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Strategic Intelligence Monitor on Personal Health Systems Phase 3 (SIMPHS3)

*MOMA and Maccabi Healthcare
Services (Israel)*

Case Study Report

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Abstract

MOMA is a care model based on a multidisciplinary 24/7 advanced technology call centre for treatment of various chronic diseases. It was established in 2012 by Maccabi Healthcare Services in cooperation with the Gertner Institute. Maccabi Healthcare Services is one of the four authorised health funds providing universal healthcare services in Israel. The MOMA initiative was designed as a technological tool to improve the integration of different services such as long-term care, pharmacy, homecare and hospital care, in coordination with the patient's primary care physician and other community-based resources. MOMA addresses the needs of chronically ill patients, which Maccabi Healthcare Services considered as patients who should receive special care instead of standard care.

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Preface

The Strategic Intelligence Monitor on Personal Health Systems (SIMPHS) research started in 2009 with the analysis of the market for Remote Patient Monitoring and Treatment (RMT) within Personal Health Systems (PHS). This approach was complemented in a second phase (SIMPHS2) with the analysis of the demand side, focusing on needs, demands and experiences with PHS by healthcare producing units (e.g. hospitals, primary care centres), healthcare professionals, healthcare authorities and patients amongst others.

Building on the lessons learnt from SIMPHS2 and on the European Innovation Partnership on Active and Healthy Ageing initiative, SIMPHS3 aims to explore the factors that lead to successful deployment of integrated care and independent living, and define best operational practices and guidelines for further deployment in Europe. This case study report is one of a series of case studies developed to achieve these objectives.

The outcomes of SIMPHS2 are presented in a series of public reports which discuss the role of governance, innovation and impact assessment in enabling integrated care deployment. In addition, through the qualitative analysis of twenty seven Telehealth, Telecare and Integrated Care projects implemented across twenty regions in eight European countries investigated in SIMPHS2, eight facilitators have been identified, based on Suter's ten key principles for successful health systems integration.

The eight main facilitators identified among these as necessary for successful deployment and adoption of telehealth, telecare and integrated care in European regions are:

- Reorganisation of services,
- Patient focus,
- Governance mechanisms,
- Interoperable information systems
- Policy commitment,
- Engaged professionals,
- National investments and funding programmes, and
- Incentives and financing.

These eight facilitators have guided the analysis of the cases studied in SIMPHS3 and a graph showing the relative importance of each facilitator is presented in each case study.

In addition to the above facilitators analysed in each case report, a specific section is dedicated to the analysis of care integration. It should be noted that the definition of vertical and horizontal integration used in this research is taken from the scientific literature in the field of integrated care¹ and differs from the one mentioned in the European Innovation Partnership on Active and Healthy Ageing Strategic Implementation Plan.² We define horizontal integration as the situation where similar organisations/units at the same level join together (e.g. two hospitals) and vertical integration as the combination of different organisations/units at different level (e.g. hospital, primary care and social care).

¹ Kodner, D. (2009). All together now A conceptual Exploration of Integrated Care.

² http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/steering-group/operational_plan.pdf (page 27)

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Case outlook

MOMA is a care model based on a multidisciplinary 24/7 advanced technology call centre for treatment of various chronic diseases. It was established in 2012 by Maccabi Healthcare Services in cooperation with the Gertner Institute. Maccabi Healthcare Services is one of the four authorised health funds providing universal healthcare services in Israel.

The MOMA initiative was designed as a technological tool to improve the integration of different services such as long-term care, pharmacy, homecare and hospital care, in coordination with the patient's primary care physician and other community-based resources. MOMA addresses the needs of chronically ill patients, those who Maccabi Healthcare Services considers as patients who should receive special care instead of standard care. Their disease often worsens their quality of life significantly, as they may suffer from psychological instability and depression, for instance. They are also the most costly patients in the system because of the frequent re-hospitalisations they require and the special needs related to their disease management process. MOMA addresses both age-related chronic illnesses (e.g. CHF, COPD, frailty and diabetes) and other chronic illnesses (e.g. stoma, chronic wounds, and oncology patients).

MOMA is partly based on a technology strategy adopted by Maccabi Healthcare Services in the early 80s, which includes the introduction of an organisational electronic medical record, computerisation of all services and every transaction with the patient, patient access to his or her health records, and telemedicine. With the collaboration of the Gertner Institute, Maccabi started a pilot to assess patients with Congestive Heart Failure (CHF) remotely in 2008. In total, 600 pairs of patients/primary caregivers participated in the pilot. The results of the pilot were very promising in terms of patient satisfaction, impact on the burden on caregivers and quality of life. Hence, Maccabi decided to move from pilot to implementation in routine care, expanding the targeted population. Nevertheless, for the first two years of MOMA operation (2012-2014), none of the patients suffering from COPD and CHF were provided with monitoring devices that transmit data automatically to the call centre. Maccabi is now reintroducing remote monitoring devices for selected patients and expects to expand this system to all eligible patients by 2015.

MOMA's operations began in July 2012, and it has served more than 11,500 patients to date. In order to examine the economic viability of MOMA, Maccabi analysed the data of four long-term cohorts, comparing their costs in two points in time: 2011 (prior to the start of MOMA) and 2013 (a full year after the MOMA intervention). While in most cohorts, baseline costs per capita were higher among MOMA patients compared to control patients, according to Maccabi, the intervention has led to an estimated cost savings of 4% compared to average Maccabi members, and an estimated savings of 48% compared to chronically ill patients who could potentially benefit from the MOMA services.

Maccabi and The Gertner Institute are collaborating with other health management organisations in Israel to implement the MOMA model further. In order for any health management organisation or health institution to adopt an initiative similar to MOMA successfully, there are two key requirements: the availability of a mature health information system, and patients' and professionals' readiness to adopt the technology. One of the main hurdles are the initial set-up costs, which means that funding for the early stages of the project should be secured and detailed plans should be developed in order to ensure sustainability of the initiative.

1 Background

1.1 Israel

Israel is a small country (i.e. 22,145 km² territory) founded in 1948 and located in the Middle East, at the junction of three continents (Africa, Asia, and Europe). Lying on the Mediterranean Sea shore, it is surrounded by Syria, Lebanon, Egypt, Jordan and the Palestinian Authority (Gaza and the West Bank). Israel has the highest GDP per capita of its region and can be considered the main economic engine in the Middle East. The population at the end of 2012 was 8 million, and it is remarkably young (28% under 15, 10% over 65). Israel is the only Jewish country in the world and the 75% practice Judaism as a religion, while 16% of the population are Muslims, 2% Christian and 1.5% Druze. Israel's population is growing fast (200% since 1990). This phenomenon can be explained by the high overall fertility rate (the highest in the OECD 2.88 children per woman) and the increasing migration, mainly from Former Soviet Union countries during the 90s and in more recent years from North America and Europe. The State of Israel has been involved since its foundation in a socio-political conflict with the Arab neighbouring countries.

