational design” have the highest *mature* ratios followed by “process management”, “personnel management” and “project portfolio coordination and networking between projects”. The lowest *mature* ratios show the dimensions “assurance of the management quality in a project or programme” and “programme management”. The area is relatively homogeneous with the exception of the drop in “programme management” and “assurance of the management quality in a project or programme”.

Regarding the ratios of the different industries, the ICT industry ((Ø 14 POCs) has with 3.41 the highest *mature* ratio, while the NPO & Public Services industry (Ø 7 POCs) with 2.47 has the lowest. This shows that the current market situation is influencing the research results.

5.1.3 Analysis of project management-related services in Austria

The services provided by project management-related education, project management-related research and project management-related marketing institutions in Austria were analysed based on internet research and personal contact with representatives of the analysed institutions of the research team. The results of the project management-related services are illustrated in Figure 16:

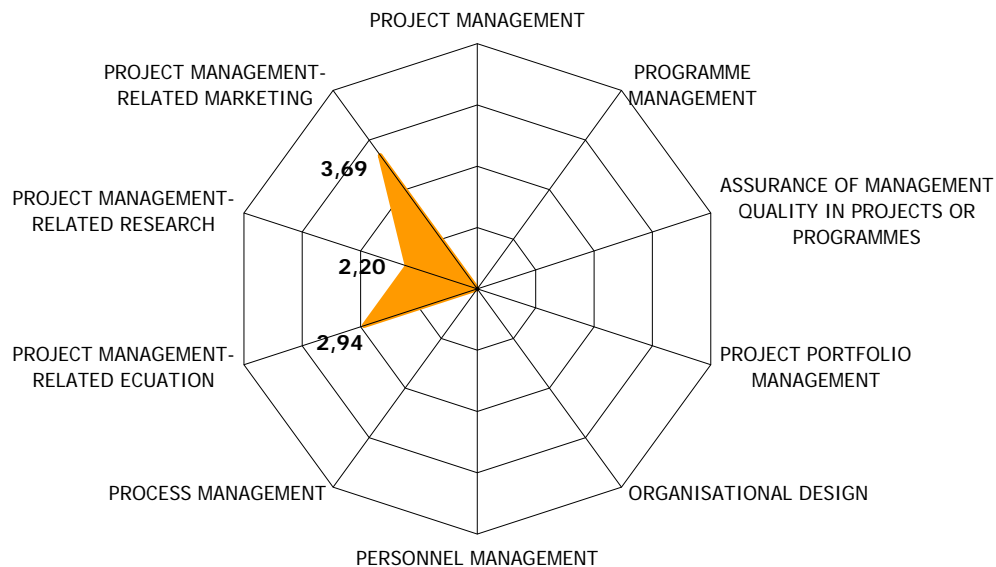


Figure 16: Mature ratios of the analysis of project management-related services in Austria

The highest *mature* ratio in Austria resulted in “project management-related marketing”, followed by “project management-related education”.

Austria’s project management-related education services have a mature ratio of 2.94. A formal project management-related education programme (emphasis placed on project and/or programme management with at least 6 ECTS) is offered by more than 30% of the vocational schools (commercial schools, schools concerning business matters, technical schools, ...) and of universities of applied science. Project management-related subjects are becoming more popular and are more commonly introduced to universities, although the adaptation of the syllabus is easier for vocational schools and universities of applied science. The trend towards a more intensive project orientation can also be observed in the postgraduate education sector as well as in continuing education. The courses and seminars offered by all education institutions all contain basic project management. The focus on programme management, project portfolio management, management of the project-oriented company, process management and social competences is rather low.

Project management-related research with a *mature* ratio of 2.20 is the lowest ratio regarding the services in Austria. It is mainly conducted by universities, although the number of universities of applied science performing project management-related research either as part of their study programme or in their competence centers is increasing. Between 2005 and 2006, 63 diploma theses and 5 PhD thesis have been written at Austria’s universities (of applied science) and 13 project management-related books have been published. The only project management-related research event is pm days, which is annually organised by

Roland Gareis Consulting and the PROJEKTMANAGEMENT GROUP. This event combines research and practice by offering different streams.

The highest *mature* ratio has the service project management-related marketing with 3.69. Marketing activities in Austria are mainly carried out by the project management organisations (such as different PMI Chapters and Projekt Management Austria), universities and universities of applied science.

5.1.4 Austria as a project-oriented nation

The *mature* ratio of Austria, including the average of the project management practices of the 76 project-oriented companies and the project management-related services such as education, research and marketing, is 2.88. The overall picture of Austria is shown by the orange area in Figure 7 which shows that the maturity is not homogenous.

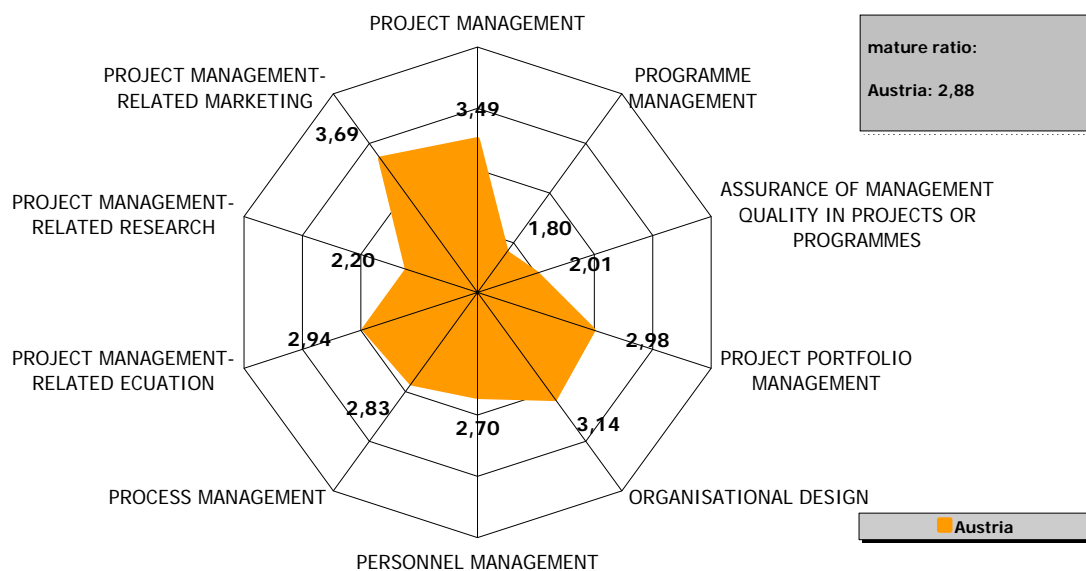


Figure 17: Spider web of Austria as a project-oriented nation

5.2 Maturity of Finland as a project-oriented nation

5.2.1 Organisation of research project in Finland

The research project *project orientation [finland]* was performed between 1st May 2005 and 15th June 2007 by the Project Management Association Finland, Finland.

The project owners were Rauno Puskala, Jyry Louhiso and Veikko Vällilä (Project Management Association Finland), project manager was Mikko Lehtonen, M.Sc.(Tech), M.Sc.(Econ) (Faustum). Project team members were Esa Koskelainen (PMA Finland).

The objectives of the reasearch project *project orientation [finland]* were:

- Analysing and benchmarking 20 Finish project-oriented companies
- Analysing of Finland as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Finland as a project-oriented nation
- Preparing Finland for the international benchmarking with other nations
- Presenting and publishing of the research results

5.2.2 Analysis of project-oriented companies in Finland

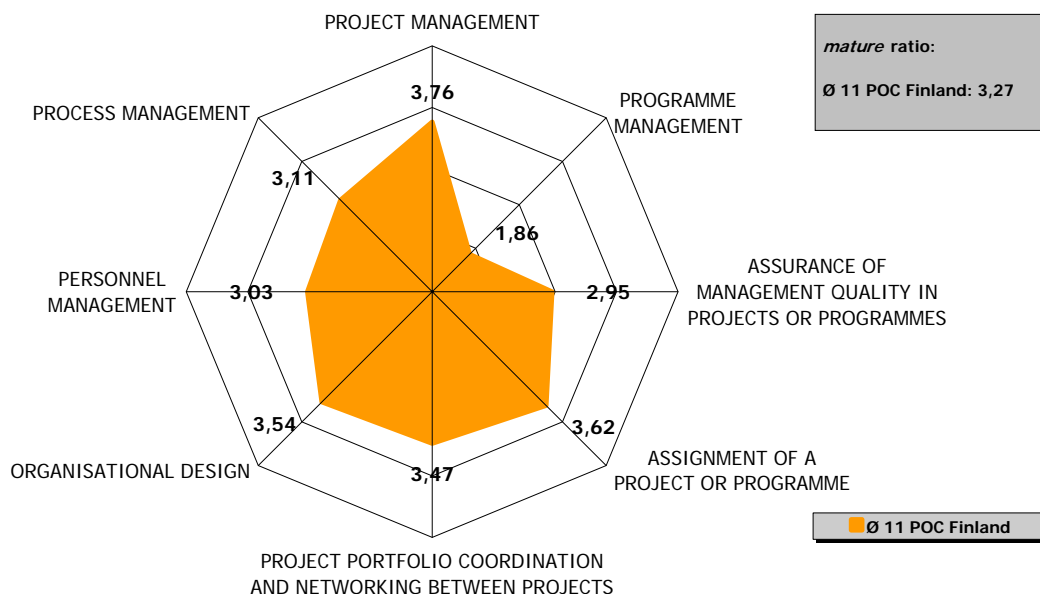


Figure 18: Average mature ratios of 11 analysed project-oriented companies in Finland

Eleven organisations were analysed in Finland with an emphasis on engineering organisation. Other industries analysed were biotechnology/pharmaceuticals, information technology, and construction. Overall, the maturity ratio of the analysed organisations was relatively high in most of the dimensions of the maturity model. The average maturity ratio was 3.27 and the range of maturity ratios of analysed companies was from 2.41 to 3.87.

Programme management was rarely used in organisations nor did the organisations perceive the need for it. If, however, programme management was perceived and used in the organisations, the maturity level was relatively high (2.79 – 3.74). Assurance of management quality in projects and programmes was also a new area for all the analysed organisations. However, there were different types of implementations of quality assurance activities in all organisations: benchmarking, using management consulting and even audits. Most of the practices related to this dimension were either informally implemented or were implemented through the overall structuring and management of projects. As a separate management process these activities did not exist in most organisation.

