In Germany there are now many successful special applications of telemedicine. However, these projects are mostly not extendable to the whole nation because of the highly complex German healthcare system, limited funding, heterogeneous information technology (IT) standards in ambulatory and hospital care, the insufficient official electronic health card, different data protection and privacy regulations of federal and state governments, doubts of physicians and patients, as well as unequal costs and benefits for the different actors in telemedicine. The solutions of these problems are: better legal regulations for seamless interaction of ambulatory and hospital care, improved IT standards and support of the interoperability of telemedical and other healthcare IT, adaption of healthcare organization, workflow, and reimbursement for telemedicine services, and better information and education of all actors about the necessity and limits of telemedicine. There are no doubts about the benefits of telemedicine, but to achieve these advantages for the whole healthcare system in Germany will require much work, time, and good will.

Telemedicine is understood as meaning the use of telecommunications and informatics for medical applications. It is intended to improve the quality, economic efficiency, and transparency of medical care. Telemedicine uses the instruments of telematics to support communication and interaction between doctor and patient and between doctors within the framework of medical care over physical distances. Countless individual telemedical projects with often impressive solutions are increasingly being described around the world, for example ten times a year in the e-journal Telemedicine and e-Health [60.1] or for Germany in the annual anthology Telemedizinführer Deutschland (Telemedicine Guide, Germany) [60.2]. Important telemedical concepts and solutions are being developed by various scientific or practice-orientated professional societies and institutions or by industry, such as by the Deutsche Gesellschaft für Medizinische Informatik, Biometrie und Epidemiologie (the German Society for Medical Informatics, Biometry, and Epidemiology) [60.3], the Deutsche Gesellschaft für Gesundheitstelematik (the German Society for Health Telematics) [60.4] or the Deutsche Gesellschaft für Telemedizin (the German Society for Telemedicine) [60.5], as well as by many IT firms collectively in the Bundesverband Gesundheits-IT (the Association of IT Manufacturers in Health Care) [60.6] and by various institutions such as the Zentrum für Telematik im Gesundheitswesen (the Center for Telematics in Healthcare) [60.7], the Gesellschaft für Telematikanwendungen der Gesundheitskarte (gematik – the Society for Telematics Applications of Health Cards) [60.8], and the Deutsche Instituto für Medizinische Dokumentation und Information (DIMDI – the German Society for Medical Documenta-
German telemedicine differs considerably in some aspects from telemedicine in other countries and has different – unfortunately mostly less sufficient – characteristics, at least where cross-sector projects are concerned, such as the transfer of diagnosis codes, for example, from the hospital to the Kassenärztliche Vereinigung (KV; the local state association of statutory health insurance physicians)/health insurance company, sometimes with and sometimes without additional identifiers and naturally in a different syntax. The intention here is therefore to present the most important peculiarities of German telemedicine and its parameters so that the reasons for these differences also become clear.

### 60.1.1 Supporting Individual Projects

The introduction of new technologies into the healthcare system begins, as is completely sensible and practical, with small straightforward pilot projects. Even in the preliminary stages of a German telemedicine project back in the 1980s, for example, a radiological picture archiving and communication system (PACS) [60.18]