1.2 The Israeli Health System

Israel has a tax-funded national health insurance (NHI) system that provides universal coverage of healthcare to its population. There is free choice among four competing, non-profit-making health funds (Health Maintenance Organisations (HMOs), which receive NHI funds from the Government according to a capitation formula. The four HMOs are Clalit, Maccabi Healthcare Services, Kupat Holim Meuhedet and Leumit (of these funds, Clalit has the largest number of health facilities).

The HMOs are health insurance funds recognised by the Israeli National Health Insurance Law, and are obliged to provide a uniform basic basket of health services. They are allowed to offer supplementary health and care services beyond the basket, for an additional premium. Approximately 75% of the population purchases complementary health insurance from one of the four health insurance funds that cover services outside the basic package, such as dental care or ancillary services, and provide choice of private provider. A third of the Israeli population subscribes to commercial health insurance that offers additional benefits such as lump sum payments for certain diseases, additional benefits for treatment abroad, and cover for lifesaving medication not included in the public basket of services. A further two-thirds of the population also purchases commercial insurance for long-term care, the vast majority through group policies purchased by their HMO.

The system is financed primarily from public sources via payroll and general tax revenues. Healthcare accounts for 7.9% of gross domestic product (GDP) in 2009 – the eighth lowest among OECD countries (See Figure 1). Hospitals and public clinics each account for approximately 40% of national health expenditure, and dental care accounts for a further 10%. In recent years, the share of public financing has declined to 64% of total health system financing, while the share of private financing, especially voluntary health insurance and co-payments, has increased to 36% (See Figure 2 that shows the evolution of funding sources over the last few years). Healthcare providers are paid by a variety of payment methods including salary, capitation and fee for service.

Figure 1: Evolution of Israel Investment in Health and Comparison with the rest OCDE countries (OECD, 2012).

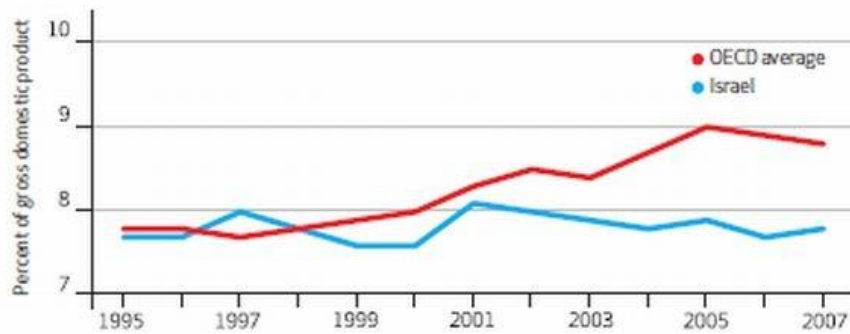
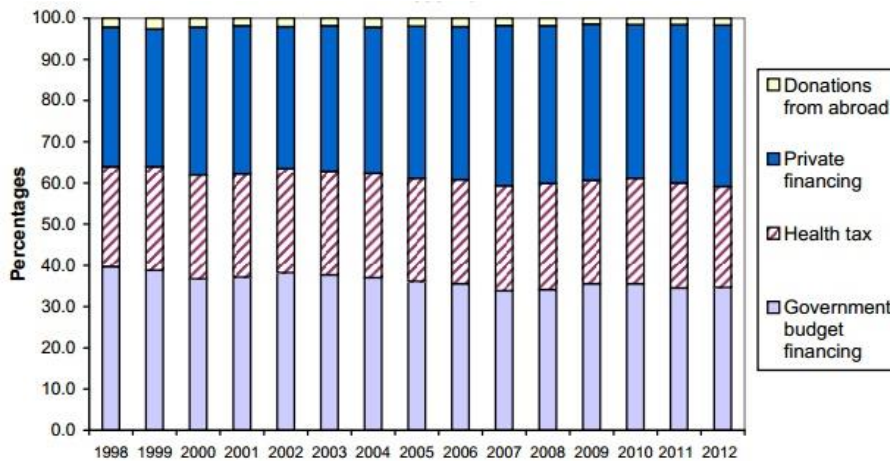


Figure 2: Evolution of Funding Sources³



Access to healthcare in Israel is universal and participation in medical insurance is compulsory. The National Health insurance was established in 1995 and is regulated under National Insurance Law. It provides the population of Israel with a specific package of benefits, as a fundamental right for all citizens.

The Israeli healthcare system is based on a hierarchical structure comprising the following organisations:

- **Knesset:** It is the main legislative body in Israel's parliamentary democracy. Its main goal is to determine laws and budgets. It is divided into committees, which amend bills on the appropriate subjects. Two committees are involved in the decision making on health care issues: the Finance Committee which approves and handles budget annually; and the Labour, Social Affairs and Health Committee which is responsible for overseeing the healthcare systems. Many amendments related to the National Health Care Law have to go through the Labour, Social Affairs and Health Committee.
- **The Government:** It prepares and submits the budget to the Knesset, which must vote on this annually.

³ Central Bureau of Statistics. Government of Israel.

- **Ministry of Health:** it has the overall responsibility for the health of the population and effective functioning of the system. Its main functions include: planning and determining health priorities, drafting laws to be approved by Knesset, negotiating with the Ministry of Finance regarding the funding for National Health Insurance, promoting the effective use of resources and healthy habits, regulating health care professions, preparing the system for emergency situations, terror attacks or military interventions, and managing its hospitals and facilities.
- **National Insurance Institute (NII):** its main task in the healthcare system is the collection of the health tax. The NII is Israel's Social Security organisation and is responsible for long-term care of the elderly at home, old age allowances, allowances for the disabled, pensions etc.
- **Israel Defence Force:** Provides health support and care for military personnel.

The Ministry of Health has an overarching regulatory and policy-making role, and runs the state-owned hospitals which represent about half the country's hospitals, while local governments provide public health services and sanitation. The State is responsible for supervising, licensing and overall planning of health services. The government provides health funds with a yearly per capita allocation adjusted for age, gender and location of the people insured by each fund. Funds seek to drive improvement in the system either by their direct control of the clinics they own or by contracting with independent health providers.

Other non-governmental actors are Magen David Adom ("Red Star of David"), the equivalent of the Red Cross or Red Crescent. It provides first aid and emergency services, along with social care support; universities; pharmaceutical companies; and patient and professional associations that are advocates for users' rights.