There seemed to be two ways of achieving a high maturity level in project management. Either through formalisation of the process and monitoring the use of the formal process or through experienced personnel. In some cases the process of project management was more a set of norms and experiences than a formal process description. Still, it contained the essential elements of the process as described in the maturity model, and it was followed meticulously.

5.2.3 Analysis of project management-related services in Finland

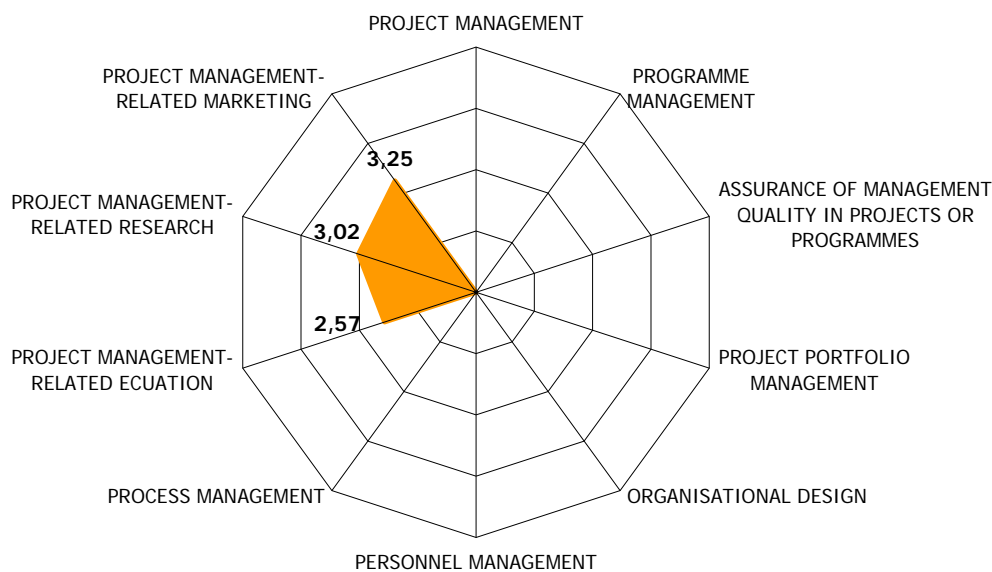


Figure 19: Mature ratios of the analysis of project management-related services in Finland

Project management education is provided by a number of institutions. There are few formal programmes on project management offering diplomas or degrees. Mostly project management research is offered as smaller training programmes alongside other fields of study. PhD students may focus on project management and related topics in at least six universities, which have a professorship on project management or a related field, and which conduct research projects on project management.

The level of project management research in Finland is relatively high. Research is conducted in at least six universities and dozens of master's thesis and approximately 5-10 PhD dissertations were produced. There is only one major project management related event yearly, the Project Days organised by PMA Finland every autumn. The Project Days is a

practitioner-oriented event, and no open research oriented events on project management are organised regularly. There are, however a large number of smaller workshops and seminars on project management research organised by the various research projects ongoing.

The project management associations have a fair number of members. The IPMA related PMA Finland has 1750 individual members and about 140 corporate members. The PMI chapter in Finland is smaller with some hundreds of individual members and some dozens of corporate members. Both associations have a wide variety of activities and there are in total some 1100 - 1200 certified project managers through the IPMA and PMI certification programmes.

5.2.4 Finland as a project-oriented nation

Overall, the maturity ratio of Finland as a project oriented nation is 3.17. We must emphasise that the results have been produced with a very small number of analysed organisations and are hence, at best, tentative.

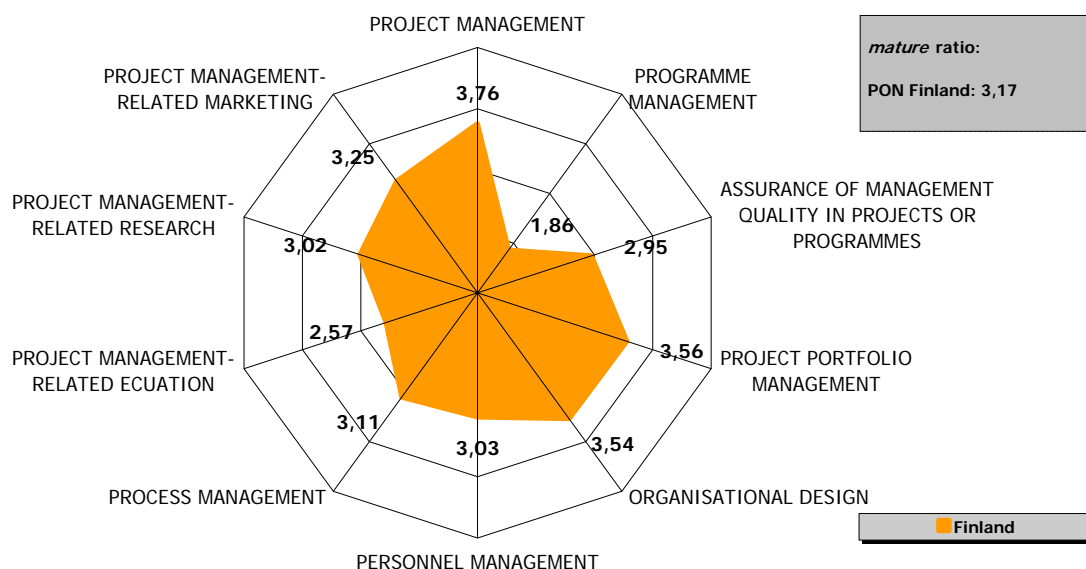


Figure 20: Spider web of Finland as a project-oriented nation

5.3 Maturity of Germany as a project-oriented nation

5.3.1 Organisation of research project in Germany

The research project *project orientation [germany]* was performed by the NORDAKADEMIE University of applied Science, Germany in the period of 01st Mai 2006 to 15th June 2007. The project was partly financed by the NORDMETALL Stiftung.

Project owner was Prof. Dr. Georg Plate and project manager was Prof. Dr. Arno Müller (NORDAKADEMIE). Project team members were Dipl.-Kfm. Jörg Jelinski (NORDAKADEMIE), Lars vonThienen (bps GmbH).

The objectives of the reasearch project *project orientation [germany]* were:

- Analysing and benchmarking 25 German project-oriented companies
- Analysing of Germany as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Austria as a project-oriented nation
- Preparing Germany for the international benchmarking with other nations
- Presenting and publishing of the research results

5.3.2 Analysis of project-oriented companies in Germany

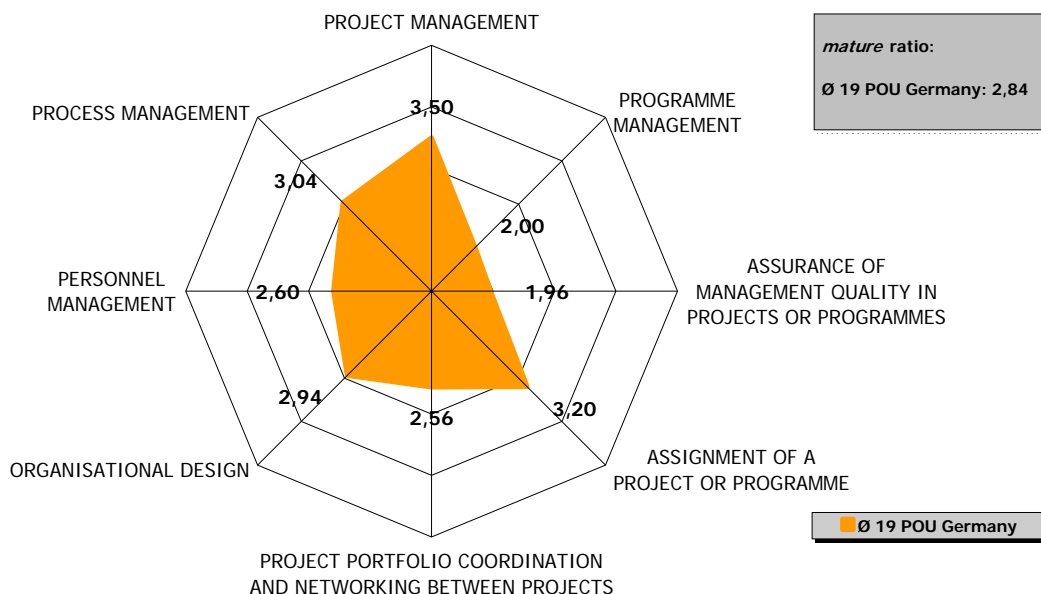


Figure 21: Average mature ratios of 19 analysed project-oriented companies in Germany

The dimensions "project management", "assignment of a project or programme" and "process management" have the highest *mature* ratios. The *mature* ratios of the dimensions "personell manangement" and "project portfolio" are in the mid range. Low *mature* ratios show the dimensions "assurance of the management quality in a project or programme" and "programme management". The small german group shows comparable results, like the austrian group.

