Medical Data Vision | 3902 |

This PDF document is an updated note on the company. A comprehensive version of the report on the company, including this latest update, is available on our website at http://www.sharedresearch.jp and various professional platforms. Our sponsored research reports provide an in-depth and informative view of the companies we cover, and contain the latest available information updated in a timely manner.

On **October 10, 2017,** Shared Research updated the report following interviews with Medical Data Vision (MDV).

1H FY12/17 results

Results summary

MDV's consolidated results for 1H FY12/17 were sales of JPY1.3bn (+28.6% YoY), operating profit of JPY144mn (operating loss of JPY7mn in 1H FY12/16), recurring profit of JPY143mn (recurring loss of JPY8mn in 1H FY12/16), and net income attributable to parent company shareholders of JPY85mn (net loss of JPY10mn in 1H FY12/16).

Quarterly performance (cumulative)

Cumulative (JPY mn)	FY12/16 Q1	Q2	Q3	Q4	FY12/17 Q1	Q2	Q3	Q4	FY12/17 % of FY	FY Est.
	Par.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.		Cons.
Sales	519	1,037	1,732	2,632	645	1,334			37.0%	3,600
YoY	8.6%	8.6%	2.7%	9.1%	24.3%	28.6%				36.8%
Data Network Service	317	620	999	1,438	309	700			35.1%	1,994
Package	121	225	400	611	91	259			35.0%	741
Maintenance	195	394	597	805	212	428			49.1%	871
Others	-	-	-	21	6	13			3.4%	380
Data Use and Application Service	201	415	733	1,194	335	632			39.4%	1,605
MDV analyzer	60	125	193	263	75	150			54.3%	276
Ad hoc analysis service	131	266	504	860	248	456			42.4%	1,075
Others	9	24	35	69	11	26			10.2%	254
<YoY>										
Data Network Service	6.9%	4.9%	-6.3%	-0.7%	-2.4%	12.9%				
Package	-2.9%	-7.8%	-25.5%	-16.3%	-25.0%	15.0%				
Maintenance	13.9%	13.7%	12.9%	12.0%	8.6%	8.5%				
Others	na	na	na	na	nm	2,006.2%				
Data Use and Application Service	11.5%	14.8%	18.2%	24.0%	66.2%	52.2%				
MDV analyzer	0.9%	1.5%	3.8%	9.6%	23.2%	19.9%				
Ad hoc analysis service	15.0%	19.8%	23.5%	25.4%	89.5%	71.7%				
Others	50.0%	46.4%	45.8%	91.7%	20.8%	5.7%				
Cost of sales	94	198	313	458	119	249				
YoY	1.5%	-2.0%	-18.3%	-11.3%	27.0%	25.5%				
Cost ratio	18.1%	19.1%	18.0%	17.4%	18.5%	18.7%				
Gross profit	425	838	1,420	2,174	526	1,085				
YoY	10.3%	11.5%	8.8%	14.6%	23.7%	29.4%				
GPM	81.9%	80.9%	82.0%	82.6%	81.5%	81.3%				
SG&A expenses	413	846	1,296	1,743	462	940				
YoY	13.7%	8.3%	7.6%	8.0%	11.7%	11.2%				
SG&A-to-sales ratio	79.6%	81.6%	74.8%	66.2%	71.6%	70.5%				
Personnel expenses	241	507	760	1,015	275	552				
Other expenses	171	337	535	727	186	387				
YoY	13.7%	8.3%	7.6%	8.0%	11.7%	11.2%				
Personnel expenses	15.3%	12.2%	9.4%	9.5%	14.1%	8.9%				
Other expenses	11.8%	3.1%	5.3%	5.8%	8.8%	14.8%				
Operating profit	12	-7	124	431	64	144			26.6%	542
YoY	-45.6%	nm	23.4%	52.6%	441.6%	nm				25.9%
OPM	2.3%	-0.7%	7.1%	16.4%	9.9%	10.8%				15.1%
Non-operating income (expenses)	-1	-1	-2	-15	-1	-1				-
Recurring profit	11	-8	122	416	63	143			26.4%	540
YoY	-46.6%	nm	24.0%	48.4%	460.6%	nm				29.9%
RPM	2.2%	-0.8%	7.1%	15.8%	9.8%	10.7%				15.0%
Extraordinary gains (losses)	-	0	0	-122	-	-17				-
Income taxes	6	1	46	116	17	41				-
Net income attributable to parent company shareholders	5	-10	76	178	46	85			27.5%	311
YoY	-50.6%	nm	33.1%	8.7%	758.2%	nm				74.9%
Net margin	1.0%	-1.0%	4.4%	6.8%	7.2%	6.4%				8.6%

Source: Shared Research based on company data
* Figures less than JPY1mn are rounded up (in figures released by the company, amounts less than JPY1mn were discarded). The company moved to consolidated results from Q2 FY12/16. Comparison between Q2 FY12/16 and Q2 FY12/15 is a simple comparison on a parent-only basis.

Progress toward full-year company forecasts

1H progress toward full-year FY12/17 company forecasts was 37.0% for sales (39.4% in 1H FY12/16), 26.6% for operating profit (operating loss in 1H FY12/16), 26.4% for recurring profit (recurring loss in 1H FY12/16), and 27.5% for net income attributable to parent company shareholders (net loss in 1H FY12/16).

The company commented that its full-year forecast assumes sales and profits will be more heavily weighted in 2H and that 1H results were on track. CADA-BOX was operational at two hospitals and one hospital was preparing to introduce the service at the end of 1H FY12/17 (started using the service on September 4, 2017; see below). The company noted that the service rollout was slightly behind schedule, but does not consider this a major cause for concern. This is because MDV expects the service uptake to accelerate in 2H among hospitals currently considering the use of CADA-BOX (or likely to do so going forward) after seeing evidence of the service attracting more patients as a result of gaining their trust through sharing clinical information with them.