Israel has a centralised governance model, which also applies to health care. However, there are Public Health Divisions which operate through regional and local offices. Their aim is to ensure the implementation of those policies and strategies developed at national level. The HMOs are also governed in a similar way. Although national headquarters are responsible for management and planning, the operation of services is decentralised to the regional level and, below that, to the branch level, which facilitates access to care in the community.

The National Insurance Law aimed to reduce the role of government in service provision in three key areas of activity: personal preventive care, long-term care and mental health care. These competences should have been transferred to HMOs shortly after the enactment of the Law, but this has been delayed considerably. Mental health care was in the process of being transferred to the HMOs at the time of writing. Since the 1990s, policy makers have tried to transform state hospitals into independent hospitals, as non-profit trusts. This has failed because of the opposition of health care unions. Nevertheless, these hospitals have gradually become more autonomous.

The supply of physicians in Israel is relatively high (3.1 per 1000), but the number of physicians is growing too slowly, and mostly through the continuous immigration of Jewish physicians from other regions. Nevertheless, there is a plan to open new Medical schools in the country, in order to comply with demand.

Since the late 1970s the Israeli healthcare system, like in other countries, has had to cope with an ageing population, which results in steadily increasing demand for geriatric services and care for chronically ill people, along with the need to invest in the latest technology for diagnosis and treatment. The Israeli public healthcare system anticipated the need for

modern services to meet these needs, which require investing in sophisticated equipment as well as research and professional expertise, in order to keep up with leading international standards. The result has been a continuous rise in health expenditure, and an ever-widening gap between the resources available and the actual expenditures of the healthcare system. Nevertheless, the Ministry of Health has created several new planning and regulatory units staffed by trained professionals, including units for health economics, supervision of health plans and regulation of the adoption of new technologies which have helped improve the efficiency of the system.

Patient's Rights Law, established by Israel's parliament and legislating body (i.e. Knesset) in 1996 regulates the relationship between people who require medical treatment and members of the medical staff who provide it. It is based on 12 principles that ensure access by patients to medical assistance, medical confidentiality, proper medical care, information, etc.

In addition, Israel has one of the best mechanisms for coping with sudden disasters. The political environment and the concerns about possible hostilities from neighbouring countries or armed groups has conditioned the development of emergency plans and the investment of a large part of the Ministry of Health's budget in first-aid and fast-response civil emergency service.

1.3 Maccabi Healthcare Services and MOMA

Maccabi Healthcare Services⁴ is the second largest Health Maintenance Organization (HMO) in Israel. It was founded as an independent, mutual, non-profit health insurance fund in 1941, by Jewish doctors who immigrated to Palestine from Germany, as an alternative to the only healthcare system that existed in the British Mandate for Palestine: Clalit. Following the enactment of the Israeli National Health Insurance Law in 1995, Maccabi Healthcare Services was recognised as one of the four health funds in charge of providing healthcare services under the Law. Maccabi now provides services to more than 2 million people, i.e. 25% of Israel's total population.

Maccabi is organised into five districts, encompassing 150 branches, which provide both administrative and healthcare services throughout the country. Most of the services are provided by contracted independent providers: 4,000 independent physicians including primary care physicians and specialists; 300 senior consultants (who are hospital department heads); 250 diagnostic institutes; 700 private pharmacies and public and private hospitals. In addition, over 600 salaried physicians are employed by Maccabi, which also owns a centralised laboratory system, a teleradiology system, telemedicine services (both diagnostic and home monitoring or telecare), specialty clinics, and a chain of 53 pharmacies and a private network of hospitals: Assuta Medical Centers.

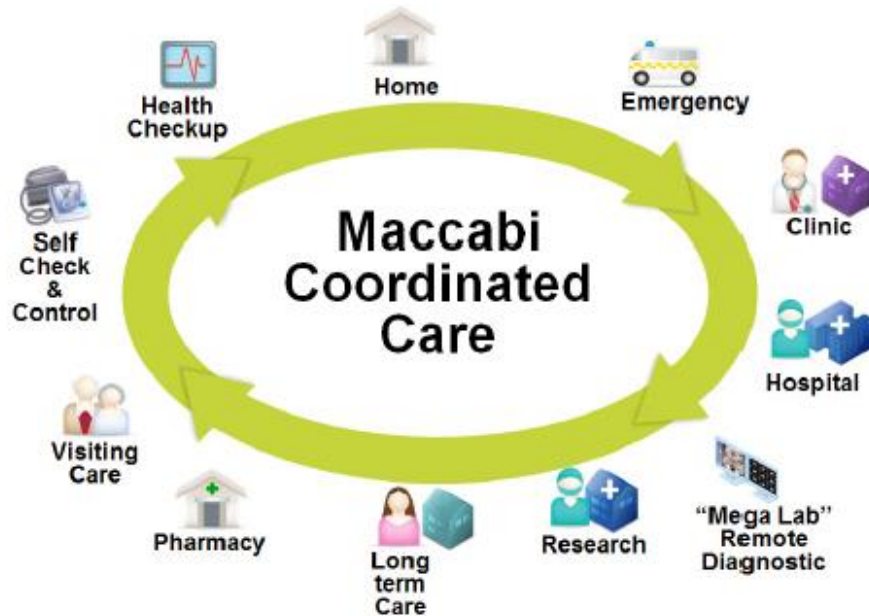
Maccabi Healthcare Services have created a Training and Human Resources Development Department, which aims to enhance employees' professional standards and keep up to date with new and advanced medical procedures.

In 1983, Maccabi recognised that the healthcare system of the future would require sophisticated information and communication technology for efficient management, as well as effective and innovative health care services delivery. The 'Maccabi Coordinated Care' system is considered by Maccabi Healthcare Services as a 'way of living' and not just a project (see Figure 3). It aimed to use Information and Communication Technologies (ICT)

⁴ <http://www.maccabi4u.co.il/1781-he/Maccabi.aspx>

to create a comprehensive, progressive and fully computerised system. The idea was to develop a networked infrastructure at all levels (administrative, diagnostic, therapeutic, and preventive) to connect physicians, nurses, therapists, primary carers and patients. To this end, all the people involved in the system were provided with the information and tools to ensure a faster, more accurate, safer and easier model of care provision. In 1996, all doctors associated with Maccabi Healthcare Services were using a unique Electronic Medical Record (EMR) database. Later, in 1999 nurses were also incorporated into the system and today all healthcare professionals use the Maccabi EMR system. Finally, users (Maccabi members) were also given access to their information from EMR in 2002.

Figure 3: Maccabi Coordinated Care Strategy



MOMA is a 24/7 advanced technology call centre that aims to provide a wide population with better access to medical advice, to empower patients to manage their own care and to effectively coordinate medical treatment and health services. The call centre provides patients with direct contact with trained and specialised professionals from a multidisciplinary team (nurses, general practitioners, dieticians, etc.) who deliver personalised care. The trained nurses in the call centre educate patients on caring for themselves and good practices, empowering them to be active in their own treatment.