5.3.3 Analysis of project management-related services in Germany

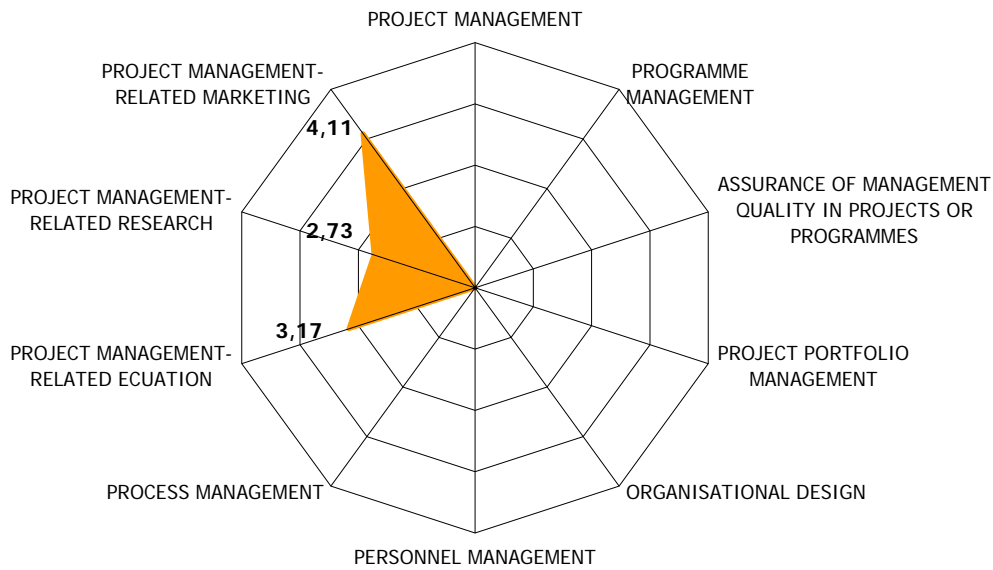


Figure 22: Mature ratios of the analysis of project management-related services in Germany

A very high *mature* ratio in Germany is given in “project management-related marketing”. Marketing activities in Germany are mainly carried out by the project management organisations (such as different PMI Chapters and Gesellschaft für Projektmanagement). Germany’s project management-related education services have a mature ratio of 3.17. Project management-related research with a *mature* ratio of 2.73 is the lowest ratio. It is mainly conducted by universities, although the number of universities of applied science performing project management-related research either as part of their study programme or in their competence centers is increasing.

5.3.4 Germany as a project-oriented nation

The maturity of the average of the project management practices of the 19 German project-oriented companies and the project management-related services is 3.01 (see Figure 23).

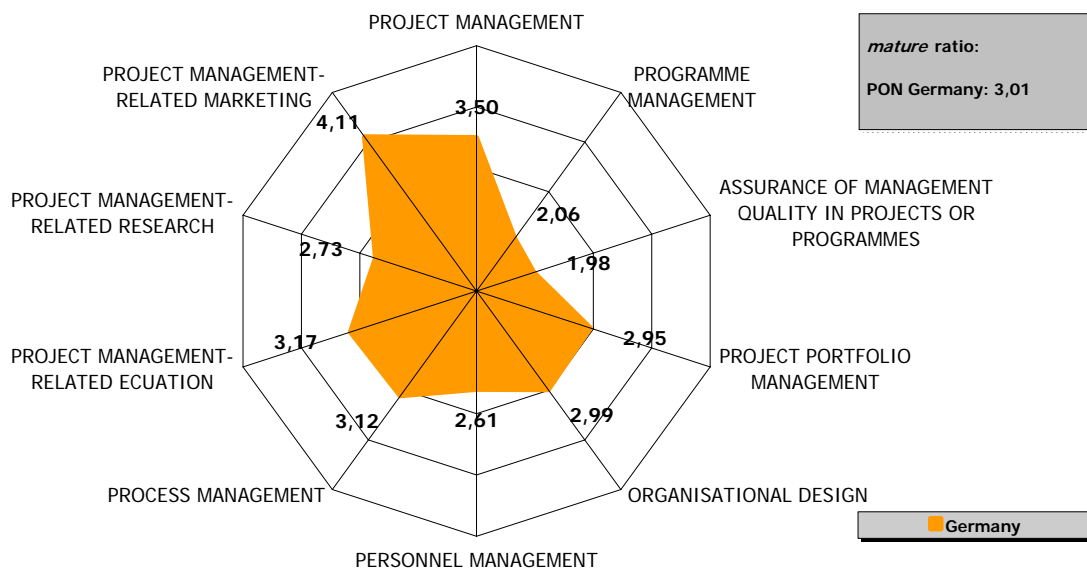


Figure 23: Spider web of Germany as a project-oriented nation

5.4 Maturity of Lithuania as a project-oriented nation

5.4.1 Organisation of research project in Lithuania

The project was started in January 2006 and was finished on 15th June 2007 by the ISM University of Management and Economics, Lithuania.

Upon signing the cooperation agreement with the PMG of the Vienna University of Economics and Business Administration, the project owner team Assoc.Prof.Dr. Alfredas Chmieliauskas (ISM University of Management and Economics) and the project manager Assoc.Prof.Dr. Vaidotas Viliunas (Vytautas Magnus University). Project team members were Assoc.Prof.Dr. Vytautas Buda and Rasa Stasiukynaite, MSc.

The cost of this research was partially funded by EU (Leonardo da Vinci programme). The total of 20 project-oriented companies has been acquired, surveyed and analysed.

The objectives of the reasearch project *project orientation [lithuania]* were:

- Analysing and benchmarking of 20 Lithuanian project-oriented companies
- Analysing of Lithuania as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Lithuania as a project-oriented nation
- Preparing Lithuania for the international benchmarking with other nations
- Presenting and publishing of the research results

5.4.2 Analysis of project-oriented companies in Lithuania

In the spider web of the model "project-oriented company *mature*" of Figure 24 the average *mature* ratios of the 20 Lithuanian project-oriented companies are displayed by the orange area. The overall *mature* ratio accounts for 2.52.

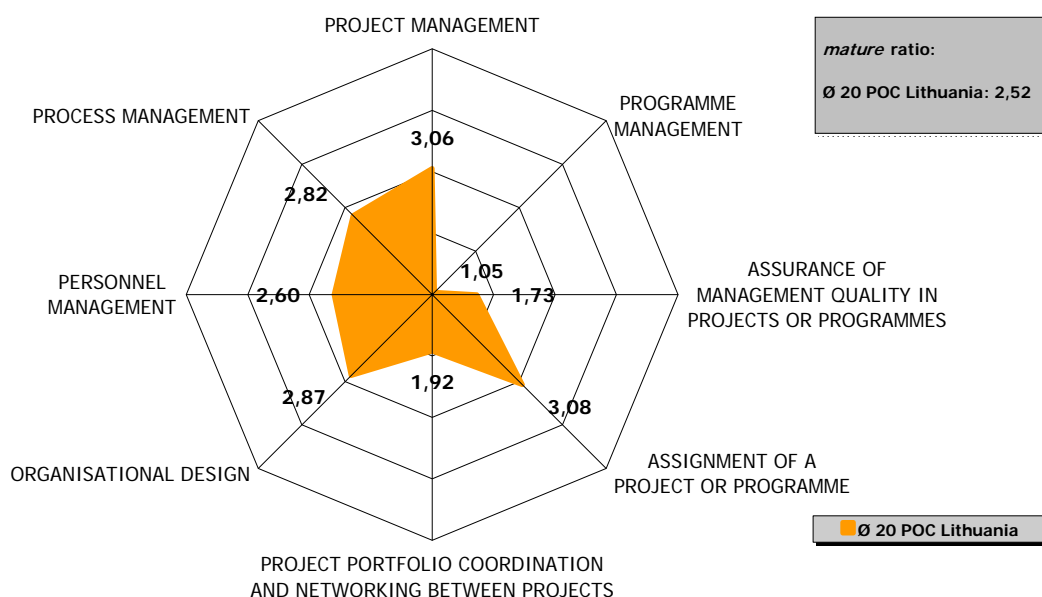


Figure 24: Average mature ratios of 20 analysed project-oriented companies in Lithuania

This survey revealed that most variation in survey results is by industry. Current worldwide tendency is to integrate project management into organisational strategy; formalize and standardize project management within organisation. Nevertheless, only roughly 50 percent of surveyed companies have the more or less formal internal project management standard.

Since assignment of the project or a programme scored the best results, further it is analysed more in detail.

The 20 Lithuanian companies have shown the maturity with the average score of 3.08 in the dimension „Assignment of the projects and programmes“.

In Lithuanian companies single projects are managed best, but it should not be a strategy of a project-oriented company. The only way to reinforce such organisation is an evaluation and analysis of an organisational project management maturity and development of the strategy of personal and organisational improvements of this kind. First of all certain general and project management related gaps should be identified to see and assess the situation. Most efficient way to do it is advice of proper business consultant combined with in-company trainings and business case analysis.

The main problem in managing single projects is discontinuity (change) management. Improvement of this kind requires understanding both project and change management as well as respective their tuning. Adequate well defined and coordinated processes should be formalized and implemented. Certain database system should be operational together with templates.

The main problem is management of multiple projects:

- programme management;
- project portfolio management.

Programme management proved to show the lowest results. Programme management and project portfolio management are areas still need development and formalization. Programme and portfolio management requires accumulation of experience and knowledge, and gradual development of certain personnel and particularly organisational project management maturity. Programme management development process takes time because is related with the certain scale and scope of projects, and depends on development of certain organisational culture.

Despite of implementation of quality management standards and business management systems, project quality management scores of Lithuanian surveyed companies are relatively low. Improvements in this area require additional efforts to define project quality measures and link project management processes to entire management systems.

5.4.3 Analysis of project management-related services in Lithuania

After analysing the questionnaire “Maturity of the project-oriented Nation” dealing with the project management-related services, following spider web was generated:

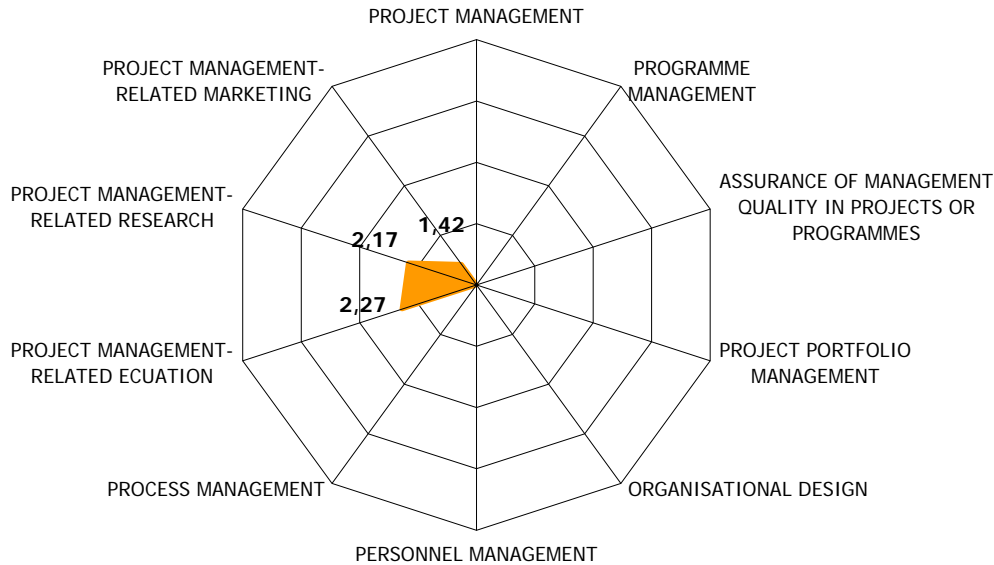


Figure 25: Mature ratios of the analysis of project management-related services in Lithuania

Project management was presented and taught as separate training course for managers in the system of continuing education before 1995. Since then project management course was started to introduce into curricula's of Graduate Programmes of the very few Lithuanian universities. Secondary schools also starting slowly accustom themselves with the basics of project management, but still not in a systemized way. Project management education is mostly developed in the system of continuing and executive education at the time being. Here is no any entire project management degree programme so far.