Quarterly performance

Quarterly (JPY mn)	FY12/16				FY12/17			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Par.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.	Cons.
Sales	519	518	696	900	645	689		
YoY	8.6%	8.7%	-5.1%	23.8%	24.3%	33.0%		
Data Network Service	317	303	378	439	309	391		
Package	121	104	175	211	91	168		
Maintenance	195	199	203	208	212	216		
Others	-	-	-	21	6	7		
Data Use and Application Service	201	214	317	461	335	297		
MDV analyzer	60	65	68	70	75	75		
Ad hoc analysis service	131	135	238	356	248	208		
Others	9	15	11	34	11	15		
<YoY>								
Data Network Service	6.9%	4.8%	-20.3%	13.2%	-2.4%	29.0%		
Package	-2.9%	-12.6%	-40.3%	9.3%	-25.0%	61.5%		
Maintenance	13.9%	13.7%	10.9%	9.5%	8.6%	8.5%		
Others	na	na	na	na	nm	na		
Data Use and Application Service	11.5%	15.1%	23.3%	36.4%	11.5%	38.8%		
MDV analyzer	0.9%	3.2%	7.9%	29.6%	0.9%	15.4%		
Ad hoc analysis service	15.0%	25.0%	28.0%	28.1%	15.0%	54.1%		
Others	50.0%	36.4%	57.1%	183.3%	50.0%	-		
Cost of sales	94	104	114	146	119	129		
YoY	1.5%	-4.9%	-36.6%	8.8%	27.0%	24.1%		
Cost ratio	18.1%	20.2%	16.4%	16.2%	18.5%	18.8%		
Gross profit	425	413	581	755	526	559		
YoY	10.3%	12.7%	5.2%	27.2%	23.7%	35.3%		
GPM	81.9%	79.8%	83.6%	83.8%	81.5%	81.2%		
SG&A expenses	413	432	450	447	462	479		
YoY	13.7%	3.6%	6.4%	8.9%	11.7%	10.8%		
SG&A-to-sales ratio	79.6%	83.5%	64.8%	49.7%	71.6%	69.5%		
Personnel expenses	241	266	253	255	275	277		
Other expenses	171	166	198	192	186	201		
YoY	13.7%	3.6%	6.4%	8.9%	11.7%	10.8%		
Personnel expenses	15.3%	9.5%	4.1%	9.9%	14.1%	4.1%		
Other expenses	11.8%	-4.6%	9.4%	7.3%	8.8%	21.1%		
Operating profit	12	-19	131	307	64	80		
YoY	-45.6%	nm	1.4%	68.6%	441.6%	nm		
OPM	2.3%	-3.7%	18.8%	34.1%	9.9%	11.7%		
Non-operating income (expenses)	-1	-1	-1	-1	-1	-1		
Recurring profit	11	-20	131	293	63	79		
YoY	-46.6%	nm	nm	nm	460.6%	nm		
RPM	2.2%	-3.8%	18.8%	32.6%	9.8%	11.5%		
Extraordinary gains (losses)	-	-0	-	-122	-	-17		
Income taxes	6	-4	45	69	17	23		
Net income attributable to parent company shareholders	5	-15	86	102	46	39		
YoY	-50.6%	nm	nm	nm	758.2%	nm		
Net margin	1.0%	-3.0%	12.3%	11.4%	7.2%	5.7%		

Source: Shared Research based on company data
* Figures less than JPY1mn are rounded up (in figures released by the company, amounts less than JPY1mn were discarded). The company moved to consolidated results from Q2 FY12/16. Comparison between Q2 FY12/16 and Q2 FY12/15 is a simple comparison on a parent-only basis.

Sales analysis

Data Network Service

Sales of the Data Network Service in 1H FY12/17 increased by double digits (+12.9% YoY) to JPY700mn, breaking down into JPY259mn (+15.0%) for packaged software, JPY428mn (+8.5%) for maintenance, and JPY13mn (+2006.2%) for new businesses.

The company recorded double-digit sales growth of packaged software due to initial usage expenses paid by users of EVE and Medical Code as well as upper-single-digit growth of monthly maintenance revenue amid an increasing number of hospitals using the two products (see below). An efficient sales strategy started in Q2 FY12/17 that makes use of videos containing case studies is beginning to produce results.

Data Use and Application Service

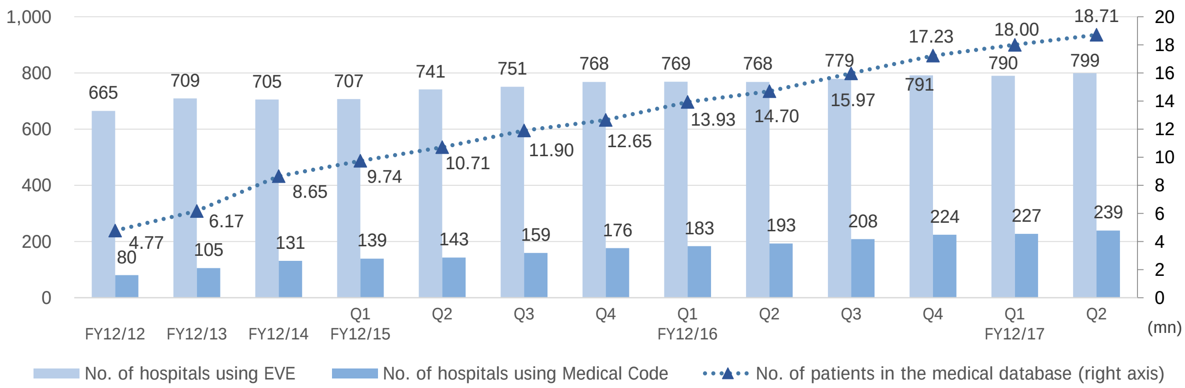
In 1H FY12/17, sales for the Data Use and Application Service segment came to JPY632mn (+52.2% YoY). Of this, the company's ad hoc analysis service brought in JPY456mn (+71.7% YoY). MDV analyzer brought in JPY150mn (+19.9% YoY), and new business operations brought in JPY26mn (+5.7% YoY).