MOMA is to some extent a technology-based strategy which was adopted by Maccabi Healthcare Services in the early 80s. MOMA was set up in collaboration with the Gertner Institute⁵, which financed the initial set up and operational costs during the first 3 years.

Prior to the establishment of MOMA, Maccabi and the Gertner Institute launched a pilot study to assess patients with Congestive Heart Failure (CHF) remotely in 2008. In total, 600 pairs of patients/primary caregivers participated (Kaufman, 2014). The results were very promising in terms of patient satisfaction, impact on the burden of caregivers and quality of life, amongst others⁶. Hence, Maccabi managers decided to move from pilot to routine care. For the first two years of MOMA operation, none of the patients suffering from COPD

⁵ <http://www.gertnerinst.org.il/e/>

⁶ Results can be found in a presentation given in April 2013 in the European Project MOMENTUM: http://www.telemedicine-momentum.eu/wp-content/uploads/2013/02/Momentum_9apr13_Kaye.pdf

and CHF were provided with monitoring devices that transmit data automatically to the call centre. This decision was not lightly taken and was based on three factors:

- The outcomes of the CHF pilot were related predominantly to the positive and supportive relationship between the nurse case manager and the patient and his/her family/caregiver developed and maintained by proactive video conference and phone calls.
- The daily transmission of physiological information (blood pressure, pulse and weight) did not contribute as much as expected to improving health outcomes and in fact, generated a significant amount of false alerts as there was no way to identify who was using the devices (an unaddressed universal problem with home monitoring devices).
- The limited contribution of the devices to improved care management process did not justify the additional expenses of having monitoring devices at home.

MOMA's operations began in July 2012, and by the end of 2014 it had served 11,500 patients, of whom 7,200 are still being monitored (50% suffer from CHF and COPD). MOMA targets 2 groups of patients: frail and complex chronic clients (i.e. stable homecare patients and unstable CHF and COPD patients); and stable chronic clients (i.e. diabetic, cancer, stoma and chronic wound patients). Maccabi is now reintroducing remote monitoring devices for selected patients and Maccabi expects to expand this system to all patients under MOMA who meet the eligibility criteria by 2015.

With regards to the professionals working in MOMA, there are 4 different types of actors involved: primary care physicians, call centre nurses, members of multidisciplinary teams in specialised centres and specialists. The latter are not employed by Maccabi. Currently, there are around 100 nurses and 4 primary care physicians, specialist consultants in geriatrics, cardiology, pulmonology and endocrinology, social workers, nutritionists, and clinical pharmacologists.

1.4 The Gertner Institute

The Gertner Institute was founded in 1991 to promote epidemiologic research on chronic diseases and also to assist Israel's leadership in the formulation of national health policy. Its founder, Prof. Mordecai Shani, is currently the Director of the Division of Health and Society.

The Gertner Institute was established under the laws of the State of Israel as a 'company for the benefit of the public'. The institute also drives the development and deployment of innovative ideas related to the integration of health and society. In 2013 it became a member of the European Innovation Partnership on Active and Healthy Ageing, Action Group B3 on Integrated Care.

The Israel Centre for Disease Control and the Israel National Institute for Health Policy and Health Services Research are both located in the Gertner Institute building. This strengthens the Gertner Institute's position among researchers in the field of health policy.

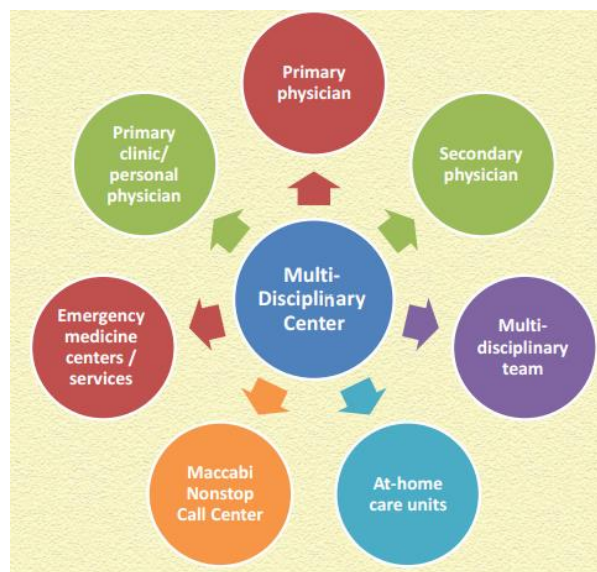
Prof. Mordecai Shani played a decisive role in the conception and implementation of MOMA. He led the design of the model and promoted the commitment of the Gertner Institute, convincing every stakeholder about the need for integrated care, which led to the collaboration between Maccabi Healthcare Services and the Institute. This relationship is on-going and the Gertner Institute currently contributes to MOMA by funding 50% of the project budget.

2 Integrated care analysis

2.1 Dimensions of integration

The main objective of MOMA is to enhance the autonomy and quality of life of patients with chronic diseases. These patients require special treatment, as their diseases clearly affect their daily lives, reducing their functional capacities, which impacts their psychological state and that of their caregivers. They also generate higher costs to the healthcare system, as inadequate care can lead to exacerbations and a greater number of hospitalisations. MOMA puts the patients at the centre of integration, and all the services and processes are organised around them (see Figure 4 that shows all the actors involved in supporting patients in MOMA).

Figure 4: MOMA's Team on the Field



MOMA aims to provide chronic patients with a direct point of contact with healthcare providers through the call centre. The final goal is to enhance patient access to medical services, prevent sudden exacerbation and involve patients in the disease management process and in self-care.

Thus, each type of actor involved in MOMA has a specific role that enables care integration:

- Call Centre Nurse: they are the direct point of contact for the patient. The communication is carried out through regular phone calls or videoconferences that are proactive and initiated by the nurses in accordance with computerised protocols. Patients and their informal caregivers can also contact the nurses at the call centre to get advice on disease management. Nurses at the call centre collect information from all routine calls and update the patient's history in the EMR. Moreover, they can alert the other professionals when patients report an unusual event. To sum up, they are the core of the MOMA strategy.
- Primary care physician: a central part of Maccabi's strategy is the involvement of the independent General Practitioners (GP), about 1,000 professionals who are the case managers (who have signed a contract with Maccabi). These GPs are responsible for defining the Disease Management Process (DMP) and making the

important decisions. For instance, they decide whether the patient is suited to be part of MOMA or not, therefore acting as gatekeepers to the system.