Regarding the structure of project management courses main emphasis is concentrated on the project management itself and some on process management issues as usual. Less attention is paid to the programme management, project portfolio management, management of the project-oriented company and development of social competences in most cases. Consulting companies mainly offer coaching of project managers and project teams as well as process management services. Just few of consulting companies are able to advise companies how to develop them into project-oriented companies.

The demand and offer of formal project management-related education is still rather limited. Just international companies are looking for certified project managers. Therefore there are just a few PMI Project Management Professional's (PMI PMP®) and none qualified by IPMA certificate in Lithuania so far.

Despite the popularity of project management position in companies, project managers profession as such is just starting to be recognized publicly. Celebration of international professional project manager's days was first time initiated in 2006.

Project management-related research is still considered as specific and is seldom event is developing just in few universities.

Maturity of project management related market is in initial phase in Lithuania. Demand of nationally and even internationally recognized certification is still very low, therefore the development and growth of Lithuanian Project Management Association (established in 2004) and national project management standard system is rather modest and not rapid.

5.4.4 Lithuania as a project-oriented nation

The *mature* ratio of Lithuania, including the average of the project management practices of the 20 project-oriented companies and the project management-related services such as education, research and marketing, is 2.35.

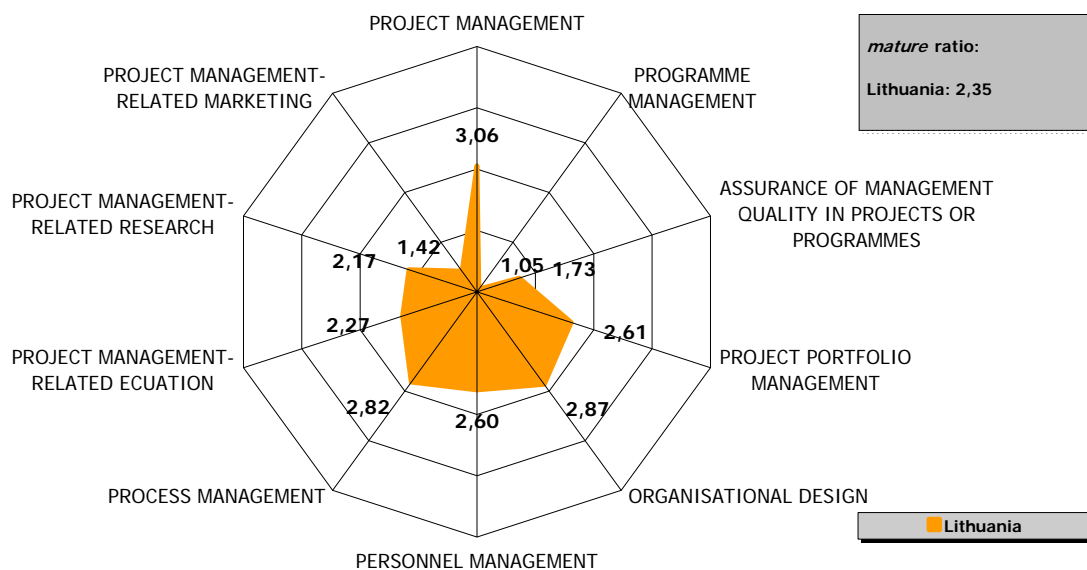


Figure 26: Spider web of Lithuania as a project-oriented nation

5.5 Maturity of Romania as a project-oriented nation

5.5.1 Organisation of research project in Romania

The research project *project orientation [romania]* has been executed by the ROLAND GAREIS **CONSULTING** srl, Romania from 12th September 2006 until 15th June 2007.

Project owner was Univ.Prof.Dkfm.Dr. Roland Gareis (ROLAND GAREIS **CONSULTING** srl), project manager was Mag.(FH) Eva Füssinger (PROJEKTMANAGEMENT **GROUP**). Project team members were Dr. Alina Bargaoanu (National University of Political and Administrative Studies), Loredana Calinescu (National University of Political and Administrative Studies), Dr. Iulian Intorsureanu (ROLAND GAREIS **CONSULTING** srl), Elena Lates (ROLAND GAREIS **CONSULTING** srl), and Dr. Violeta Simionescu, MBA (ROLAND GAREIS **CONSULTING** srl).

The objectives of the reasearch project *project orientation [austria II]* were:

- Analysing and benchmarking 15 Romanian project-oriented companies
- Analysing of Romania as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Austria as a project-oriented nation
- Preparing Romania for the international benchmarking with other nations
- Presenting and publishing of the research results

5.5.2 Analysis of project-oriented companies in Romania

In Figure 27, the spider web of the model "project-oriented company *mature*", shows the average maturities of the 16 project-oriented companies analysed in Romania. The overall *mature* ratio accounts for 2.00.

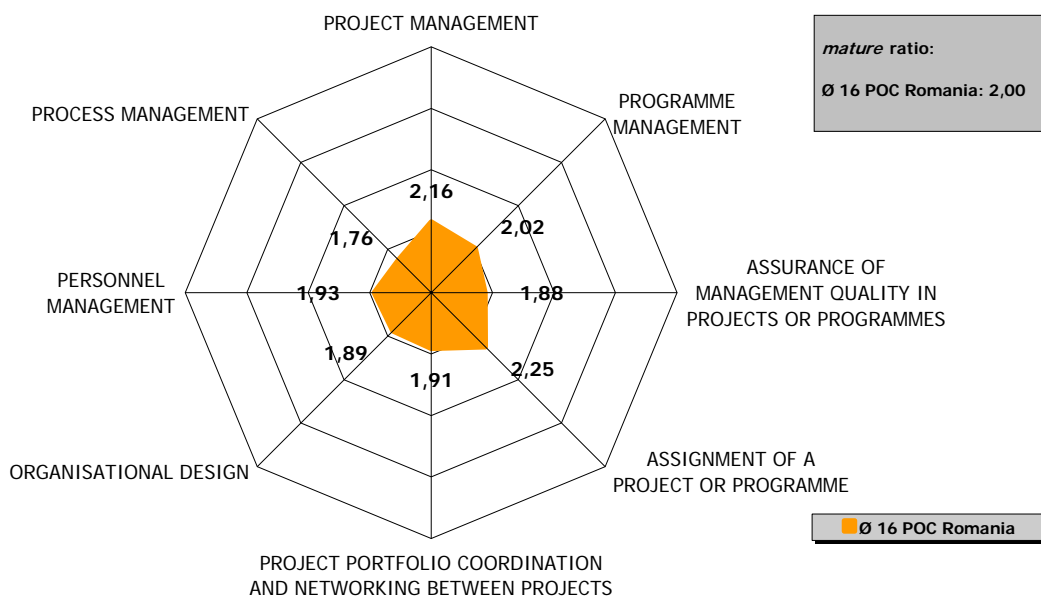


Figure 27: Average mature ratios of 16 analysed project-oriented companies in Romania

The orange area in Figure 27 shows that Romania's project orientation of the project management practices is very homogenous except for the peaks in "assignment of a project or programme", which is due to the bureaucracy, and in "project management" and the drop in "process management".

Table 18 shows the mature ratios of the three defined industries "Consulting & IT", "Engineering construction" and "Public services" in comparison with each other as well as the average of the 16 analysed companies:

	Ø 8 POC Engineering Construction	Ø 5 POC Public Services	Ø 16 POC Romania	Ø 3 POC Consulting & IT
<i>mature ratio</i>	1,91	2,00	2,00	2,26
PROJECT MANAGEMENT	2,00	2,20	2,16	2,45
PROGRAMME MANAGEMENT	1,78	2,22	2,02	2,34
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR PROGRAMMES	1,83	1,81	1,88	2,14
ASSIGNMENT OF A PROJECT OR PROGRAMME	2,25	2,27	2,25	2,22
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN PROJECTS	1,88	1,87	1,91	2,06
ORGANISATIONAL DESIGN	1,84	1,77	1,89	2,19
PERSONNEL MANAGEMENT	1,83	1,86	1,93	2,31
PROCESS MANAGEMENT	1,60	1,74	1,76	2,23

Table 18: Mature ratios of the different industries and the average of the analysed Companies

5.5.3 Analysis of project management-related services in Romania

The project management-related services of Romania are shown in the spider web presentation in Figure 14

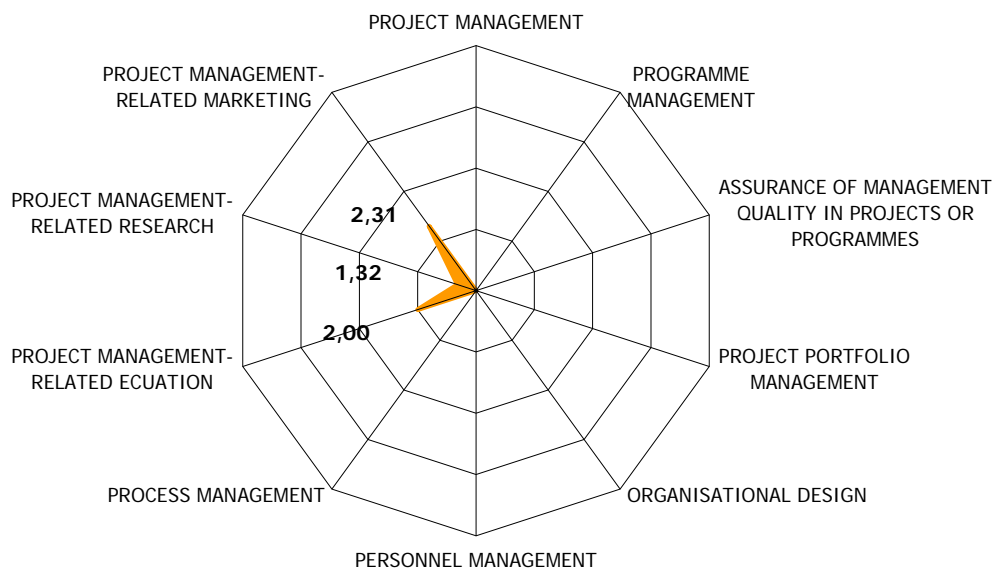


Figure 28: Mature ratios of the analysis of project management-related services in Romania

Project management related education: In Romania project management is not taught in elementary schools. Project management is considered to be a very specialized field, suitable for academic syllabuses and courses. High schools do not have project management courses in their syllabus. This is due to the fact that syllabus in Romania's secondary schools are based on the National Curricula, edited by the Ministry of Education and Research. Starting from the National Curricula, courses and handbooks are elaborated. Optional courses are accepted only if they are complementary to the already established standard content (according to the National Curricula).

