

Methodology



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INTRODUCTION

For more than 40 years, PAC (a teknowlogy Group company) has analyzed the IT market with a clear focus on the market for **software and IT services**.

Through our **European heritage** and our long-time **experience**, we are convinced that there is no such thing as *a global IT market*, but rather that the global market consists of **different local markets/countries** with different cultures, specifics, histories, and developments. Therefore, global market monitoring is only possible if the local specifics are taken into consideration. For this reason, in our market analyses, we pursue a **bottom-up approach**, complemented by **top-down analyses**.

In addition, the requirements for IT vary to a high degree, depending on the respective **industry sector**. In order to be able to address these various specifics in the best possible way, PAC decided very early (in the mid-1990s) to build know-how in each individual industry sector, and today employs several experts for each sector worldwide.

Finally, PAC has extended its coverage to **additional countries and regions** in the course of time, so that today we cover the **whole world**, either directly or in cooperation with our partners. This way we are able to better support our customers' internationalization on the one hand and, on the other hand, to better assess multi-national or even global trends – and their effects in individual countries and regions.

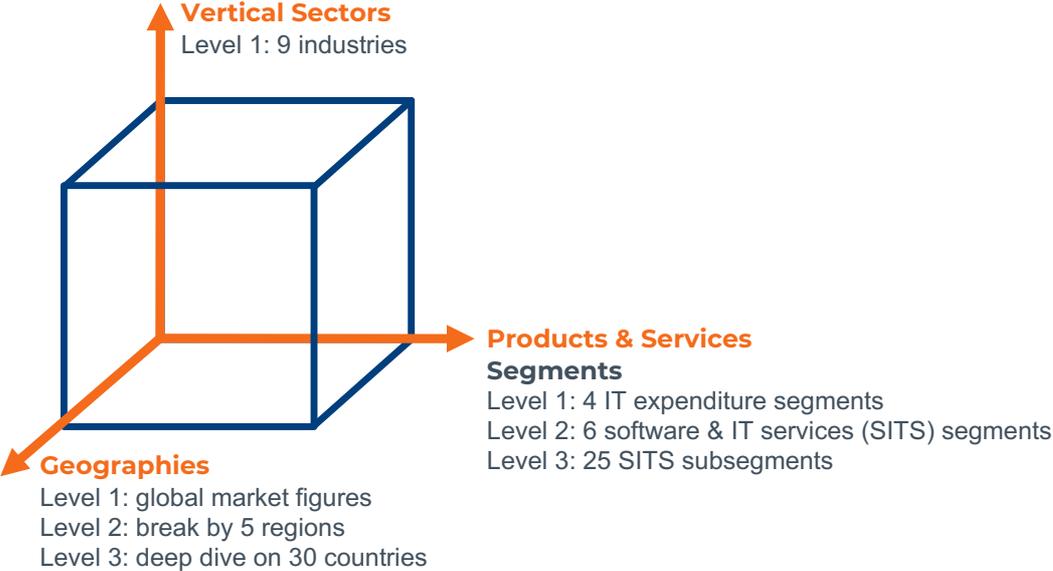
OUR REFERENCE MODEL

Our reference model is based on the following principles:

- A **unique and consistent basic segmentation** makes our data coherent and comparable (among other things across countries and vendors);
- Our market model is **permanently maintained and updated**. If required, **our segmentation is adjusted to the market development**.
- All our projects, even customer-specific analyses, are based on our reference model, which ensures high data accuracy.
- Vice versa, the results from customer-specific analyses flow back into our reference model.

Our reference model comprises market data by the following three dimensions, which are presented in more detail on the following page:

1. Products & services segments (Products & Services)
2. Industry sectors (Vertical Sectors)
3. Countries & regions (Geographies)



Products & services segments

IT MARKET

HARDWARE	SOFTWARE & IT SERVICES (SITS)					
	SOFTWARE PRODUCTS	IT SERVICES				
	Infrastructure Software & Platforms	Application Software Products	SaaS	Infrastructure-Related Services	Application-Related Services	Business Process Outsourcing
	Operating Systems	Office, Content & Collaboration	N3SM & Middleware	Infrastructure Support Services ¹	Application-related Project Services ²	
	Network, System, Storage and Security Management (N3SM)	Horizontal Business Applications (incl. BI)	Office, Content & Collaboration	Infrastructure-related Project Services ²	Application Management	
	Middleware	Vertical Business Applications	Horizontal Business Applications	Infrastructure Outsourcing Services ³		
		Technical Applications	Vertical Applications			