- Multidisciplinary team in specialised centres: (i.e. nurses, doctors, dieticians, physiotherapists, etc.). This team gets patient status inputs and updates from the EMR and the nurses at the call centre, and supports primary care physicians in their decision making and care plan development.
- Specialists, who are in most cases (like GPs) independent physicians who sign a contract with Maccabi, which makes the use of the EMR mandatory. Although specialists do not have a routinely defined function within the MOMA initiative, these physicians have contact with MOMA patients, and are integrated in the system, in order to enhance communication among all actors in the healthcare process.

The MOMA case can be considered as an example of coordination between professionals from different service levels. It aims to improve treatment quality and access by patients to services, while maintaining and supporting the primary care physician as the case manager.

MOMA has brought little horizontal integration with services outside. The call centre is unique, all the professionals involved work for Maccabi Healthcare Services and each patient has his or her primary care physician. Although there is no specific integration amongst organisations or amongst professionals, some social workers participate in the multidisciplinary advisory group, providing social care support. This includes the evaluation of the patients' functional level and the design of a plan of visits by other social carers. However, these home carers do not work for Maccabi, but for the National Insurance Institute, and they do not have access to the EMR.

In terms of service delivery, Maccabi Healthcare Services have reached a high level of integration through MOMA. Call centre nurses and doctors collaborate closely, and they communicate smoothly through the system, accessing all the relevant information about patients. Moreover, patients and their relatives are engaged and involved in the set-up, playing an active role in the communication process, through the nurse at the call centre, following the case protocol established by the primary care physician.

2.2 Impact

Maccabi Healthcare Services have carried out some internal studies which aim to validate the feasibility of integrating the new strategies into routine practice. These studies comprise patient surveys on different cohorts of patients (i.e. CHF, COPD, Type II Diabetes and Frail Patients), doctor surveys, and economic impact analyses. Most of the results have been presented in different conferences and events (i.e. 2nd Momentum Workshop⁷, the 14th International Conference on Integrated Care⁸ and the CIO Summit HIMSS Europe⁹) but no publications are available.

⁷ Presentation at the 2nd Momentum Workshop on April 8 2013 by Rachele Kaye: http://www.telemedicine-momentum.eu/wp-content/uploads/2013/02/Momentum_9apr13_Kaye.pdf

⁸ Presentation at the [14th International Conference on Integrated Care, Brussels, April 2-4 2014](http://www.integratedcarefoundation.org/sites/default/files/field/files/P7A-Andrea_Pavlikova-and-Haya_Barkai-innovation-through-progress-EIP-AHA-ICT.pdf): MOMA - Multidisciplinary Center for the disease management of specific chronic diseases by Andrea Pavlikova: http://www.integratedcarefoundation.org/sites/default/files/field/files/P7A-Andrea_Pavlikova-and-Haya_Barkai-innovation-through-progress-EIP-AHA-ICT.pdf

⁹ Presentation at the CIO Summit HIMSS Europe October 6-7 2014, Rome by Dr Hadas Lewy: https://www.eiseverywhere.com/file_uploads/87b5a62811c4e862067aac9e446bd76d_hadaslewy.pdf

First, Maccabi surveyed 800 patients to assess their perception of and satisfaction with MOMA. All the indicators supported the acceptance of MOMA and the satisfaction with the nurses and their activity. The results on a Likert-scale from 1 (not at all) to 7 (very satisfied) were in general above 6: for instance, general satisfaction (6.64), relationship and respect (6.83), relying on nurse (6.60); patients were slightly less satisfied with adaptation to community services (5.65). In addition, most of the patients surveyed (93%) perceived a strong coordination between doctors and nurses recommendations.

Comparing the MOMA intervention with the situation before its introduction, there was no change in health condition as measured by Quality of life indicators, but there was an improvement in mental state with an increase of 3.2 points in the SF-12¹⁰ questionnaire. In addition, rates of depression measured through Patient Health Questionnaire 9 (PQH9)¹¹, decreased from 24% to 15%. Furthermore, results showed that patients took better care of themselves, maintaining a healthy diet, doing physical activity twice a week, taking their daily medication as recommended.

Maccabi also investigated the patients' perception of their diseases and their ability to deal with the associated conditions in different cases. They compared MOMA patients with control group patients. The control patients were also Maccabi Healthcare Services members, who fulfilled MOMA inclusion criteria, but were treated following pre-existing care protocols. Again the survey used a Likert-scale (1-7) and results showed slight differences (0.2 points). Maccabi identified clear indications or trends of increased patient adherence to treatment regimen among the CHF and COPD cohorts. They found a consistent increase of 16% in taking prescribed drugs among MOMA's members compared to control patients. Also, the adherence rate of CHF cohorts to treatment regimen was around 80% compared to 60-70% for control patients. Moreover, out of the 395 COPD MOMA patients who smoked when they joined MOMA, 20% have given up smoking, 42% were referred to a smoking cessation group, and a third has not yet decided. Finally, there were initial indications of a reduction in hospitalisations among MOMA patients compared to control patients (30% reduction in 6 months).

Second, Maccabi Healthcare Systems performed a study to measure the economic impact and cost-effectiveness of the MOMA service comparing their costs in two points in time: 2011 (prior to MOMA's intervention) and 2013 (a full year after MOMA began). The study explored four different long-term care cohorts: COPD, CHF, Home Care and Fragile patients. Patients were divided into two groups:

- Case patients refer to patients assigned to the MOMA plan. Their state is evaluated continuously through eHealth, electronic medical records and programmed phone calls by trained nurses. Moreover, their treatment is personalised, and there are standardised protocols and strategies to detect deterioration and risk conditions.
- Control patients established as described above.

The study included 1,212 MOMA patients and 861 control group patients for CHF; 919 MOMA patients and 536 control group patients for COPD; 556 MOMA patients and 568 control patients for home care; and 228 MOMA patients and 693 as control for frail patients. In most cohorts, baseline costs per capita were higher among MOMA patients compared to control patients. Overall, according to Maccabi, MOMA has led to an estimated cost savings of 4% compared to costs incurred by average Maccabi members. This

¹⁰ <http://www.sf-36.org/tools/sf12.shtml>

¹¹ <http://www.patient.co.uk/doctor/patient-health-questionnaire-phq-9>

represents more than a third of the operating costs of MOMA – and this only after a year of full operation. The estimated cost savings for MOMA patients compared to eligible patients appears to be even more significant and the utilisation trends support the assessment that cost-effectiveness will continue to increase as MOMA gains in maturity¹².

Finally, 64 primary care doctors participated in a survey which explored their satisfaction with the MOMA system and their nurses. Using the same 7 point Likert-scale and 5.5 representing high satisfaction among doctors in Maccabi's general surveys, MOMA scored over 6 in the 3 studied dimensions: nurses availability (6.3) nurse-doctor interaction (6.5) and trust in nurses' professionalism (6.3).