In Romanian Universities there are many separate project management courses that are offered either at graduate or undergraduate level. Such separate courses are affiliated with departments of European integration, engineering, IT, management and economic science (e.g. Faculty of Automotive, Academy of Economic Studies, Faculty of Journalism, Faculty of Communication and Public Relations). Until today it is not possible to obtain an academic degree in project management at a Romanian university. Currently, there are approximately 23 masters' programmes in project management throughout Romania. Given the short history and practice of project management in Romania, one can talk about a gap between the huge number of academic programmes and the realist number of specialists who are able to teach project management at university level (especially at graduate level).

Project management related research: A national institution coordinating project management-related research does not exist in Romania. Universities are mainly responsible for project management-related research.

The lack of a consistent project management related strategy is reflected in the number and relevance of Romanian PM Publications. The already small number of PM books written in Romanian does not have a strong research foundation and do not offer case studies taken from the Romanian market. There is no Romanian journal – be it professional or research focused – dedicated to Project Management or that has Project Management as a title.

Project management related marketing: The two project management associations – the Romanian Chapter of PMI and the Romanian Association of IPMA are still on the way to acquiring strength and visibility. In this context, it is to be noted that the most important Project Management event in Romania – PM Forum – is not organized by any of the two associations, but by a private training provider (CO-DECS). The strength of the associations – or its lack thereof – is reflected in the fact that there is no national lobbying to require certification for key project management positions.

5.5.4 Romania as a project-oriented nation

Based on the results of the research project *project orientation [romania]* strategies to further develop the project orientation of Romania as a project-oriented nation were defined in regard to project management practices and project management-related services.

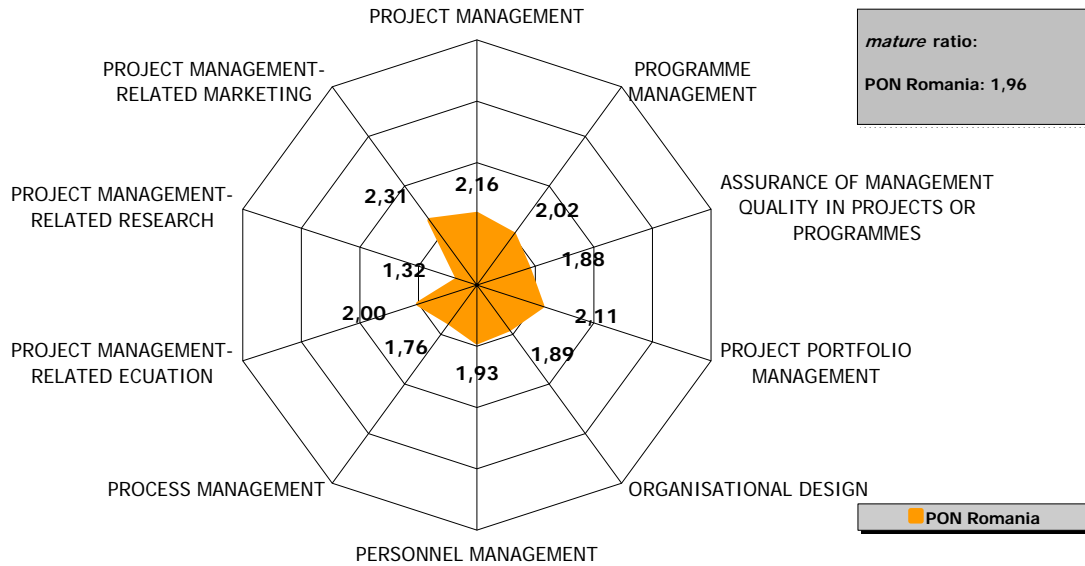


Figure 29: Spider web of Romania as a project-oriented nation

5.6 Maturity of Slovakia as a project-oriented nation

5.6.1 Organisation of research project in Slovakia

The research project *project orientation [slovakia]* has been performed by the PROJEKTMANAGEMENT **GROUP** of the Vienna University of Economics and Business Administration, Austria, in cooperation with the Project Management Association of Slovakia (SPPR) from 3rd November 2005 until 15th June 2007. The project was partly financed by the European Regional Development Fund (ERDF).

Project owner was Univ.Prof.Dkfm.Dr. Roland Gareis (PROJEKTMANAGEMENT **GROUP**), project manager was Mag.(FH) Eva Füssinger (PROJEKTMANAGEMENT **GROUP**). Project team members were Mag. Andrea Cerny (PROJEKTMANAGEMENT **GROUP**), Mag. Renate Prantner (PROJEKTMANAGEMENT **GROUP**), Jaroslav Prokop (Project Management Association of Slovakia – SPPR), Milena Staeva (PROJEKTMANAGEMENT **GROUP**), Ralf Strampfer (PROJEKTMANAGEMENT **GROUP**), Igor Travnik (Project Management Association of Slovakia – SPPR) and Sona Zajackova (PROJEKTMANAGEMENT **GROUP**).

The objectives of the reasearch project *project orientation [slovakia]* were:

- Analysing and benchmarking 10 Slovakian project-oriented companies
- Analysing of Slovakia as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Austria as a project-oriented nation
- Preparing Slovakia for the international benchmarking with other nations, especially the boarder region of Slovakia with the boarder region of Austria
- Presenting and publishing of the research results

5.6.2 Analysis of project-oriented companies in Slovakia

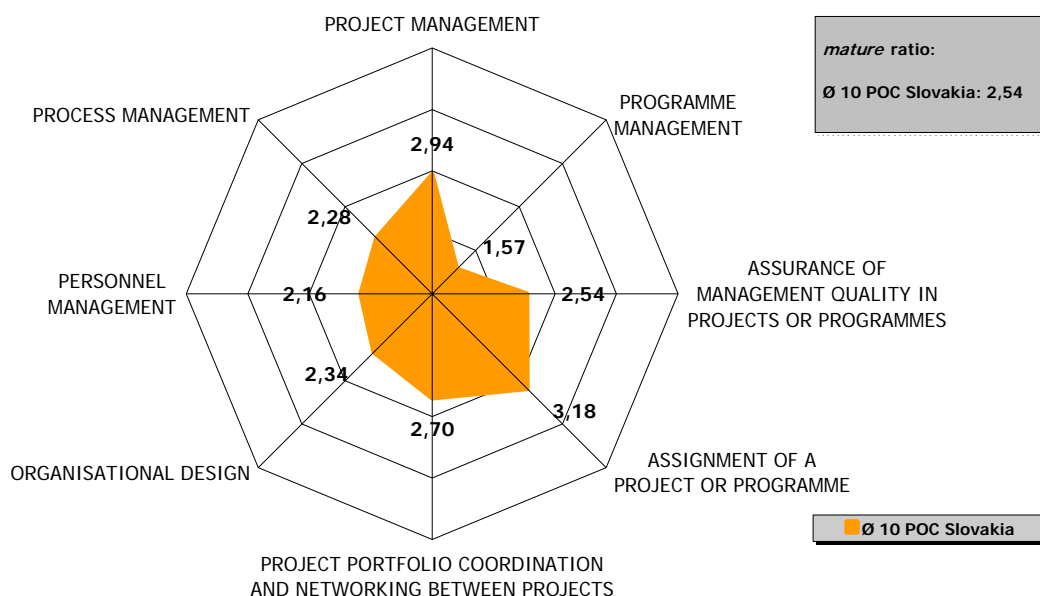


Figure 30: Average mature ratios of 10 analysed project-oriented companies in Slovakia

In Figure 30 average *mature* ratios of the 10 Slovak project-oriented companies are shown in the spider web of the model “project-oriented company *mature*”. The overall *mature* ratio is 2.54.

The highest *mature* ratios are given by the dimensions “assignment of a project or programme” and “project management”. The dimensions “project portfolio coordination and networking between projects”, “assurance of the management quality in a project or programme”, “organisational design”, “process management” and “personnel management” are ranked in the middle.

The maturity area is relatively homogeneous with the exception of the drop in “programme management” and the rise in “assignment of a project or programme”.

5.6.3 Analysis of project management-related services in Slovakia

Based on internet research and personal contact with representatives of the analysed institutions of the research team, the project management-related education, project management-related research and project management-related marketing services offered in Slovakia were analysed.