MDV commented that sales of the Data Use and Application Service totaled 133 projects for 51 companies in 1H FY12/17, compared to 55 projects for 31 companies in 1H FY12/16. The company attributes improved awareness of the service to ongoing efforts to increase exposure. These include taking the stage at events, putting up displays at conferences, hosting seminars, and holding study meetings for the media. The company focused on reducing cases in which one division of a pharmaceutical company uses MDV's ad hoc analysis service, but other divisions of the company are unaware of the service. These efforts have led to an increase in repeat customers as well as gaining new customers.

Number of companies using services and database size

As of the end of 1H FY12/17, 799 hospitals (+4.0% YoY) have implemented the DPC analysis benchmark system, EVE and 239 hospitals (+23.8% YoY) have implement the hospital management support system, Medical Code. MDV's share of the 1,664 hospitals using DPC exceeds 45%. In the Data Use and Application Service (primarily for pharmaceutical companies), the number of customers using the clinical data analysis tool MDV Analyzer reached 13 companies. DPC data (medical big data) supplied by hospitals that consent to the gathering and secondary use of data covered 18.7mn patients at the end of Q2 FY12/17—the equivalent of one-seventh of the population of Japan. As of the end of August 2017, the company was in possession of data on 19.4mn patients.

Number of hospitals using EVE and Medical Code and patients covered in MDV medical database



Source: Shared Research based on company data

Cost analysis

Sales during 1H FY12/17 increased JPY297mn (+28.6%) YoY, while the cost of sales increased just JPY51mn, and the cost of sales ratio decreased 0.4pp, from 19.1% in 1H FY12/16 to 18.7% due to a change in the product mix. The composition of sales of the Data Use and Application Service, which has a relatively low cost ratio, increased 7.4pp from 40.1% in 1H FY12/16 to 47.5% in Q1 FY12/17.

SG&A expenses during 1H FY12/17 increased JPY95mn (+11.2%) YoY, due to a JPY45mn (+8.9%) increase in personnel expenses and a JPY50mn (+14.8%) increase in various other expenses. Personnel expenses went up due to a growing work force for business expansion. Maintenance and advertising expenses for new businesses also increased. However, the SG&A-to-sales ratio decreased 11.1pp, from 81.6% in 1H FY12/16 to 70.5%, because sales growth exceeded the rise in expenses.

The operating profit margin improved 11.5pp, from -0.7% in 1H FY12/16 to 10.8%, due to the decreases in the cost of sales and SG&A ratios (0.4pp and 11.1pp respectively).

CADA-BOX

At the end of 1H FY12/17 (June 30, 2017), the company's core product CADA-BOX was operational at two hospitals (Koujunkai Daido Hospital and Daido Clinic[*1] in Nagoya and Ishikawa Healthcare Group's ITO Medical Center[*2] in Ehime Prefecture) and one hospital had been preparing to introduce the service (Keiju Medical Center[*3] in Ishikawa Prefecture). Keiju Medical Center started using the service on September 4, 2017 (see below).

MDV expects the pace of service uptake to accelerate in 2H among hospitals currently considering the use of CADA-BOX (or likely to do so going forward) after seeing evidence of the service attracting more patients by gaining their trust through sharing clinical information with them.

*1 Koujunkai Daido Hospital and Daido Clinic were the first to begin using CADA-BOX in Japan on February 1, 2017. The facility has 394 beds in general wards and a 10-bed tuberculosis ward.
*2 ITO Medical Center was established in 1976. It is open 24/7 as a secondary emergency hospital to support healthcare in the community. The facility has 275 beds (10 HCU, 53 comprehensive regional care, 13 palliative care, and 50 rehabilitation care beds).
*3 Keiju Medical Center has aggressively used ICT to improve the quality of healthcare delivery since 1994, when it became the first hospital in Japan to use an SPD (logistics management) system. It was the first hospital to introduce integrated electronic medical records in Japan and has a reputation for the use of the latest IT systems (its Keiju Healthcare System won the Nihon Service Award). The facility has 426 beds (282 general ward, 10 HCU, 47 rehabilitation care, 47 comprehensive regional care, and 40 disabled ward beds).

External environment

The Japanese government continues to reform the medical care system in the medical-related industry, MDV's core area of business. Japan's health services authorities are trying to encourage medical facilities to specialize in an effort to reach medical and nursing goals for 2025 outlined in the government's unified social security and tax reforms. Specifically, the authorities are promoting a facility specialization report system that will make medical institutions report to their respective prefectural bodies the specialization of their facility and allow those institutions to voluntarily specialize. Based on population projections, the health services authorities will determine the need for hospitals with certain specializations for different regions. These circumstances continue to put medical institutions in a difficult position. "Investments for the Future 2017," a government policy on medical information systems, is pushing for healthcare support using big data and greater use of ICT.

M&A and other management measures

In January 2017, MDV acquired all shares in Doctorbook Inc., a membership service for doctors and dentists to improve the quality of medical care by sharing the techniques and clinical knowledge of highly reputable practitioners. In February

2017, the company established MDV Consumer Healthcare Co., Ltd. to manufacture and sell over-the-counter (OTC) drugs and health & beauty care (H&BC) products that satisfy essential consumer needs gleaned from its large-scale clinical database (see the Q1 FY12/17 results section below). In June 2017, the company acquired all shares in Cosmex Co., Ltd*. The company believes that combining the Cosmex Group's customer base with its large-scale clinical database in clinical trials will propel further growth of the MDV Group as well as improve the quality of healthcare (see Entry into the clinical trial business section below).