2.3 Drivers and barriers

The contribution of the Gertner Institute was a crucial driver for the design and implementation of the MOMA project. More specifically, the founder of the Gertner Institute (Prof. Mordechai Shani) acted as MOMA's champion. After his experience as Director General of the Ministry of Health and contact with a South African doctor who was implementing 'Community-Oriented Primary Care' as a holistic health care approach, Prof. Shani decided to advocate on a national basis a model that was more accessible for patients. This was the conceptual seed for the implementation of MOMA. The Gertner Institute began to collaborate with Maccabi Healthcare to carry out a pilot study on Congestive Heart Failure (CHF) patients. As the outcomes of this trial were satisfactory, Maccabi Healthcare and Gertner Institute decided to create the Call Centre and expand the strategy to other diseases and to the whole Maccabi system. From a financial perspective, the Gertner Institute participated in the support of the pilot and currently supports MOMA with 50% of the total budget.

Maccabi has focused on the inclusion of ICT in routine practice since the 1980s. In 1983 the leaders of Maccabi concluded that the healthcare IT system of the future would require sophisticated information and communication technology to enhance effectiveness and ensure sustainability of the healthcare system. The work on the Health Information System started as early as 1984. The implementation of the Electronic Medical Record started in 1990.

This long experience in the field has facilitated the adoption of MOMA. Maccabi has established the use of these technologies as a way of 'doing business'. All the health providers (external GPs) were already used to dealing with the Health Information System as were the users, nurses and the other professionals. The EMR and the use of technology were already integrated into the disease management environment and the new model did not imply the design of extensive training programmes. The culture of the organisation was remarkably ready to embrace the system.

One of the key factors for MOMA's successful implementation has been the autonomy HMOs have in Israel. After the approval of the Health Care Reform in 1995 and the establishment of the four HMOs, the Ministry of Health gave them the freedom to administer their operations themselves, within some limits and the obligation to guarantee the minimum healthcare package. Thus, HMOs in Israel also have the freedom and capacity to innovate and develop their own strategies without the intervention of any external policy makers.

¹² Data provided by Maccabi and that was presented in October 2014 in CIO Summit HIMSS.

Patients were also used to the system, and they found the initiative positive for their disease management and care. Their acceptance of the technology was facilitated by the incentives they received. For instance, the personal medical card did away with all the paperwork and improved patients' perceptions of their ability to care for themselves and access medical service; and the Decision Support System (DSS) enhanced safety e.g. with regards to allergies and contraindications.

Maccabi Healthcare Services defined new roles for the nurses running the call centre. They do not carry out any direct care activity in hospital or primary care facilities. They do not provide mobile nursing services either. They focus entirely on the call centre and patient telecare and receive specific training for this. Maccabi Healthcare Services compiled all these methods in standards and guidelines to enable transferability.

Regarding barriers, there is some reluctance amongst patients who prefer to physically visit health providers to videoconferences or phone calls. They feel more comfortable and better cared for if they have direct contact with the physician or nurse. In addition, some of them do not take advantage of the education provided by call centre nurses who teach them how to deal with their conditions. They think they know everything about their diseases, and do not let nurses teach them about the new care model nor the role they are supposed to play in MOMA.

In addition, the initial set-up costs may hinder the implementation of similar initiatives, which means that funding for the early stages of the project should be secured and detailed plans should be developed in order to ensure the sustainability of the initiative. In the MOMA case, the involvement of The Gertner Institute helped to overcome this barrier.

Some of the healthcare providers did not share the views of Maccabi about the integration of services. They felt they were losing competences in the new model, in favour of the nurses, whose opinion some of them did not trust. Communication and reliability should be enhanced in these cases. Physicians also had to learn how to use the techniques to treat patients remotely. Some of them were reluctant to make the change and did not trust the system. Therefore it was difficult to make them understand how they can treat a patient over the phone or by teleconference. In addition, they had to undergo an educational process for patient recruitment, which some perceived as an extra workload.

2.4 Health professionals and patients

Kaye et al, (2010) express their conviction that successful health IT investments are characterised by the willingness of professionals to engage in new processes and to change the way they work. Following this vision, Maccabi has used an incentives plan for the last 20 years in order to engage professionals in the use of the EHR. Incentives included a 2% increase in quarterly capitation fees, negotiating significant group discounts on the purchase of devices and hardware, interest-free loans for purchasing hardware with convenient repayment conditions and free software provision to the physician. The integration of the EHR in routine practice was gradual. It started as a pilot project with doctors who volunteered to use the system. After this was found to be successful, Maccabi initially made use of the EHR voluntary for doctors under contract but mandatory for new doctors. This continued until most of the doctors were in the system, at which point its use became a requirement to work with Maccabi. Hence, when MOMA began, all physicians were using the EHR, which facilitated its implementation.

In MOMA, the General Practitioner acts as gatekeeper and case manager. GPs decide which patients qualify for the programme and invite them to join the initiative. However, it is not

possible for GPs to attend patients 24/7. A new role was required, a role that ensured the smooth flow of information among all professionals involved in the care of the patient: the Call Centre Nurse.

The multidisciplinary call centre is the direct link between the patients and the rest of the stakeholders involved in their healthcare. They are responsible for the periodic remote visits (either via telephone call or teleconferencing system), and for attending all the calls that support patients in their self-care activity. Moreover they update the EMR and get feedback from the primary care physicians and the multidisciplinary team.

No new people were hired for the Multidisciplinary Call Centre. Nurses already working in Maccabi were trained to deal with the technology, clinical protocols and disease-related processes. Moreover they learnt different techniques to enhance communication with patients and informal caregivers. They must convey to patients a feeling of safety and closeness and fulfil their obligations with regard to MOMA.

Maccabi aims to achieve "Total Health" for its members, providing integrated and personalised health care to each and every member, and encouraging excellence in the quality of medical care, knowledge and service. Since the mid 1980's, Maccabi has encouraged patients to participate in their own care. At the end of the 1980s, Maccabi decided to encourage patients to use Maccabi's IT system by providing all its members with a Health ID Card. The personal Health ID Card had to be presented at every point of service, thereby enabling the system to capture members' transactions with the healthcare delivery system. Since 2002, Maccabi's patients have been allowed to access their own medical history: patients can look up information about their health status in kiosks placed in Maccabi Clinics, via the web portal and/or via a dedicated Maccabi mobile phone app that connects directly to the patient's EHR. This information comprises data such as doctor visits, test results, medication prescribed, feedback on risk factors, and online guidance for chronic disease management and health promotion.