The generated research results, which have been filled in the questionnaire “Management of the project-oriented Nation”, are shown in Figure 31:

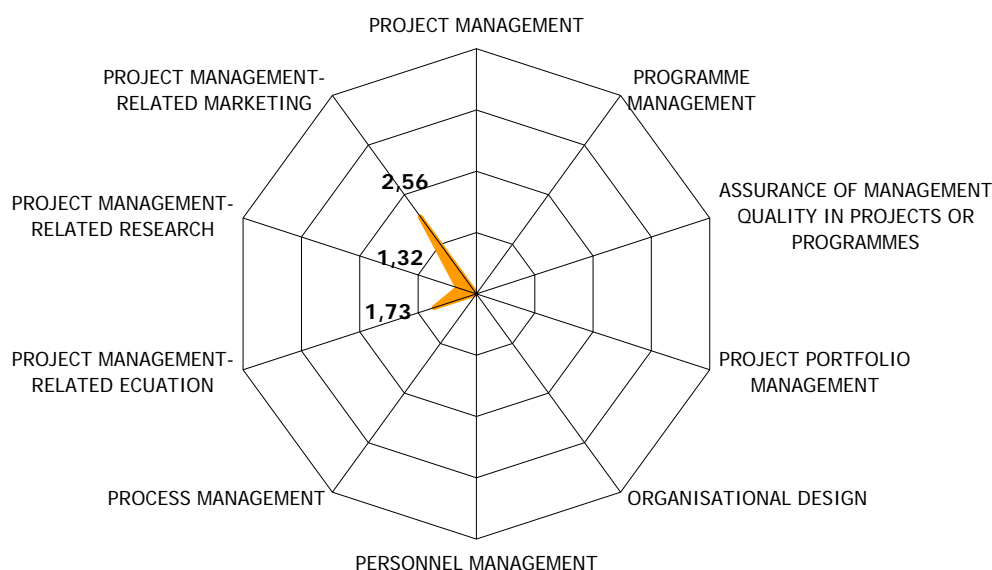


Figure 31: Mature ratios of the analysis of project management-related services in Slovakia

With 2.56 “project management-related marketing” shows the highest *mature* ratio regarding the project management-related services. “Project management-related education” has a maturity of 1.73. The lowest *mature* ratio is given by “project management-related research”.

Formal project management-related education programme (emphasis placed on project and/or programme management with at least 6 ECTS) are only offered by 10-19% of the universities and continuing education institutions. Secondary schools, vocational schools and

postgraduate educational institutions don't offer formal project management courses. The syllabus of these programmes always include the topic of project management and development of social skills, while project portfolio management and management of the project-oriented company is seldom thought. The possibility of certification is offered by the national IPMA project management association, Spolocnost Pre Projektove Riadenie"(SPPR).

Project management-related research with a *mature* ratio of 1.32 is the lowest *mature* ratio regarding the Slovak project management-related services. Only universities perform research projects and the publications are mostly books and articles in national journals for project management or business administration. But the need of research has been seen, therefore the SPPR cooperated in this national research project.

The *mature* ratio of the service project management-related marketing is 1.73. In Slovakia the national IPMA association performs most of the marketing activities as no Slovak PMI Chapter has been established yet.

5.6.4 Slovakia as a project-oriented nation

The 10 project-oriented companies and the project management-related services in Slovakia have a *mature* ratio of 2.34. The overall picture of the Slovakia is shown in Figure 32. The area in this spider web demonstrates that the Slovak maturity is spread inhomogeneous.

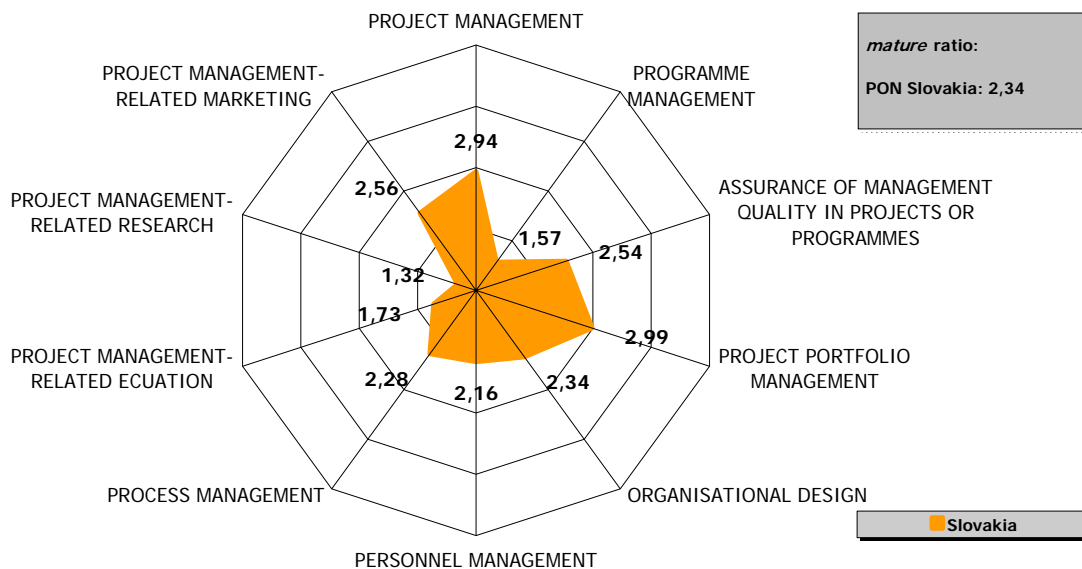


Figure 32: Spider web of Slovakia as a project-oriented Nation

5.7 Maturity of South Africa as a project-oriented nation

5.7.1 Organisation of research project in South Africa

The research project *project orientation [south africa]* has been performed by the University of the Free State in South Africa from 1st June 2005 until 15th June 2007.

Project owner was Prof. JJP Verster (University of the Free State), project manager was Benita Kotze (University of the Free State). Project team members were Prof. Dries Hauptfleisch (University of the Free State) and Jill Krueger (University of the Free State).

The objectives of the reasearch project were:

- Analysing and benchmarking 20 South African project-oriented companies
- Analysing of South Africa as a project-oriented nation
- Developing of strategies for further development of the project-oriented companies and Austria as a project-oriented nation
- Preparing South Africa for the international benchmarking with other nations
- Presenting and publishing of the research results

5.7.2 Analysis of project-oriented companies in South Africa

Figure 33 illustrates the average *mature* ratio of 21 project-oriented companies analysed in South Africa. The overall *mature* ratio is 3.11.

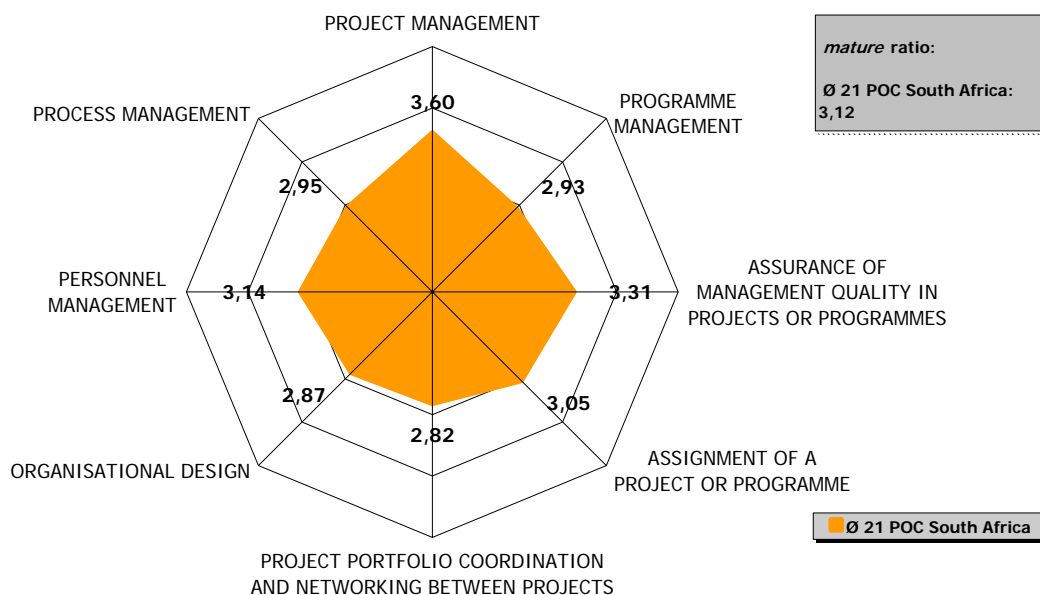


Figure 33: Average mature ratios of 21 analysed project-oriented companies in South Africa

The orange area in the above South African spider web is very homogenous as the *mature* ratios of all eight dimensions lie within 0.78. The 21 companies show their highest maturities in “project mangement”, “assurance or management quality in projects or programmes” and “personnel management”.

5.7.3 Analysis of project management-related services in South Africa

The project management-related education, project management-related research and project management-related marketing services were analysed by the national research team. The results are shown in Figure 34:

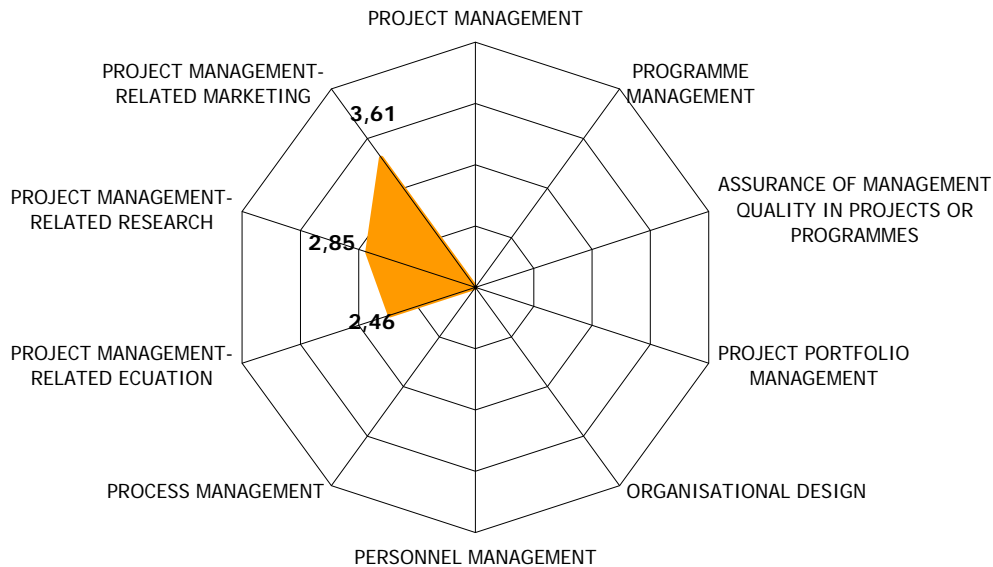


Figure 34: Mature ratios of the analysis of project management-related services in South Africa

The highest maturity in South Africa has “project management-related marketing”, followed “project management-related research” and “project-management-related ecuation”.

5.7.4 South Africa as a project-oriented nation

The *mature* ratio of South Africa, including the average of the project management practices of the 21 project-oriented companies and the project management-related is 3.08.