*Cosmex Group has a site management organization (SMO) business that conducts clinical trials with a large number of cases at a small number of facilities, and a customer base with growth potential for efficient and comprehensive clinical trial support services that leverage IT systems.

On **September 1, 2017,** Medical Data Vision (MDV) made an announcement regarding a change in the way it will use funds raised primarily through the issuance of new stocks.

Change in the way MDV will use funds raised primarily through the issuance of new stocks

When it was first listed in December 2014, MDV made a public offering to gain capital that would allow it to invest in systems and facilities related to new services to be offered to medical institutions and health insurance cooperatives that are the sources of its medical and health information, advertise to raise awareness of those new services, and cover expenses related to the hiring of personnel to expand its businesses. As the company was implementing these plans, it conducted a rigorous examination of implementation details and amounts with a focus on implementation timing and cost-effectiveness. As a result, it decided to make some changes to the way in which it will use the funds raised.

Pre-change

In regard to the net proceeds of around JPY802mn raised from the public offering of new stocks, and maximum net proceeds of around JPY171mn raised via capital increase through third-party allocation, MDV originally planned to invest JPY530mn in systems and facilities related to new services to be offered to medical institutions and health insurance cooperatives that are the sources of its medical and health information and JPY350mn in advertising to raise awareness of those new services. The remainder was to be used from FY12/15 onward to cover expenses related to the hiring of personnel to expand the company's businesses. MDV planned to manage the funds primarily in safe financial instruments until the time came for them to be used.

Usage status and post-change details

In regard to funds used according to the company's pre-change plan, as of end-FY12/16 JPY182mn had been invested in systems and facilities related to new services, JPY159mn had been used for advertising to raise awareness of those new services, and JPY227mn had been applied against expenses related to the hiring of personnel to expand the company's businesses. This means that of the estimated total of JPY973mn raised at the time of the company's listing, JPY567mn had been used as of end-FY12/16.

Use of the remaining net proceeds of around JPY406mn

- MDV is changing the planned period for investing in systems and facilities related to new services (pre-change: FY12/14–FY12/16; post-change: FY12/14–FY12/17) and plans to allot JPY168mn for use in FY12/17.
- It is changing the planned period for investing in advertising to raise awareness of its new services (pre-change: FY12/14–FY12/16; post-change: FY12/14–FY12/17) and expects to allot JPY87mn for use in FY12/17.
- It expects to allot JPY151mn for use in FY12/17 to cover expenses related to the hiring of personnel to expand its businesses.

MDV still plans to manage the funds primarily in safe financial instruments until the time comes for them to be used.

On **the same day**, MDV made an announcement about secondary offerings and changes in the principal shareholder and other affiliated company.

Secondary offering of MDV shares (by way of underwriting and purchase) and change in terms of principal shareholder and other affiliated company

Secondary offering of MDV shares (by way of underwriting and purchase)

- Number and type of shares sold: 2,300,000 shares of common stock in MDV (11.5% of total issued shares as of June 30, 2017)
- Seller: Medipal Holdings Corporation
- Selling price: To be determined (determination will be in consideration of the status of demand, but will tentatively be the closing price for ordinary transactions of common stock on the Tokyo Stock Exchange on one day from September 12, 2017, to September 15, 2017, multiplied by 0.90–1.00 [amounts less than JPY1 to be discarded])
- Secondary offering method: All shares will be purchased by a group of underwriters for which Nomura Securities Co., Ltd., serves as lead manager, after which the secondary offering will be conducted. The underwriters' compensation from the secondary offering will be the secondary offering price less the purchase price (the amount paid by the underwriters to the company making the secondary offering).
- Subscription period: From the next business day after the day the secondary offering price is determined to the second business day after it is determined
- Delivery date: Date six business days after the day the secondary offering price is determined
- Subscription unit: 100 shares

The aims of this secondary offering are to improve the distribution status of MDV's shares and to improve liquidity. Even after this offering is implemented, MDV will remain business partners with Medipal Holdings Corporation and the two companies will continue their beneficial relationship.

Secondary market offering of MDV shares (by way of over-allotment)

- Number and type of shares: 345,000 shares of common stock in MDV (1.7% of total issued shares as of June 30, 2017)
- Seller: Nomura Securities Co., Ltd.
- Selling price: To be determined (on the day the aforementioned secondary offering price is determined; to be the same as the secondary offering price for the secondary offering by way of underwriting and purchase)
- Subscription period: To be the same as the subscription period for the secondary offering by way of underwriting and purchase
- Delivery date: To be the same as the delivery date for the secondary offering by way of underwriting and purchase

Change in terms of principal shareholder and other affiliated company

With the abovementioned secondary market offering, Medipal Holdings Corporation will no longer be a principal shareholder or other affiliated company.

	Relationship	Number of voting rights (Number of shares)	Percent of total voting rights	Major shareholder position
Pre-change (as of June 30, 2017)	Other affiliated company	42,064 (4,206,400 shares)	21.03%	No. 2
Post-change	-	15,614 (1,561,400 shares)	7.80%	No. 2

On **June 13, 2017,** Medical Data Vision (MDV) held a briefing regarding its entry into the clinical trial business. The following is information from that briefing, together with supplementary explanation by Shared Research. Hiroyuki Iwasaki, president and representative director of MDV, and Ichiro Hayashi, president and representative director of Cosmex Co., Ltd. (Cosmex), both gave presentations at the briefing.