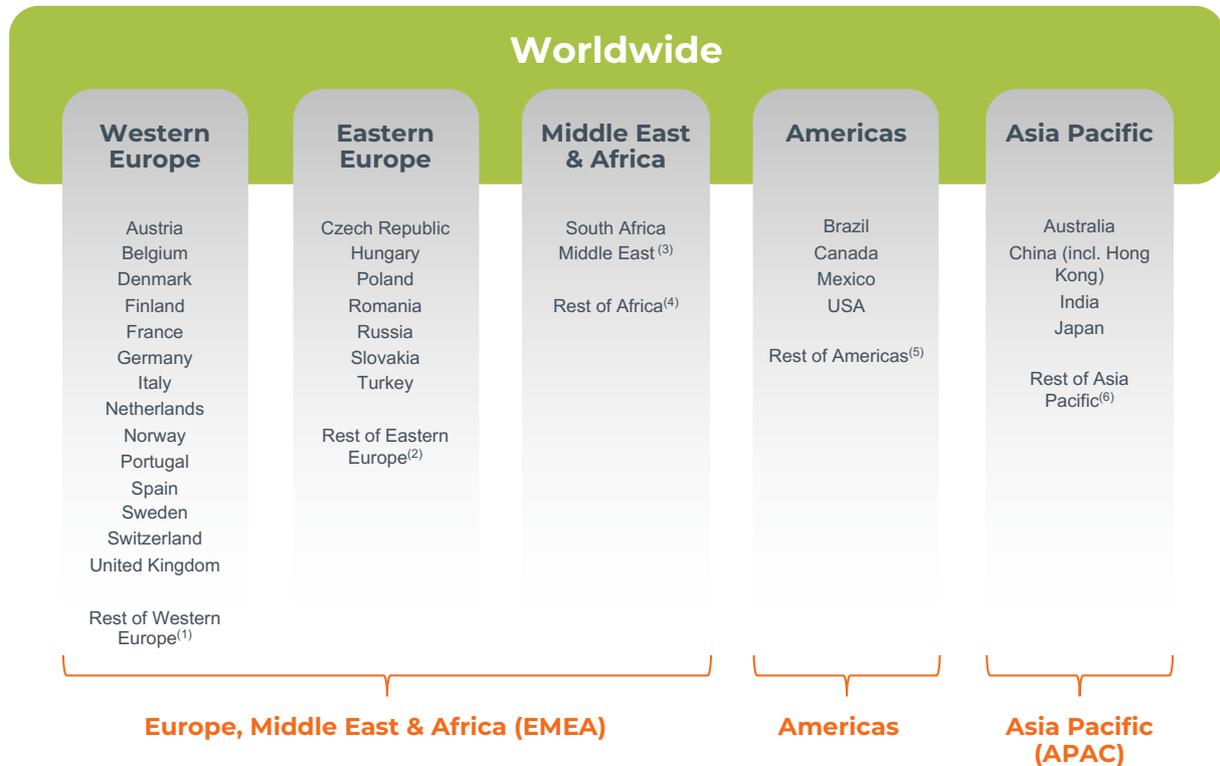
¹ Hardware Maintenance; Field Services and Services Desk
² Consulting; Systems Integration; Training
³ End-user Devices Outsourcing; Data Center Outsourcing & Hosting; Managed Data Center Services; Public IaaS/PaaS

Industry sectors

VERTICAL SECTORS

Manu- facturing	Banking	Insurance	Public Sector	Telecom	Utilities	Retail & Wholesale	Services & Consumers	Transport
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Countries & regions



(1) Rest of Western Europe incl. Greece, Iceland, Ireland, Liechtenstein, Luxembourg, Malta

(2) Rest of Eastern Europe incl. Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Cyprus, Estonia, Georgia, Latvia, Lithuania, Macedonia, Moldova, Serbia & Montenegro, Slovenia, Ukraine

(3) Middle East incl. Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen

(4) Rest of Africa incl. Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Cote d'Ivoire, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of Congo, Rwanda, São Tomé und Príncipe, Senegal, Sierra Leone, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe