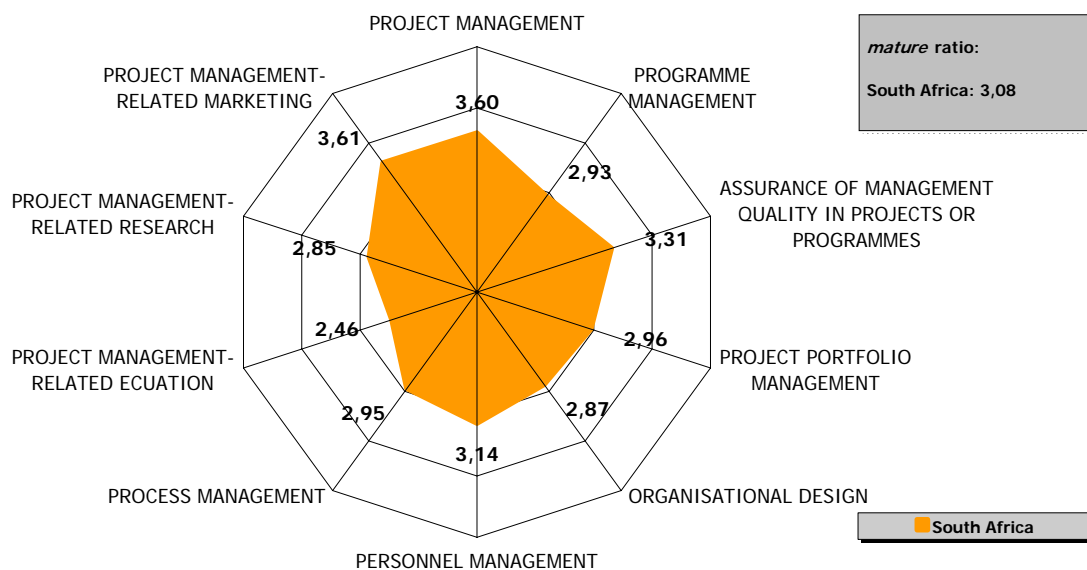


Figure 35: Spider web of South Africa as a project-oriented Nation

6. Benchmarking the project-oriented nations

In this chapter the results of the project management practices and project management-related services from the following seven nations are benchmarked: Austria, Finland, Germany, Lithuania, Romania, Slovakia and South Africa.

6.1 Benchmarking the practices of the project-oriented companies

The seven nations, which participated in this research programme, have analysed between 10 and 76 project-oriented companies in their national research project. The number of companies per nation is illustrated in Figure 36:

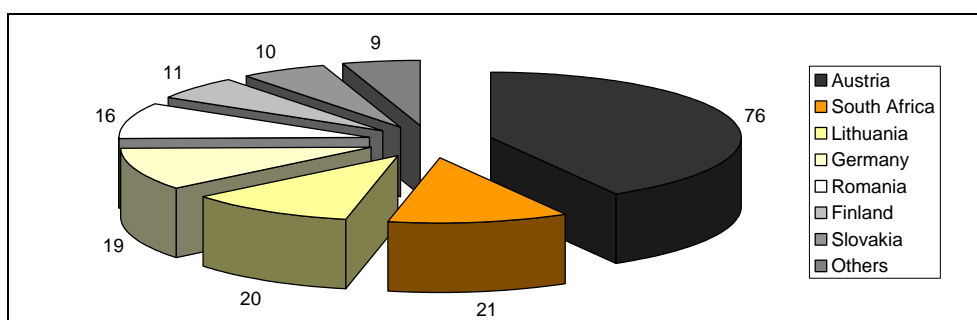


Figure 36: Number of analysed project-oriented companies

6.1.1 Overall results

The average *mature* ratios of the project-oriented companies per nation are shown in Table 19:

	Ø 16 POC Romania	Ø 20 POC Lithuania	Ø 10 POC Slovakia	Ø 19 POU Germany	Ø 76 POC Austria	Ø 21 POC South Africa	Ø 11 POC Finland
<i>mature ratio</i>	2,00	2,52	2,54	2,84	2,85	3,12	3,27
PROJECT MANAGEMENT	2,16	3,06	2,94	3,50	3,49	3,60	3,76
PROGRAMME MANAGEMENT	2,02	1,05	1,57	2,00	1,80	2,93	1,86
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR ASSIGNMENT OF A PROJECT OR PROGRAMME	1,88	1,73	2,54	1,96	2,01	3,31	2,95
PROJECT PORTFOLIO COORDINATION AND NETWORKING BETWEEN	2,25	3,08	3,18	3,20	3,18	3,05	3,62
ORGANISATIONAL DESIGN	1,91	1,92	2,70	2,56	2,67	2,82	3,47
PERSONNEL MANAGEMENT	1,89	2,87	2,34	2,94	3,14	2,87	3,54
PROCESS MANAGEMENT	1,93	2,60	2,16	2,60	2,70	3,14	3,03
	1,76	2,82	2,28	3,04	2,83	2,95	3,11

Table 19: Benchmarking table of the mature ratios of the project management practices

The nations are classified by the overall *mature* ratio. This shows that Romania has the lowest maturity and Finland the highest. Regarding the dimensions “programme management” and “assurance of management quality of projects or programmes” a drop is given with most nations.

6.1.2 Project management for internal and external projects

Project management for internal and external projects are compared in Figure 37:

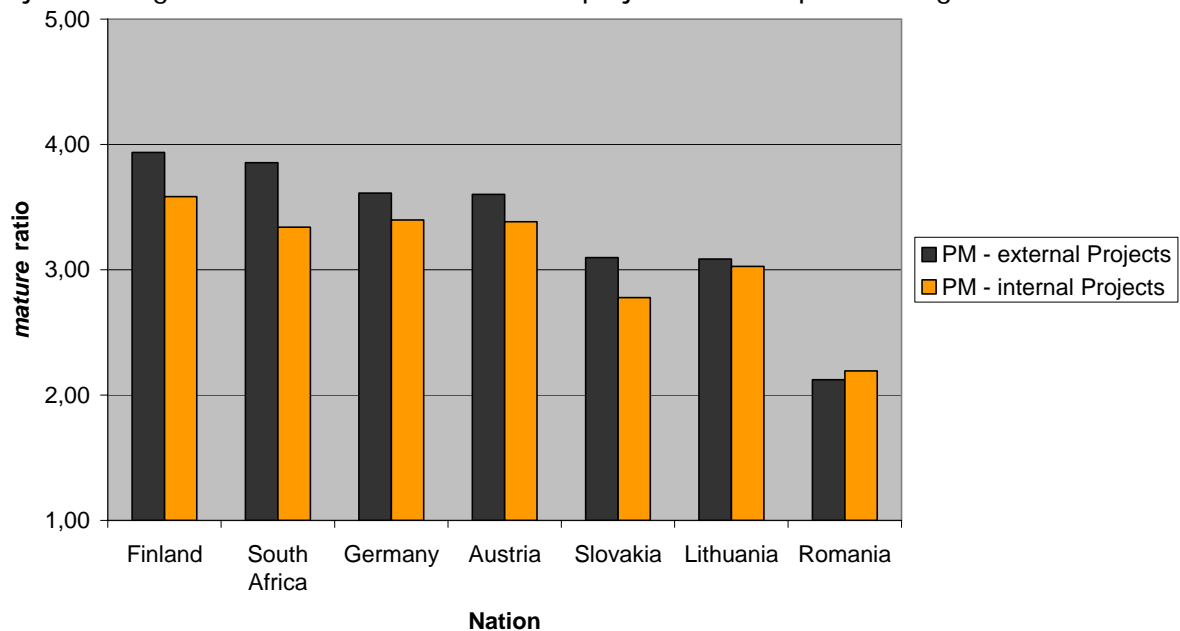


Figure 37: Internal vs. external projects

In all nations, but Romania it can be seen that the maturity of project management of external projects is higher than the one of internal projects. One reason might be that in external projects there are external clients and they have to be satisfied in order to get the money from them. Furthermore it is about the reputation to the outside world. Internal projects on the other hand are often put aside and not considered as important as they normally cost money and do not generate earnings directly.

6.1.3 Quality of the project results

The analysis of the quality of project results was part of the dimension "project management". In general the quality of the project results is relatively high. In Figure 38 the quality of the project results is related to the dimensions "project management", "organisational design" and "process management".

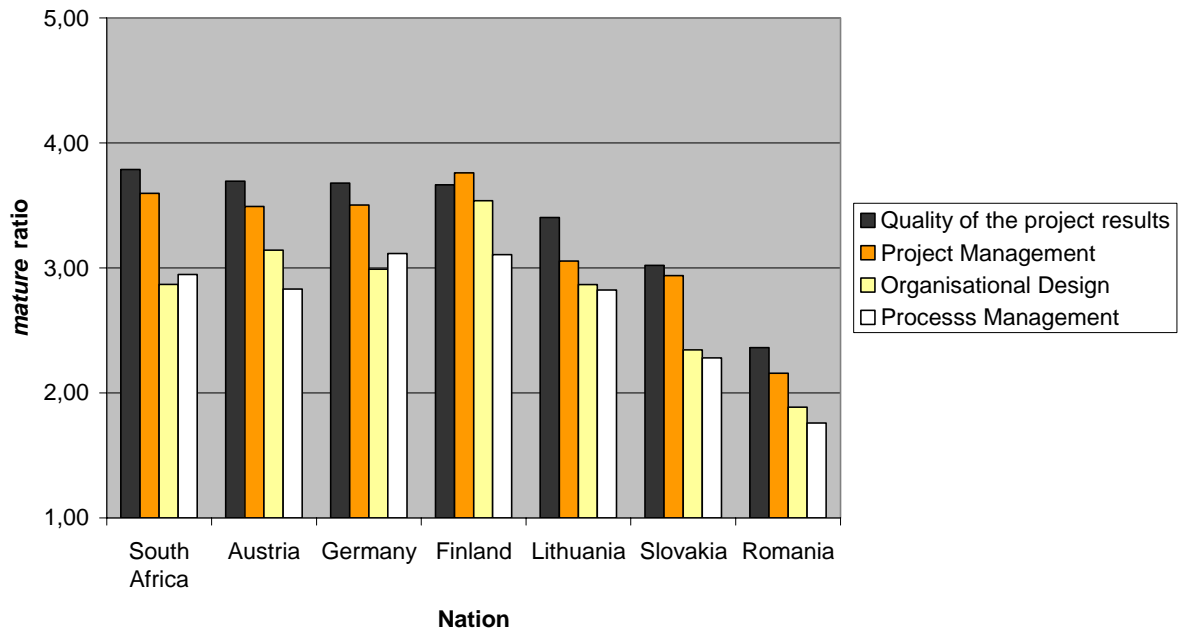


Figure 38: Quality of the project results

The higher the *mature* ratio of "organisational design" the higher is the maturity in "project management". This combined with a high maturity in process management might result in a high quality of the project results.