Entry into the clinical trial business

MDV makes Cosmex a subsidiary

On June 7, 2017, MDV acquired all shares of Cosmex and made it a wholly owned subsidiary. Since its founding in 2000, Cosmex has operated a site management organization (SMO) business, providing support for facilities conducting clinical trials. It specializes in dermatology, psychiatry, and neurology and excels in the area of clinical trials with a large number of cases at a small number of facilities. MDV had begun preparing to work in the field of clinical trials as a new area of data use and application, but decided it would be more practical to move into the clinical trial business in cooperation with Cosmex. MDV aims to leverage its medical big data to realize innovative clinical research.

MDV intends to bring innovation to the SMO business by leveraging its strengths

The main function of the clinical trial support business is to provide selection services for matching hospitals and patients to clinical trial protocols formulated by pharmaceutical companies. Currently, the use of human wave tactics to identify suitable subjects (patients) is common*. However, MDV and Cosmex have applied the concept of PRO (Patients Researched Organization) and plan to use medical big data—the data already accumulated by MDV over the years and the data the company intends to accumulate going forward—in selecting test subjects. This will make it possible to shorten the time required to conduct clinical trials and reduce costs, while still ensuring safety. The aim is to facilitate innovation in the clinical trial industry.

When entering the clinical trial business, MDV believes it can leverage its strengths, including its relationships with core regional hospitals, a strong network of both domestic and overseas pharmaceutical companies, and the expertise and technology it has accumulated as a pioneer in the area of data use and application. EVE, the company's DPC (Diagnosis Procedure Combination) analysis benchmark system, is in use at 45% of the hospitals that have implemented DPC systems, and MDV already provides medical data and their analysis to domestic and overseas pharmaceutical companies. The company has personnel with expertise and capabilities in both medicine and data.

*According to Hiroyuki Iwasaki, it is not easy to select for suitability in advance when recruiting subjects, so a pharmaceutical company must typically spend a significant amount of time and money seeking subjects, even after it has prepared a protocol and begun research. There are also cases in which a pharmaceutical company will enter a cycle of repeatedly preparing protocols and recruiting subjects, ultimately delaying the actual conduct of clinical trials. Furthermore, according to Ichiro Hayashi, one of the main issues with the current approach to the clinical trial support business is the low concentration at any one facility of subjects (patients) who are suitable for a specific clinical trial, making it impossible for any single facility to locate an adequate number of cases. The Japanese health insurance system has the merit of allowing all citizens to receive advanced treatment at hospitals around the country, but this creates the corresponding negative aspect—at least in terms of conducting clinical trials—that facilities and cases are also scattered nationwide. As a result, it is common to employ human wave tactics, often making use of personal connections, to locate test subjects.

PRO

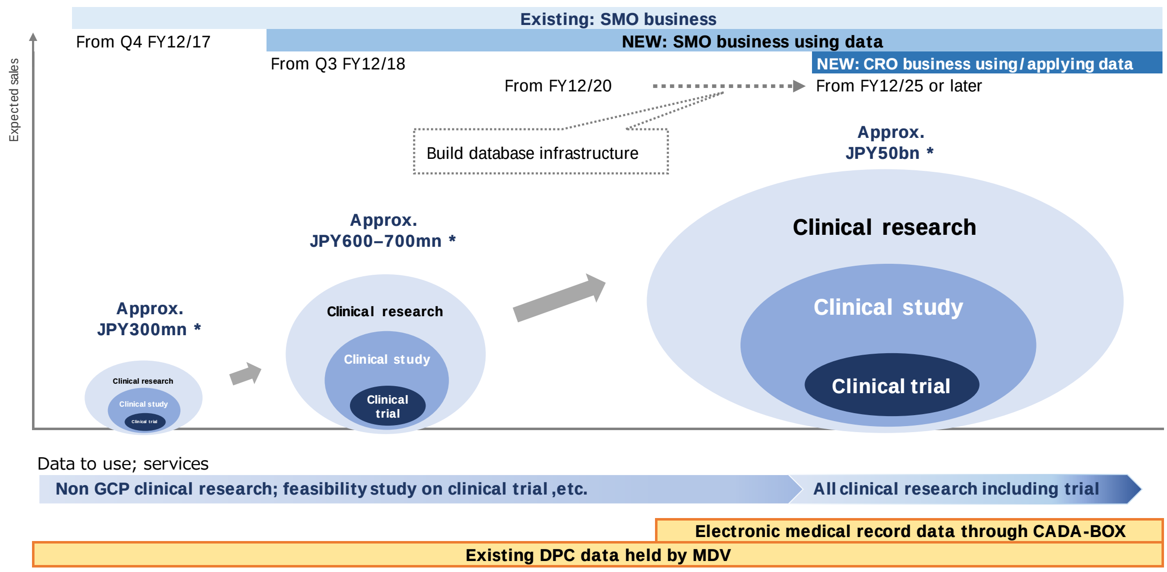
MDV will use medical big data—the data it has already accumulated over the years and the data it intends to accumulate going forward—in recruiting test subjects. Big data will make it possible to conduct advance selection of test subjects and to quickly and efficiently identify those hospitals with the largest number of patients suiting the prepared protocol. This will make it possible to significantly reduce the amount of time and money required. It will also be relatively easy to run simulations on additions to a protocol.

Sales estimates

MDV has proposed a timeline for the growth of its clinical trial business. Specifically, it anticipates growth in the following three stages. In Phase 1, the company will begin preparing for the use and application of DPC data in Q4 FY12/17. The company estimates cumulative sales for the period Q4 FY12/17 to Q3 FY12/18 at approximately JPY300mn, coming from the existing SMO business at Cosmex and new SMO clients to be captured by MDV's own EVE sales unit. For Phase 2, starting in Q3 FY12/18, the company will add an SMO business using its DPC data. It estimates revenues of approximately JPY600mn–700mn from conducting clinical studies (excluding trials) and feasibility studies on clinical trials. MDV will use the period from FY12/20 to FY12/24 to establish databases and infrastructure allowing data use and application for the contract research organization (CRO) business. In Phase 3, from FY12/25 onward, the company will launch the CRO business using, with patient consent, active electronic medical record data via its CADA-BOX service. It forecasts sales of about JPY50bn gained by conducting all clinical studies including clinical trials.

