



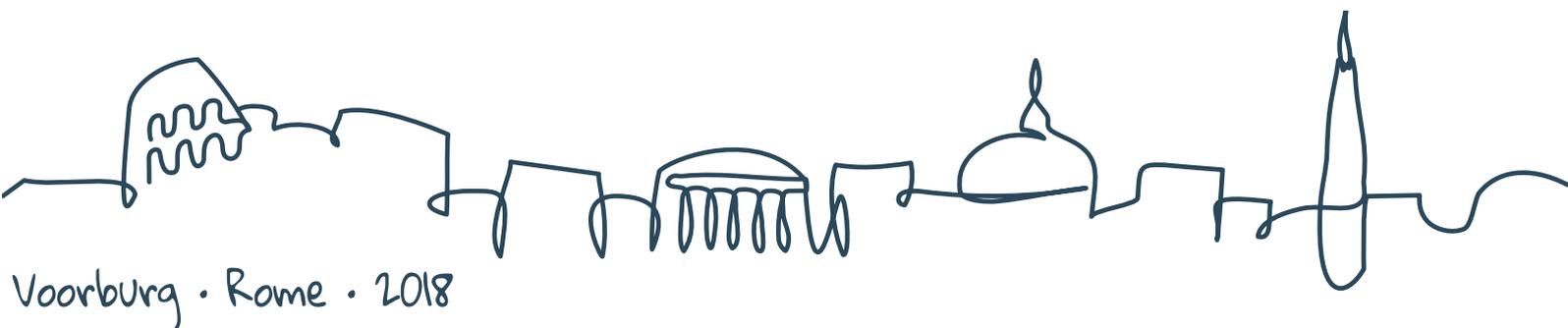
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# Data Processing, Hosting and Related Activities (ISIC 6311)

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## INTRODUCTION

In Israel, development of a price index for Data processing, hosting and related activities (ISIC 6311) began during the first half of 2018. This occurred several months after the start of development of a price index for Computer programming, consultancy and related activities (ISIC 62). The decision to develop the two indices together was made subsequent to meetings with companies that operate in both industries.

This paper will present some statistics about Data processing, hosting and related activities in Israel, as well as measurement issues and other information about the industry in Israel such as background and pricing.

## 1. Description and Characteristics of the Survey

### 1.1 Definition of the Service

Data Processing, hosting and related activities (ISIC 6311) includes:

- The provision of infrastructure for hosting, data processing services, and related activities
- Specialized hosting activities such as web hosting, streaming services, and application hosting
- Application service provisioning
- General time-share provision of mainframe facilities to clients
- Data processing activities which can be complete (the supplier collects and processes the data) or only involve processing of data supplied by clients.
- Provision of data entry services

In the CPC V.2.1, the following subclasses relate to the activities mentioned:

- Website hosting services
- Application service provisioning
- Other hosting and IT infrastructure provisioning services

There is a global move toward the "cloud", and traditional services classified in Computer programming, consultancy and related activities (ISIC 62) or Software publishing (ISIC 5820) are being replaced by cloud computing<sup>1</sup> services which are classified in ISIC 6311. Thus, it is not surprising that companies classified in these industries are opening new divisions and sometimes new subsidiaries that involve the cloud. Many times these divisions or subsidiaries operate as partners of global cloud computing companies and offer consultancy services on migration to the cloud, planning, and cost-cutting. If that is the case, then these companies, when dealing with subsidiaries, should be classified in

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<sup>1</sup> Cloud computing is the use of infrastructure and computer services through servers and central computer centers operated from remote end units via the Internet (Taldor Computer Systems, 2018).

ISIC 6202. It can sometimes be difficult to identify if a company is providing Consultancy services or cloud computing services. There are even times when a company does both.

Another activity in ISIC 6311 involves the operation of data centers for hosting. This activity sometimes is a secondary activity of telecommunications companies classified in ISIC 61.