Nowadays, every member of Maccabi Healthcare Services who needs the service has access to the MOMA service as part of the regular health package, which is funded by the National Health Insurance system. Thus, patients under MOMA do not have to co-pay any part of the telemedicine service. Nevertheless, Maccabi focused this plan on chronic patients and there are some restrictions as to who can use the service. Maccabi has clearly established protocols for recruiting patients: candidates for the service are identified by data mining the vast Maccabi database and call centre nurses contact their GPs to offer the service. These GPs have to evaluate their patients' status and decide whether they are suited to joining MOMA or not. They are the only 'gatekeepers' in MOMA. However, the final decision is made by patients, who can refuse to join the service.

Once patients join MOMA, the nurses have to reach an agreement with the GPs, in order to establish the communication standards they will follow. This tailored process initially increased the workload for nurses. However, nowadays this process is easier and faster for nurses, as GPs are more used to the system and have greater confidence in the new model. Regarding education and self-management, the nurses at the call centre provide patients with continuous education on good practices and habits, technology handling, treatment, etc. Education is provided via telephone calls or teleconferencing. Moreover, patients can receive reminders and alerts on preventive health and health promotion, with their express consent. Maccabi has also developed a 'Patient Internet Advisory Panel', a service on the web portal where Maccabi members can ask questions about topics such as Maccabi policy and services. These questions are answered by Maccabi's professionals. In addition,

Maccabi can ask its members for feedback as the basis for new policies and services. Currently, the Patient Internet Advisory Panel has more than 5,000 subscribers.

Maccabi's final goal is to provide patients with the best possible service which fulfils their needs and the MOMA strategy was planned accordingly. Although the main idea came from the Gertner Institute, Maccabi Healthcare Services tailored the initiative to patients and to the demands, requests and constraints from caregivers and professionals. In order to monitor all these factors, Maccabi Healthcare Services carry out periodic surveys to find out what individuals would change in the system. This survey is carried out regularly by Maccabi on all its services, not only on the services offered by MOMA.

2.5 Information and Communication Technologies

Israel has been a pioneer in the implementation of Health Information Systems. In 1983, the leaders of Maccabi decided to start working on the computerisation of their main organisational processes in order to move towards full computerisation. In 1989 Maccabi completed the computerisation of claims management and of prescriptions and pharmacies. By 1996, an Electronic Health Record (EHR) system was already working.

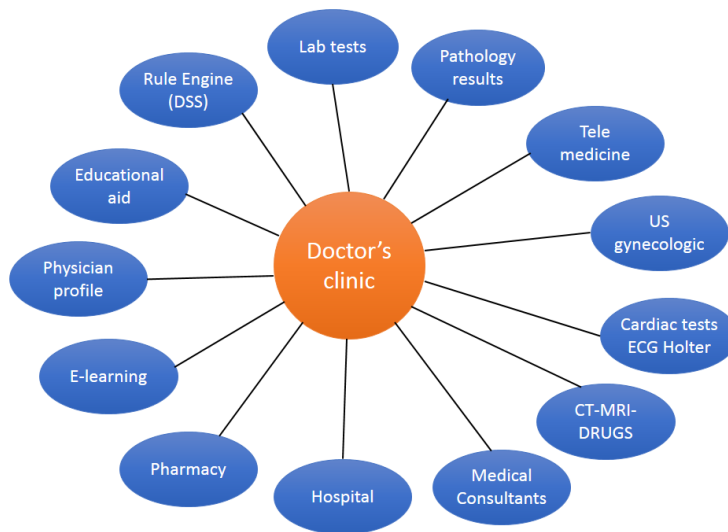
In order to support the development of ICT, Maccabi created an ICT department to monitor and regulate ICT issues, and to support the members and professionals in the use of these kinds of technology. Its main responsibilities include:

- Vendor selection and coordination: EMR vendor, web-based services vendor, rule-engine vendor. They are chosen for their compatibility with the Health Information System.
- Integration of all components as seamlessly as possible.
- Integration of telemedicine services into the existing Electronic Medical Record.
- Patient safety and data security support as part of the information system.

This department is formed by experts in the Information and Communication Technologies (ICTs) field. They are responsible for ensuring robustness of the network, guaranteeing the functioning of information channels and coordinating every actor. Their main goal is to achieve a 'unique language' for all the components in the Health Information System, and make vendors adapt to Maccabi's Healthcare System requirements.

Currently, Maccabi boasts a comprehensive ICT system that comprises a full Electronic Health Record / Electronic Medical Record (EHR / EMR), a Central Medical Record, Decision Support Systems, E-Laboratory, E-Prescription, E-Consultation, Telemedicine, Tele-Radiology, Alerts and Reminders and a patient website. Figure 5 presents an overview of all the services available for physicians in Maccabi's Health Information System.

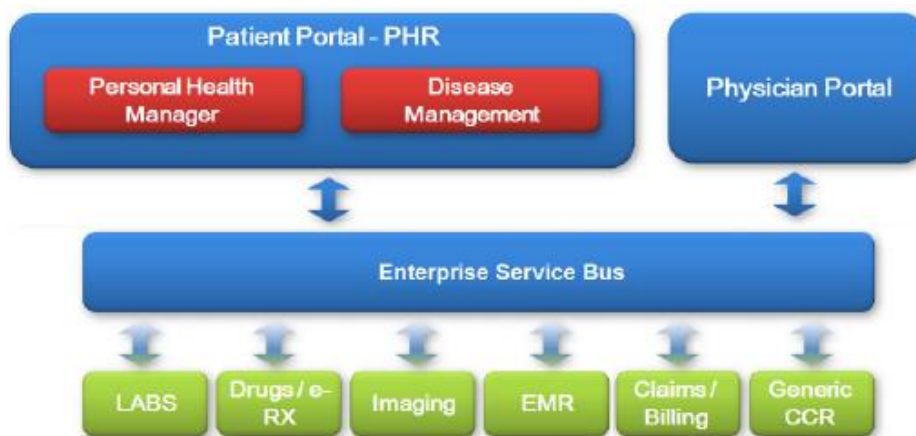
Figure 5: IT at the doctor's office



The Maccabi IT system allows all providers and health services to be electronically interconnected and to share clinical data in real time. The major strength of the Maccabi IT system is the level of connectivity between all the different technology systems. The system has been designed to be modular and flexible, building on industry standards in order to ensure interoperability between the different modules. The system architecture has been designed as a Service-Oriented Architecture (SOA) infrastructure, a web and cloud-based infrastructure that facilitates bidirectional communication with any data sources and users. The core technological component is the enterprise service bus that aggregates all data acquired by different sources, regardless of their format. The Enterprise Bus Server takes the data from different sources (labs, Imaging, the EMR, claims, etc.) and delivers them to the patients and physician portals in a format they can understand, hence enhancing the user experience for all stakeholders.