Through the use and application of big data, MDV expects to significantly reduce costs, including personnel expenses, and save time, permitting it to secure adequate profits even as it lowers the cost per trial. The company also believes the cost reductions will make it possible for it to take on clinical trials that have typically been delayed or neglected, including ones that companies providing clinical trial support have avoided on the grounds of low profitability. MDV believes it can promote an industry environment in which clinical trials can be conducted more smoothly than is presently the case.

Clinical trial business sales estimates and timeline



Source: Shared Research based on company data

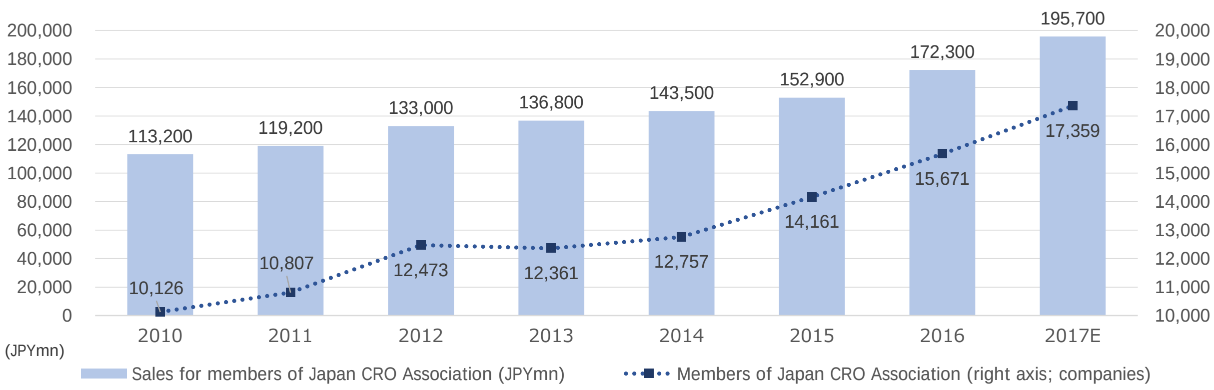
Market scale

Based on total sales of companies in the CRO business and of those in the SMO business, the scale of the clinical trial market can be estimated at about JPY240bn. Even as the SMO market contracts, the CRO market is experiencing robust expansion.

In 2016, combined sales of the members of the Japan CRO Association were JPY172.3bn (+12.0% YoY), and the forecast for 2017 is JPY195.7bn (+13.6%). In 2016, the members of the Japan CRO Association had 15,671 employees (+10.7% YoY), and the projection for 2017 is 17,359 employees (+10.8%). These figures show that the CRO market is continuing to expand.

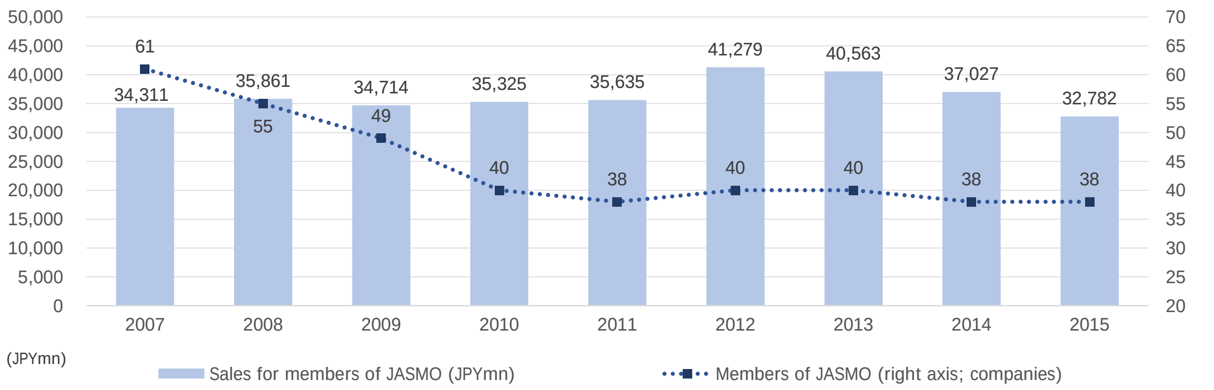
On the other hand, in 2015, combined sales of the members of the Japan Association of Site Management Organizations were JPY32.8bn (-11.5% YoY), although the number of association members remained unchanged YoY at 38 companies. The SMO market has been contracting since 2013.

CRO market: total sales



Source: Shared Research based on Japan CRO Association data

SMO market: total sales



Source: Shared Research based on Japan Association of Site Management Organizations data

On **May 11, 2017,** the company announced earnings results for Q1 FY12/17.

Q1 FY12/17 results

MDV's consolidated results for cumulative Q1 FY12/17: sales of JPY645mn (+24.3% YoY in a simple comparison with individual results for Q1 FY12/16), operating profit of JPY64mn (+441.6%), recurring profit of JPY63mn (+460.6%), and net income attributable to parent company shareholders of JPY46mn (+758.2%). Sales were 17.9% of its full-year FY12/17 target, operating profit 11.8%, recurring profit 11.7%, and net income attributable to parent company shareholders 14.9%.