## 1.2 Market Conditions and Constraints

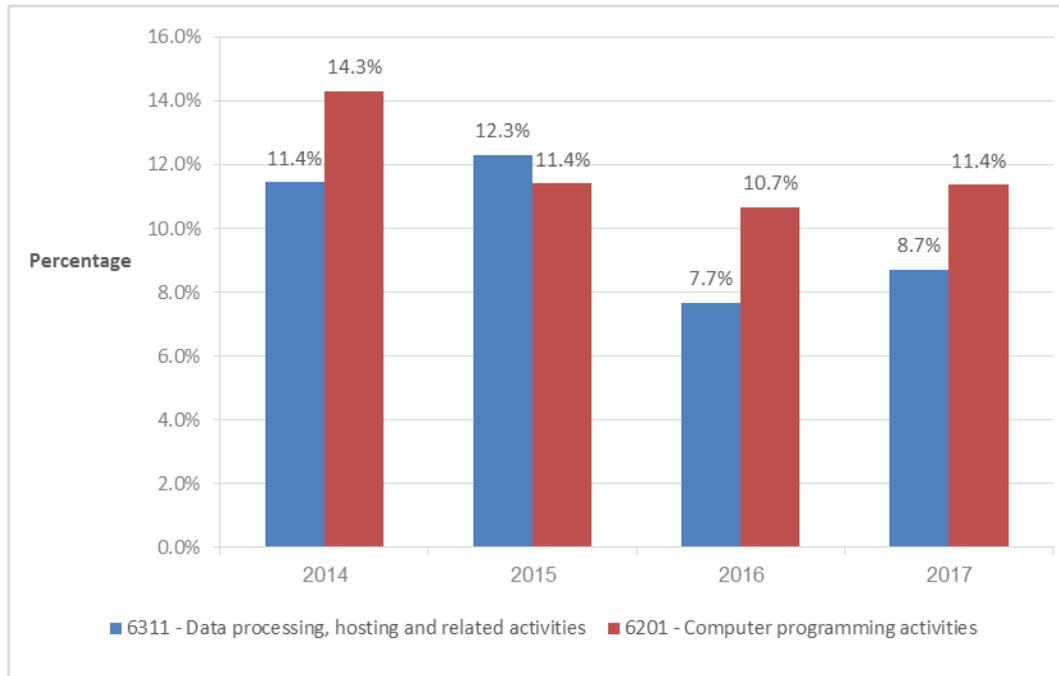
Data Processing, hosting and related activities (ISIC 6311) in Israel accounted for more than 80% of the revenue<sup>2</sup> from Information service activities (ISIC 63) in 2017. In 2016, revenue accounted for approximately 2.2% of the revenue from Telecommunications, Computer programming and consultancy and related activities, and Information service activities (ISIC 61–63). Even though the industry is quite small, we must take in consideration that this data is based only on dealers classified in 6311, without revenue from secondary activities of dealers classified in other industries.

Revenue in the industry has been growing, at an average rate of 10% every year from 2014 to 2017. The growth numbers are high but still smaller compared to the per-year average 11.9% growth in revenues in Computer programming activities (ISIC 6201), which is the biggest class by revenue in ISIC 61–63.

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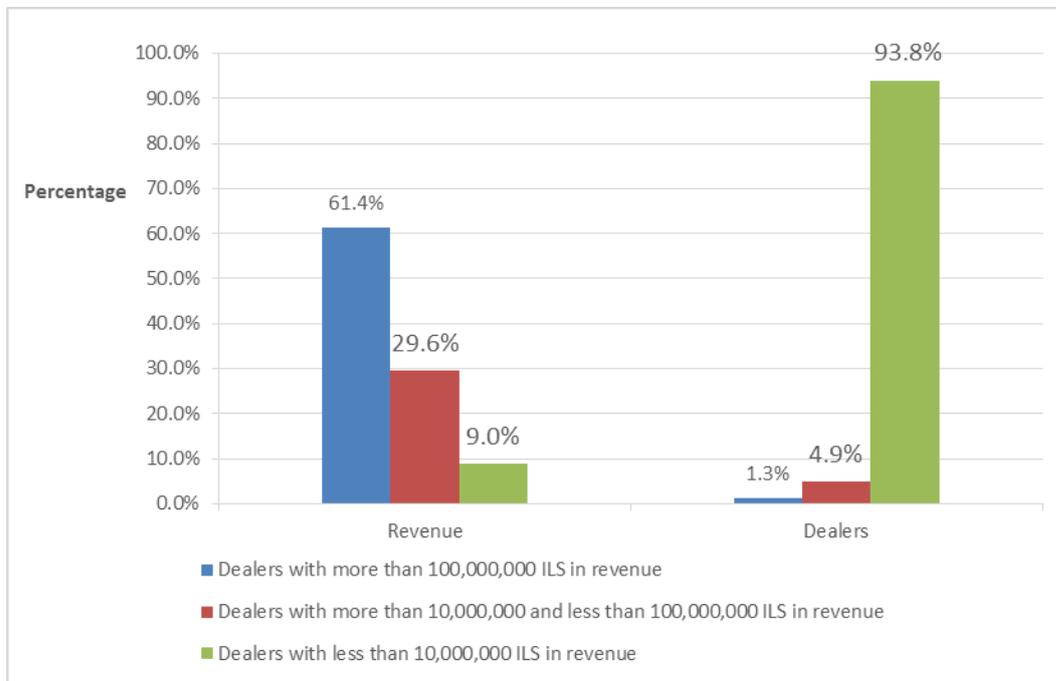
<sup>2</sup> Data are based on ICBS (2018).

**FIGURE 1**  
**Annual Revenue Growth, 2014-2017**



Output data from 2015 show that the industry is very concentrated, with 61.4% of the output coming from 5 out of 390 of the dealers in the industry. Most of these dealers are engaged in providing payroll services and financial solutions, which involve the provision of hosted applications with integration to the infrastructure of the client.