(5) Rest of Americas incl. Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

(6) Rest of Asia Pacific incl. Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Indonesia, Kazakhstan, Kiribati, Kyrgyz Republic, Lao, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Samoa, Seychelles, Singapore, Solomon Islands, South Korea, Sri Lanka, Taiwan, Tajikistan, Thailand, Timor-Leste, Tonga, Turkmenistan, Uzbekistan, Vanuatu, Vietnam

Our coherent reference model consists of:

- **Local vendor databases**, in which we assess the revenues of leading SITS (Software & IT Services) vendors by 11 products & services segments and 9 vertical sectors.
- **Local market models** with market figures for 25 products & services segments as well as for 8 basis segments by 9 vertical sectors (“matrix”).

Our reference model is based on **historical data on the market development** over the last 15+ years (and goes back as far as 1992 for Western European countries); our market scenario contains **forecasts for the next 4 years** and is **updated up to 2 times a year**.

In order to be able to deliver coherent key data, we compare the market models of the individual countries with each other as well as with the global model. Since every market is different and develops differently, it is essential to **recognize these differences, to understand them** – and to demonstrate them.

Likewise, the local vendor positionings are consolidated and compared to the “corporate data” at worldwide level. Here, too, it is essential to understand the differences and to ensure the coherence of the data.

The results from this **gradually implemented top-down- and bottom-up approach** is a globally coherent reference model with market and vendor assessments.

On the basis of our reference model, we have developed **related market models, which** are updated at regular intervals. Examples would be market figures in individual segments by:

- **Employee head count** in organizations (e.g. < 10, 10-99, 100-499, 500-999, 1,000-1,999, 2,000-5,000, > 5,000);
- **Sub-segments** (e.g. public sector by federal government, states & communities, defense, and health care; or manufacturing by automotive, aerospace, electronics, mechanical & plant engineering, construction, metal, chemical, pharmaceutical, mining, oil & gas, food & beverages, textile);
- **Topics** (e.g. CRM/ Customer Experience, SCM, PLM, BI/ Analytics/ Big Data, Finance & Accounting, HR, UCC, IoT split in 10 contexts, AI, Agile/ DevOps, Cloud Computing related services, cyber security, industry solutions; industry-specific topics in individual sectors, such as manufacturing or banking);
- Topics in individual sectors (“matrix”);
- Employee head count in individual sectors (“matrix”);
- Service types in individual sectors (“matrix”).

In addition to these turnover-related assessments, we cover **further key figures**:

- **Prices:** e.g. daily rates by competence profiles, industry sectors and countries;
- **Resources:** e.g. by competence profiles and countries;
- **Profitability of individual vendors:** e.g. by services and countries.

The quantitative vendor databases and market models are obviously complemented by **qualitative analyses**. Our **SITSI® program** is the appropriate reference here: our **market reports** and **company profiles** provide for a comprehensive analysis of the market and the vendors’ development in the individual products & services segments, industry sectors, countries as well as at global level.

For customer-specific market analyses & consulting projects, we use our reference model’s data and analyses as a starting point and, on the basis of our long-time experience in projects and market reports (more than 500 per year), we launch dedicated research, interviews and surveys. After finishing the project, the reference model will be adjusted, where appropriate, with newly gained insights.



OUR METHODOLOGY

The structured methodology developed by PAC guarantees **realistic and consistent data**, which we compile in our reference model.

The basis of our methodology is our **local view on the IT market**, which requires a comprehensive analysis of the economic structure, situation and development, among other things by means of economic data of the respective country.