Cumulative quarterly KPIs

Cumulative (JPY mn)	FY12/16 Q1 Par.	Q2 Cons.	Q3 Cons.	Q4 Cons.	FY12/17 Q1 Cons.	Q2 Cons.	Q3 Cons.	Q4 Cons.	FY12/17 % of FY	FY Est. Cons.
Sales	519	1,037	1,732	2,632	645				17.9%	3,600
YoY	8.6%	8.6%	2.7%	9.1%	24.3%					36.8%
Data Network Service	317	620	999	1,438	309				15.5%	1,994
Package	121	225	400	611	91				12.3%	741
Maintenance	195	394	597	805	212				24.3%	871
Others	-	-	-	21	6				1.6%	380
Data Use and Application Service	201	415	733	1,194	335				20.9%	1,605
MDV analyzer	60	125	193	263	75				27.2%	276
Ad hoc analysis service	131	266	504	860	248				23.1%	1,075
Others	9	24	35	69	11				4.3%	254
<YoY>										
Data Network Service	6.9%	4.9%	-6.3%	-0.7%	-2.4%					
Package	-2.9%	-7.8%	-25.5%	-16.3%	-25.0%					
Maintenance	13.9%	13.7%	12.9%	12.0%	8.6%					
Others	na	na	na	na	nm					
Data Use and Application Service	11.5%	14.8%	18.2%	24.0%	66.2%					
MDV analyzer	0.9%	1.5%	3.8%	9.6%	23.2%					
Ad hoc analysis service	15.0%	19.8%	23.5%	25.4%	89.5%					
Others	50.0%	46.4%	45.8%	91.7%	20.8%					
CoGS	94	198	313	458	119					
YoY	1.5%	-2.0%	-18.3%	-11.3%	27.0%					
CoGS ratio	18.1%	19.1%	18.0%	17.4%	18.5%					
Gross profit	425	838	1,420	2,174	526					
YoY	10.3%	11.5%	8.8%	14.6%	23.7%					
GPM	81.9%	80.9%	82.0%	82.6%	81.5%					
SG&A expenses	413	846	1,296	1,743	462					
YoY	13.7%	8.3%	7.6%	8.0%	11.7%					
SG&A-to-sales ratio	79.6%	81.6%	74.8%	66.2%	71.6%					
Personnel expenses	241	507	760	1,015	275					
Other expenses	171	337	535	727	186					
YoY	13.7%	8.3%	7.6%	8.0%	11.7%					
Personnel expenses	15.3%	12.2%	9.4%	9.5%	14.1%					
Other expenses	11.8%	3.1%	5.3%	5.8%	8.8%					
Operating profit	12	-7	124	431	64				11.8%	542
YoY	-45.6%	nm	23.4%	52.6%	441.6%					25.9%
OPM	2.3%	-0.7%	7.1%	16.4%	9.9%					15.1%
Non-operating income (expenses)	-1	-1	-2	-15	-1					-
Recurring profit	11	-8	122	416	63				11.7%	540
YoY	-46.6%	nm	24.0%	48.4%	460.6%					29.9%
RPM	2.2%	-0.8%	7.1%	15.8%	9.8%					15.0%
Extraordinary gains (losses)	-	0	0	-122	-					-
Income taxes	6	1	46	116	17					-
Net income attributable to parent company shareholders	5	-10	76	178	46				14.9%	311
YoY	-50.6%	nm	33.1%	8.7%	758.2%					74.9%
Net margin	1.0%	-1.0%	4.4%	6.8%	7.2%					8.6%

Source: Shared Research based on company data

* Figures less than JPY1mn are rounded up (in figures released by the company, amounts less than JPY1mn were discarded).

Due to cyclical tendencies in the buying period for the Data Use and Application Service segment mainly by foreign-financed companies, MDV's profitability tends to be lower in Q1 and Q2 each year than in Q3 and Q4. In FY12/16, 1Q sales were 19.7% of full-year sales, operating profit 2.7%, recurring profit 2.7%, and net income attributable to parent company shareholders 3.0%.

Note that the company maintained its initial FY12/17 forecast.

Quarterly KPIs

Quarterly (JPY mn)	FY12/16 Q1 Par.	Q2 Cons.	Q3 Cons.	Q4 Cons.	FY12/17 Q1 Cons.	Q2 Cons.	Q3 Cons.	Q4 Cons.
Sales	519	518	696	900	645			
YoY	8.6%	8.7%	-5.1%	23.8%	24.3%			
Data Network Service	317	303	378	439	309			
Package	121	104	175	211	121			
Maintenance	195	199	203	208	195			
Others	-	-	-	21	6			
Data Use and Application Service	201	214	317	461	335			
MDV analyzer	60	65	68	70	60			
Ad hoc analysis service	131	135	238	356	131			
Others	9	15	11	34	9			
<YoY>								
Data Network Service	6.9%	4.8%	-20.3%	13.2%	6.9%			
Package	-2.9%	-12.6%	-40.3%	9.3%	-2.9%			
Maintenance	13.9%	13.7%	10.9%	9.5%	13.9%			
Others	na	na	na	na	nm			
Data Use and Application Service	11.5%	15.1%	23.3%	36.4%	11.5%			
MDV analyzer	0.9%	3.2%	7.9%	29.6%	0.9%			
Ad hoc analysis service	15.0%	25.0%	28.0%	28.1%	15.0%			
Others	50.0%	36.4%	57.1%	183.3%	50.0%			
CoGS	94	104	114	146	119			
YoY	1.5%	-4.9%	-36.6%	8.8%	27.0%			
CoGS ratio	18.1%	20.2%	16.4%	16.2%	18.5%			
Gross profit	425	413	581	755	526			
YoY	10.3%	12.7%	5.2%	27.2%	23.7%			
GPM	81.9%	79.8%	83.6%	83.8%	81.5%			
SG&A expenses	413	432	450	447	462			
YoY	13.7%	3.6%	6.4%	8.9%	11.7%			
SG&A-to-sales ratio	79.6%	83.5%	64.8%	49.7%	71.6%			
Personnel expenses	241	266	253	255	275			
Other expenses	171	166	198	192	186			
YoY	13.7%	3.6%	6.4%	8.9%	11.7%			
Personnel expenses	15.3%	9.5%	4.1%	9.9%	14.1%			
Other expenses	11.8%	-4.6%	9.4%	7.3%	8.8%			
Operating profit	12	-19	131	307	64			
YoY	-45.6%	nm	1.4%	68.6%	441.6%			
OPM	2.3%	-3.7%	18.8%	34.1%	9.9%			
Non-operating income (expenses)	-1	-1	-1	-1	-1			
Recurring profit	11	-20	131	293	63			
YoY	-46.6%	nm	nm	nm	460.6%			
RPM	2.2%	-3.8%	18.8%	32.6%	9.8%			
Extraordinary gains (losses)	-	-0	-	-122	-			
Income taxes	6	-4	45	69	17			
Net income attributable to parent company shareholders	5	-15	86	102	46			
YoY	-50.6%	nm	nm	nm	758.2%			
Net margin	1.0%	-3.0%	12.3%	11.4%	7.2%			