**FIGURE 2**  
**Concentration in Data Processing, Hosting and Related Activities, 2015**



Based on the ICBS annual survey of industries, from 2011 to 2015 there was an increase in the number of dealers in the industry, however, the number of jobs in the industry decreased.

**TABLE 1**  
**Dealers and Jobs in Class 6311 (Data Processing, Hosting and Related Activities)**

	2011	2012	2013	2014	2015
<b>Dealers</b>	361	381	398	406	390
<b>Jobs</b>	3880	4067	3885	3694	3569

**1.3 Specific Characteristics of the Industry**

Until recent years, companies classified in Data Processing, hosting and related activities in Israel were engaged mostly in providing hosting services, data storage, and data processing. The move by companies to cloud services that replace on-site facilities is not occurring very quickly because of the resources invested by the companies in

establishing these facilities. But companies are beginning to understand that in the long run, they can eventually lower their expenditures by cutting their work force and eliminating the need to upgrade their facilities every few years. Another advantage they find in the cloud is the flexibility that allows them to easily expand the services they receive as they grow. However, the companies are concerned about security in terms of keeping their data on servers they do not personally own.

Since 2015 in Israel, some new companies have been established – although still not that many – that focus on providing cloud computing services. It should be noted, however, that most of the cloud computing services consumed by the local market are provided by global cloud computing companies such as Amazon, Microsoft, Google, Salesforce, and others. Reasons such as economy of scale and, in the cases of Software as a service (SaaS) and Platform as a service (PaaS), the quality of the service and the complexity in providing it, prevent local companies from competing with larger global companies. If a local company wanted to offer, for example, SaaS, it would probably have to rely on exports, and for the time being, very few companies are doing so.<sup>3</sup>

Two Israeli companies offering cloud services to businesses within the local market specialize in Infrastructure as a service (IaaS), which is less complex than PaaS or SaaS.<sup>4</sup>

These companies offer public cloud, private cloud, or hybrid cloud<sup>5</sup> services on their servers, and offer global cloud solutions by partnering with other companies based abroad.

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<sup>3</sup>The Israeli company Nipendo offers a cloud solution for transactions between businesses that can be classified as SaaS or BPaaS (business process as a service).

<sup>4</sup> In addition to the servers and networking included in IaaS, PaaS also includes operating systems, development tools, database management, and business analytics. In addition to the services included in PaaS, SaaS includes applications.

<sup>5</sup> Public cloud refers to computing services offered by third-party providers over the public Internet, making them available to anyone who wants to use or purchase them. Private cloud refers to computing services offered either over the Internet or a private internal network to select users only rather than to the general public. Hybrid cloud refers to a computing environment that combines a public cloud and a private cloud by allowing sharing of data and applications between them (Microsoft Azure, n. d.).

## 2. Output Measurement

### 2.1 General Framework

An annual survey of industries based on administrative income tax data from the Israeli Tax Authority is published by the ICBS for the purpose of estimating outputs in the business sector.

### 2.2 Measurement Issues

Services offered by some of the largest companies in the industry include Business process management services, as well as hosted applications with integration to client's infrastructure. These companies offer the services as one bundled service.

### 2.3 Description of Measurement Methods

The annual survey of industries is based on financial reports that dealers submit to the Income Tax authorities. The sample is constructed for all industries from the Business Register of the ICBS, which is based on VAT data. Dealers are classified according their primary activity; no transfers of output are made depending on the classification of secondary activities.

## 3. Measurement of SPPI

### 3.1 General Framework

The SPPI for Data Processing, hosting and related activities will be used primarily as a deflator for national accounts. In Israel, we began to develop a price index for the industry several months ago along with a price index for ISIC 62 – Computer programming, consultancy and related activities. Thus, we are still at a very early stage of development.

### 3.2 Measurement Issues

Software such as CRM (Consumer Relations Management) or ERP (Enterprise Resource Planning) sold to businesses can be used through the cloud. These programs, which are in constant development, receive updates as do other programs, with the difference that these updates are made on the server rather than on the consumer's infrastructure. If SaaS is classified in ISIC 6311 and other software in ISIC 5820, it is more difficult to evaluate changes in software prices.<sup>6</sup> To clarify, this does not affect the result of using the price index as a deflator for national accounts when these services are classified the same way on both the price index and on national accounts.

### 3.3 Pricing Models

The pricing for IaaS is based on a pay-per-use model, which means users are charged for the number of hours using the service. Another model is subscription fees charged on a monthly basis for cloud services.

Hosting services on data centers can also be based on monthly payments but might also be provided as part of a larger service that includes hosting, maintenance, and data processing, in which prices and payments are subject to a contract between the supplier and the client.

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<sup>6</sup> This is also true for the evaluation of software output.

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