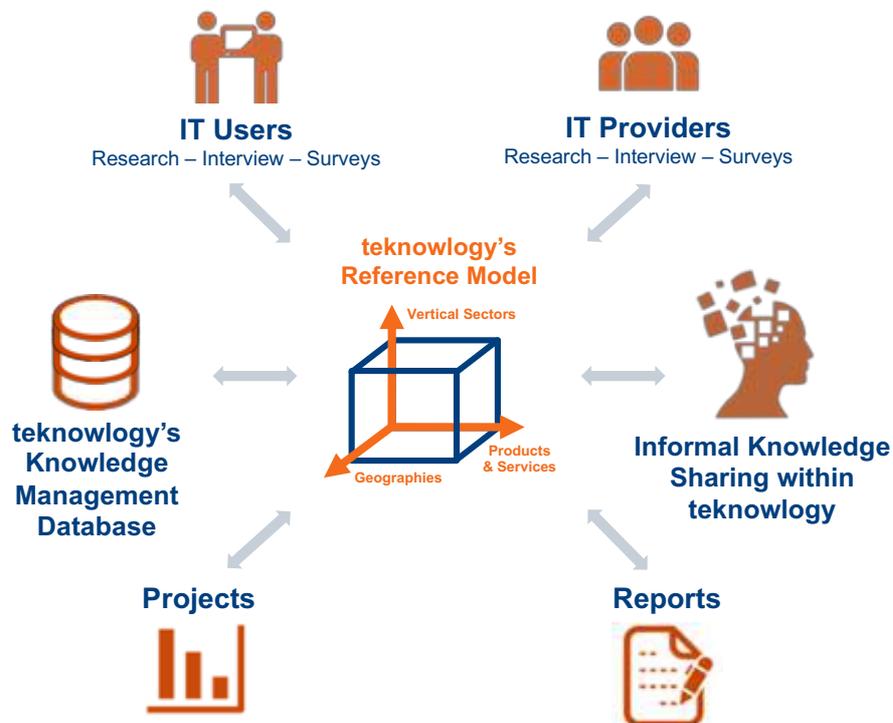
Interviews

Each year, we conduct **several thousand expert interviews (in particular face-to-face) with decision makers on the IT vendors' and IT buyers' sides**; together with our partners' work these are more than 5,000 interviews! These interviews are exclusively conducted by experienced analysts, who are familiar with the market reality and thus are able to critically examine the statements made. In our interviews, there is an open exchange of views with the organizations' management on market developments, trends and expectations as well as success factors and challenges.

Through the **interviews with IT vendors** we gain a profound understanding of the organization, portfolio, and the market positioning of the relevant vendors. This way we can assess the revenue information by different dimensions. Moreover, we discuss the market perspectives and outline our market development scenario.

In our **talks with IT buyers** (e.g. CIOs, IT managers, LoB managers), our objective is to understand the role of IT in the organization and the corresponding IT strategy, as well as to gain an overview of ongoing and planned projects and strategic decisions. Furthermore, there is an exchange of thoughts on the buyers' experience with IT vendors and their criteria for vendor selection.

The expertise gained in our interviews and discussions flows back into our reference model and thus in all our reports and projects.



Surveys

In addition, we conduct **more than 100 surveys per year** (via telephone or web-based – partly in cooperation with partners), mainly with IT buyers, but also with IT vendors, representing nearly **10,000 completed questionnaires**. These surveys among other things serve the purpose to validate our assessments and scenarios.

Research

Furthermore, **research** builds an important basis for our reference model. On the one hand, we use economic data and forecasts from renowned sources, such as the EU, IMF, OECD, World Bank as well as local economic research institutes. On the other hand, we evaluate more than 1,000 business and financial reports of market players each year and, in addition, consider press releases and articles in business and economic magazines and monitor numerous other sources like social networks.

Quality assurance

All data (vendor and buyer data) is, as described in the OUR REFERENCE MODEL section, analyzed with due diligence and incorporated in our reference databases (vendor database respectively market model) at regular intervals.

The plausibility, coherence, and topicality of the data are checked by the following senior analysts at regular intervals (at each update of the market scenario, and within the framework of major projects):

- At country level by the responsible **country analyst**;
- At industry sector level by the responsible **sector analyst**;
- At products & services level by the **analyst responsible for the respective segment**;
- Finally, by the **Chief Analyst** and his team.

ABOUT TEKNOLOGY GROUP

teknowlogy Group is the leading independent European research and consulting firm in the fields of digital transformation, software, and IT services. It brings together the expertise of three research and advisory firms, each with a strong history and local presence in the fragmented markets of Europe: [Ardour Consulting Group](#), [CXP](#) and [PAC \(Pierre Audoin Consultants\)](#).

We are a content-based company with strong consulting DNA. We are the preferred partner for European user companies to define IT strategy, govern teams and projects, and de-risk technology choices that drive successful business transformation.

We have a second-to-none understanding of market trends and IT users' expectations. We help software vendors and IT services companies better shape, execute and promote their own strategy in coherence with market needs and in anticipation of tomorrow's expectations.

Capitalizing on more than 40 years of experience, we operate out of seven countries with a network of 150 experts.

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