Source: Shared Research based on company data
*Figures less than JPY1mn are rounded up (in figures released by the company, amounts less than JPY1mn were discarded).

External environment

The Japanese government continues to reform the medical care system in the medical-related industry, MDV's core area of business. Japan's health services authorities are trying to encourage medical facilities to specialize in an effort to reach medical and nursing goals for 2025 outlined in the government's unified social security and tax reforms. Specifically, the authorities are promoting a facility specialization report system that will make medical institutions report to their respective prefectural bodies the specialization of their facility and allow those institutions to voluntarily specialize. Based on population projections, the health services authorities will determine the need for hospitals with certain specializations for different regions. These circumstances continue to put medical institutions in a difficult position. The FY2016 revision of the medical services payment system emphasizes stricter requirements for the 7:1 patient-to-nurse staffing ratio for general wards, specialization of medical institutions, and improved home medical care.

*7:1 patient-to-nurse staffing ratio: This nursing system requires that at least one nurse must be on duty at all times for every seven inpatients. It is stricter than the current 10:1 patient-to-nurse ratio. Efforts to achieve advanced medical care and safety will allow hospitals to provide safer and more reliable nursing care. The 2006 revision of the medical services payment system established the 7:1 ratio.

Number of companies using services and database size

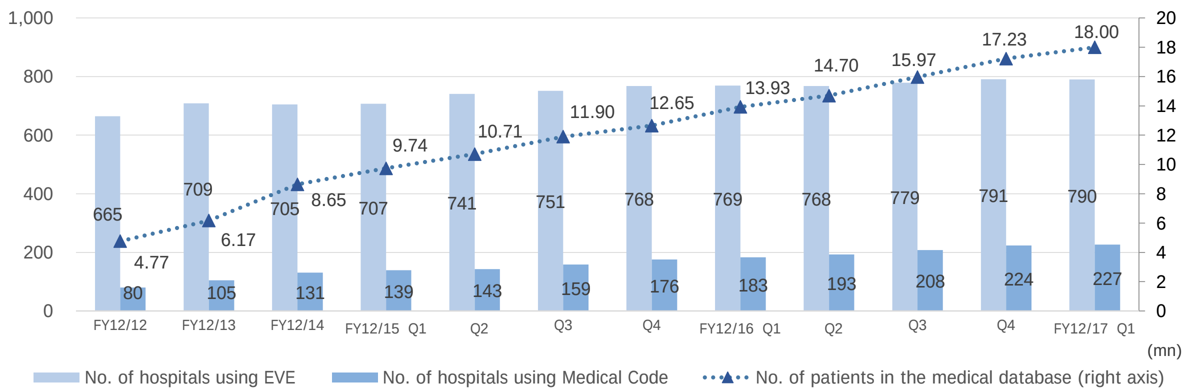
The number of hospitals using MDV's services and the amount of data the company has accumulated with consent are growing due to the abovementioned changes in the external environment.

As of the end of Q1 FY12/17, the Data Network Service segment, which primarily sells packaged software for medical institutions, saw a total of 790 hospitals implement the large-scale DPC analysis benchmark system, EVE, and the company was in possession of benchmark data from some of the largest hospitals implementing DPC in the private sector. In addition, the segment saw a total of 227 hospitals implement the hospital management support system, Medical Code. For the Data Use and Application Service segment, which is primarily for pharmaceutical companies, there were 13 companies that used the MDV analyzer, a tool for analyzing medical data.

Even as the use of big data in medical-related industries is gaining attention, MDV accumulated DPC data provided by hospitals (representing 18.0mn patients) by the end of Q1 FY12/17, with consent for secondary use. As of the end of April 2017, it was in possession of data on 18.2mn patients (roughly one out of every seven people in Japan). As of the end of March 2017, there were 1,664 hospitals that implemented the DPC system, and 45% of those hospitals used the company's product.

MDV provides use and application services for this medical big data to pharmaceutical companies, research institutions, and the over-the-counter and health and beauty care industries, but has also recently begun services aimed at the insurance industry.

Number of hospitals using EVE and Medical Code, number of patient records in medical database



Source: Shared Research based on company data

Topics

In February 2017, the company established MDV Commercial Healthcare Co., Ltd. to manufacture and sell OTC drugs and health and beauty care products designed to meet the essential needs of consumers based on studies of its huge patient database. This follows the company's January 2017 acquisition of all outstanding shares of Doctorbook, Inc., a service provider serving a members-only network of highly reputable doctors and dentists that are looking to share medical techniques and clinical knowledge in order to improve the quality of the medical care they provide. The acquisition of Doctorbook was driven by MDV's desire to have a company in its group that could serve as the base for its move into the dental market and the large medical market. MDV is also looking to benefit from changes in its current business practices with the help from Doctorbook's advanced video production capabilities.

View the full report.

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