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### Market Overview: PACS

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#### Introduction

The market on a European level has been on a growth curve since almost five years now. The growth rates differ across geographies as the rates of adoption, implementation and regulations are not consistent. It is a good sign for the imaging industry in the developing markets on the whole, as the need for good technology is well recognised in such markets.

#### Market Cadence

The total European non-radiology PACS market is small when compared to the radiology PACS segments. The market size represented here is the value of only the total cost of the non-radiology PACS project, inclusive of software components, hardware, networking and implementation, consulting, training and professional services. It includes both departmental and enterprise-level non-radiology PACS applications. The total market size is determined by accounting for the revenue generated from installations in public and private hospitals, private imaging centres and clinics. The market is diverse across all the seven geographic regions that are covered under this study. This is due to the fact that each region is growing at a different rate. Moreover, the amount of IT penetration in the healthcare industry determines the level of non-radiology PACS implementation in healthcare facilities. The total European non-radiology PACS market stood at 83 million dollars in 2010. This value represents revenues from hospitals and imaging centres, where non-radiology PACS has been installed in the base year.

The major reason for Germany and France having the largest non-radiology PACS market is the fact that they have a well-established hospital infrastructure. Non-radiology PACS has been installed in most of the larger facilities. The United Kingdom has been a growing market since the NHS took up new initiatives with the CfH programme. The IT penetration rate in the United Kingdom is high at about 50 per cent. The non-radiology PACS penetration is the third largest with over 15.3 per cent of facilities bearing the installations. Similarly, in countries, such as Germany and France, the non-radiology PACS market share of the HIT market is larger with 33.8 per cent and 21 per cent respectively. The penetration rates in these countries are increasing with the total number of non-radiology PACS installations rising with the number of hospitals. The markets of Scandinavia and Benelux have the highest rate of IT penetration in healthcare. This is due to their healthcare infrastructure and the quality of healthcare assured by the government. The markets for radiology PACS is already saturated and these markets are looking forward to postprocessing and advanced-scalable PACS solutions. The smallest market for non-radiology PACS in Europe is Spain with a total market of 2.9 million dollars. The total European non-radiology PACS market is likely to grow at a CAGR of 8.1 per cent and is estimated to reach 122.9 million dollars in 2015.

#### Technology Trends

In recent years, there have been major changes that have had a great impact upon image acquisition, storage requirement options, as well as display and network requirements. When introduced initially, many healthcare units could not afford PACS due to exorbitant costs. However, rapid advancements in technology and the development of communication standards and open architecture have led to a dramatic decrease in costs, which have enabled many institutions to implement PACS in order to ensure an efficient workflow and decrease in waiting times, faster diagnoses and throughput. The major reason is the dynamic process of image acquisition, which is witnessing changes with imaging modalities, such as multisided computed tomography (CT) and magnetic resonance imaging (MRI), CR and direct radiography (DR), PET and digital mammography, and this, in turn, is changing the way PACS technology is planned. Such changes are expected to impact image-storage requirements to a great extent.

Some of the recent technological changes include the system featuring a multi-vendor DICOM interface that integrates lab images into the PACS, broker-less direct-access RIS and electronic patient record (EPR). With the growth of web utilisation and wireless technology through the use of portals and virtual private networks (VPNs), there have been improvements in image access and security. Wireless technology, which pertains to PACS, looks highly attractive for greater image access flexibility. Moreover, direct integration of SR (speech recognition) technology within PACS and RIS applications in the future may eliminate the need for a separate interface. Post-processing and 3D capabilities are going to be the future of PACS. Most of the matured and saturated markets going through the replacement cycle are looking for these value-added features.

#### Competitive Landscape

The European market for non-radiology PACS can be divided along three tiers of competition. Tier one consists of the multi-modality manufacturers, the large multinationals whose core business is the complete portfolio of imaging modality. They have competency in both departmental as well as enterprise suites, including non-radiology applications. Tier two features companies that approach PACS from an IT perspective. They are adept at developing their own workflow set-ups as well as handling the wider connectivity issues of end users. Tier three belongs to the small vendors and PACS integrators, which are companies that offer consulting for the successful integration and implementation of a full-fledged PACS.

These are generally local market participants that have grassroot-level contacts and often a threat to the bigger participants with pirated versions and competitive pricing. When analysing the competitors, it is difficult to establish a consistent market share due to the nature and scalability of the PACS project. The market fluctuates every year due to new technology and possible mergers and acquisitions as well as due to the entry of new market participants. The non-radiology PACS market is fragmented with 15 participants active in Europe currently.

Tier one consists of Agfa Healthcare, Rogan Delft, GE Healthcare, Sectra AB, Philips Medical Solutions, Carestream and McKesson. These companies offer products trusted by the marketplace and the market for modality is strong because of its solid workflow configurations. The second tier consists of companies, such as Vepro, Fujifilm and Siemens Medical Solutions. Some of the smaller vendors have also gained a good portion of the market for specific application PACS with the introduction of innovative solutions. The third tier companies include NDS Surgical, Visus and others. These companies are expected to increase their market share significantly over the forecast period. Provided price issues can be addressed, a strategic alliance with companies in Eastern Europe can also help penetrate the market. Another factor that is essential for success in the European non-radiology PACS market is the ability to compete on price. This has particularly affected the major PACS vendors that have had to substantially reduce their profit margins in order to remain competitive against the increasingly attractive low-cost product offerings of smaller PACS vendors. The major problem faced by large companies in the European markets is the presence of local participants, which provide PACS solutions at a lower cost.

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