6.2 Benchmarking the results of the project management-related services

The project management-related services are shown in Figure 39 ranked by the the *mature* ratio in marketing of the countries:

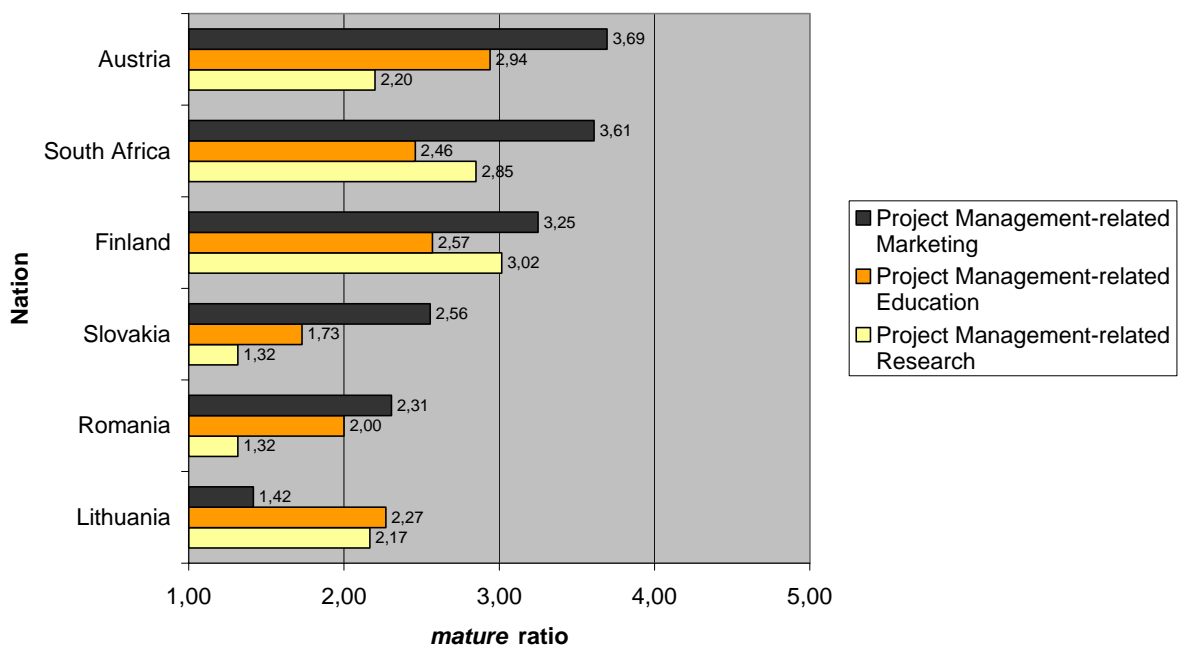


Figure 39: Project management-related services per nation

Project management-related marketing is the service with the highest mature ratio. This can be explained by the high intensity of activities performed by the marketing institutions (e.g.

associations, universities, etc.). In Lithuania a low maturity in marketing is given as there is no official national IPMA association and no PMI Chapter established yet and they are only at the beginning of promoting the discipline of project management.

Project management-related education has the second highest maturity.

Project management-related research shows the lowest *mature* ratio in all but two nations. The reason can be found that the discipline and profession of project management as to be promoted first and then people will become educated in this area. Only afterwards a focus on research is set.

6.3 Benchmarking the results of the project-oriented nations

In this chapter the practices of the project-oriented companies and the project management-related services have been aggregated in order to get the overall maturity of the each of the seven nations.

In the benchmarking table, Table 20, it is shown that Finland with 3.17 has the highest maturity and that the lowest mature ratio is 1.96 in Romania.

	Romania	Slovakia	Lithuania	Austria	Germany	South Africa	Finland
<i>mature</i> ratio	1,96	2,34	2,35	2,88	3,01	3,08	3,17
PROJECT MANAGEMENT	2,16	2,94	3,06	3,49	3,50	3,60	3,76
PROGRAMME MANAGEMENT	2,02	1,57	1,05	1,80	2,06	2,93	1,86
ASSURANCE OF MANAGEMENT QUALITY IN PROJECTS OR PROGRAMMES	1,88	2,54	1,73	2,01	1,98	3,31	2,95
PROJECT PORTFOLIO MANAGEMENT	2,11	2,99	2,61	2,98	2,95	2,96	3,56
ORGANISATIONAL DESIGN	1,89	2,34	2,87	3,14	2,99	2,87	3,54
PERSONNEL MANAGEMENT	1,93	2,16	2,60	2,70	2,61	3,14	3,03
PROCESS MANAGEMENT	1,76	2,28	2,82	2,83	3,12	2,95	3,11
PROJECT MANAGEMENT-RELATED EDUCATION	2,00	1,73	2,27	2,94	3,17	2,46	2,57
PROJECT MANAGEMENT-RELATED RESEARCH	1,32	1,32	2,17	2,20	2,73	2,85	3,02
PROJECT MANAGEMENT-RELATED MARKETING	2,31	2,56	1,42	3,69	4,11	3,61	3,25

Table 20: Benchmarking table of the mature ratios of the seven project-oriented nations

In Figure 40 the bar chart is ranked by the overall mature ratios and shows the ratios of the project management practices and project management-related services in comparison.

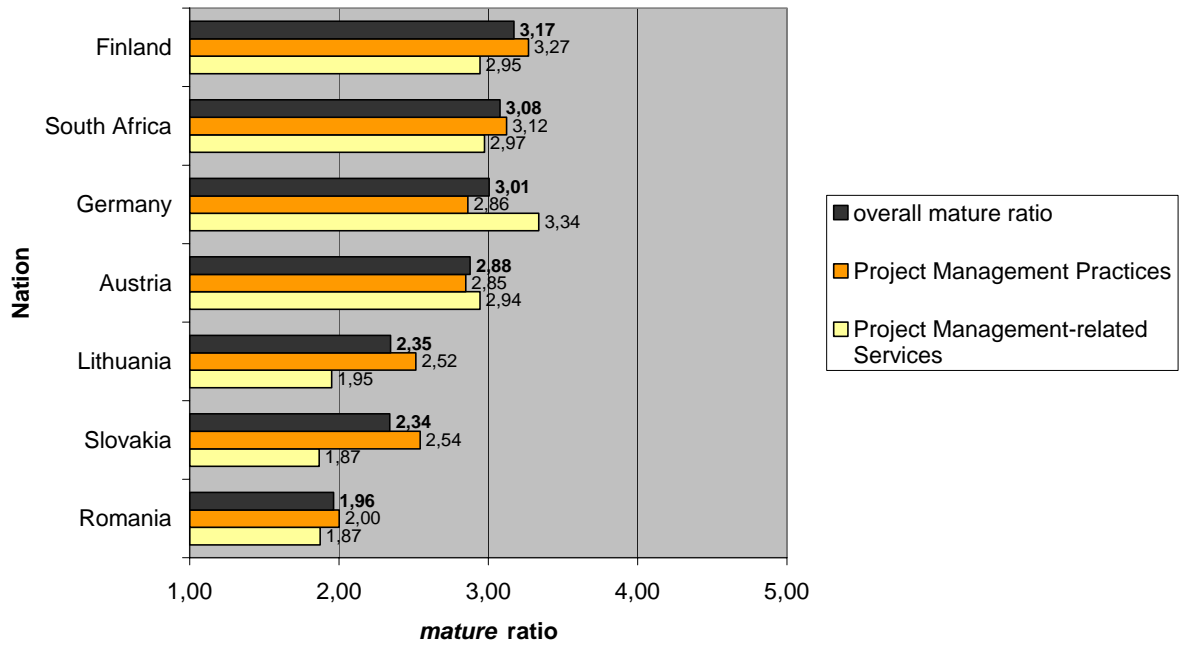


Figure 40: Project management practices vs. project management-related services

7. Strategies to further develop the project-oriented companies and nations

The strategies defined in this chapter are general suggestions, which have to be adapted to the needs of each project-oriented company and of each project-oriented nation to further develop themselves.

7.1 Strategies for the project-oriented companies

The further development of its practices is a concern of each project-oriented company. Here only general strategies, from which the companies can choose, are defined:

- Project and programme management as well as project portfolio management have to be explicit processes.
- The relationships between process management, project management, programme management and project portfolio management have to be considered, synergies can be created.
- Projects as a temporary organisations are not only to be used for the performance of customer-related processes, but also for internal processes, such as organisational and personnel development processes, marketing and infrastructure implementation.
- Management consulting and management auditing of projects and programmes allow to assure the management quality of projects and programmes.
- PM Offices and Project Portfolio Groups as new permanent organization structures help to formalize the project-orientation.
- Not only project managers but also project owners and project team members should be trained in project management and project portfolio management.

7.2 Strategies for project-oriented nations

Some general strategies for the further development of the project management-related services in a project-oriented nation are defined:

- Additional project management-related education programmes might be developed, depending on the demand of a nation. The syllabus of these programmes should include programme management, project portfolio management, management of the project-oriented company, process management and development of social competences.
- A broad promotion of project management in schools, universities (of applied science) families, municipalities, regions, etc. is possible.
- A focus on project management-related research has to be set. Research projects dealing with project management should be promoted and funded by funding agencies, project management associations, and project-oriented companies.
- The awareness of project management as a discipline and profession has to be promoted by further developing project management-related education and by performing more project management-related marketing.

- The existing project management-related marketing activities have to be revised and new ones should be developed, e.g. project management-related events. Furthermore the fostering of the project management certification can be seen as a step to promote the role of the “project manager” as a profession.
- A network for universities (of applied science), other educational and research institutions as well as project-oriented companies shall be established to promote project and process management-related research and education.

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