Figure 6 shows an overview of the system architecture. The Enterprise Service Bus is the core element that communicates raw data with the visualisation applications.

Figure 6: Maccabi's IT system Enterprise Service Bus



This modular approach ensures scalability and interoperability with other proprietary third-party systems. The Maccabi IT system has achieved a high level of data security between

its central system and the outside world at its gateways through a number of firewalls, including an intrusion prevention system, an application firewall, anti-virus and anti-spam.

The Maccabi IT system comprises technology solutions not only for doctors, but also for patients. Patients can use a web portal where they can access their medical information from the EMR and also perform administrative procedures. In the patient portal, users can access their schedule of medical visits, their laboratory tests and the results of radiology tests, get educational content on prevention of risks and personalised recommendations for health promotion etc. From an administrative standpoint, patients can use the portal for scheduling appointments, requesting prescriptions and referrals from their doctor, ordering drugs from the pharmacy etc.

In such a mature technological environment, the implementation of MOMA was simply another step towards achieving better, more personalised care for patients. Since 1997, Maccabi has operated a 24/7 call centre to provide around the clock information on all services to its members. Therefore, almost all components of MOMA are embedded in Maccabi including its IT infrastructure, the EMR and its organisational culture. In addition around 1,200 MOMA patients interact with the system through tablets, the rest does so via telephone.

2.6 Governance and policy setting

The use of telemedicine posed new challenges from a legal perspective. The legal framework in Israel did not consider remote consultation or new care delivery modalities like videoconferencing. In order to overcome this problem, the leaders of Maccabi decided to offer MOMA not as a substitute for regular care services but in addition to it. Even when served by MOMA, patients keep their right to make physical visits to clinics at their own discretion. Maccabi enables them to freely choose MOMA when they acknowledge the benefits of the new model, thus avoiding legal and regulatory issues.

The governance for the coordination and cooperation of all the actors involved in patient care required the elaboration of a new regulatory environment. Maccabi created protocols to clearly define the responsibilities of each stakeholder and the ties and relationships between them. Maccabi has defined traceable and clear goals, which aim to establish the interaction and interconnection between professionals. Among these goals Maccabi identified:

- Full access of call centre staff to the patients' EMR.
- A computerised disease management solution.
- Computerised, proactive and interactive protocols for patients.
- The creation of algorithms that allow connecting patient/caregiver/nurse interaction input with the EMR.

Furthermore, the governance actors in MOMA had to consider the integration of independent General Practitioners as case managers. Maccabi Healthcare Services addressed this incorporation by creating personalised agreements with each of them. On the one hand, Maccabi adapts to the GP's requirements and information channels, to ensure coordination and to prevent cooperation problems. On the other hand, GPs accept the model and commit to the MOMA integrated care approach. Moreover these agreements established the obligation for structured documentation by all actors in the disease management process, in order to ensure reliable, usable and accessible information. At the beginning of the MOMA intervention these agreements were complex and time-consuming.

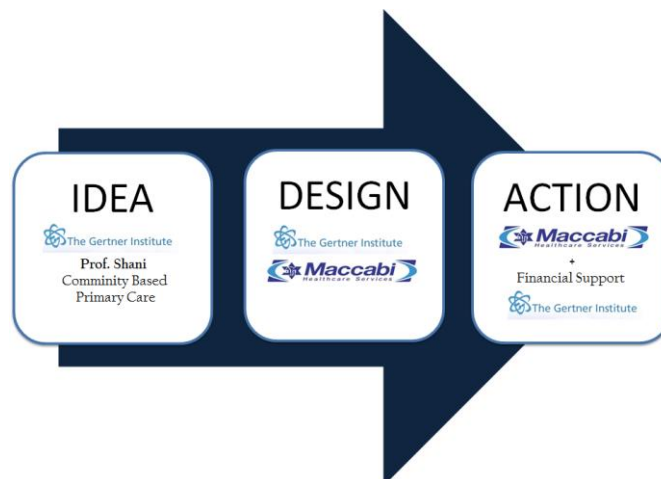
Maccabi formulated some standards and protocols to overcome these inconveniences and reduce bureaucracy.

Finally, Maccabi has created standards and protocols which ensure the interoperability of all stakeholders. Every vendor or health provider which wants to join the MOMA initiative must follow the Maccabi guidelines. This way Maccabi ensures the actual integration and the functioning of the Information System.

2.7 Organisation and processes

The MOMA initiative has been carried out mainly by two institutions: the Gertner Institute and Maccabi. The Gertner Institute was the primary driver for the initiative. The Health and Society division of the Gertner Institute was responsible for designing the system's model and devising the strategy, with the collaboration of the Maccabi Healthcare Services' management team. Later in the project, Maccabi Healthcare Services participated in the planning and pilot stages, and in the model fine-tuning. Finally, the implementation phase was carried out by the Maccabi Healthcare Services (CEO and heads of the departments), while Gertner remained as a funding partner. Figure 7 shows the steps in the implementation of the MOMA initiative and the actors involved.

Figure 7: Model Development Process



In general, the implementation of the MOMA system did not require large organisational changes in Maccabi, which already operated a solid Health Information System, and MOMA was incorporated as a necessary 'next step'. In addition, Maccabi tried to alter its own structure as little as possible while implementing MOMA. Thus, Maccabi aimed to integrate its staff and the independent physicians in the model in a straightforward way, also allowing patients free choice of professionals and services. Neither Maccabi Healthcare Services nor the Gertner Institute modified their governance structure to enable MOMA.

Responsibilities were clearly defined from the early stages of the project. Maccabi offered MOMA as a complement to the regular service, so patients kept their right to visit the doctor directly at their clinic. Moreover, patients who joined MOMA decided how they wanted to contact or be contacted by the nurse from the call centre, and were given the opportunity to decide what information they wanted to share with every stakeholder. However, a condition for participation was full access by the MOMA nurse care manager to the patient's EMR.

Maccabi believed that patients and their caregivers should actively participate in the model. The new telemedicine approach requires patients to take part in their own care and be

willing to help professionals in their activities. To this end, Maccabi trained patients and caregivers in the use of tablets for videoconference visits. In addition, they created educational guidelines to educate patients about their disease and empower them on how to deal with it. The final goal is the improvement of lifestyle habits, health condition and service quality.

Caregivers were also taken into account and given access to the Call Centre. Moreover, and always with the patient's consent, they were allowed to access patients' medical records. Finally, Maccabi Healthcare Services also educated them in better patient handling and practices.

MOMA fostered a change in behaviour, pushing patients to become pro-active. At the beginning of MOMA's operations only 15% of the calls were initiated by patients, while nurses initiated the remaining 85%. This trend has changed, and now 30% of the calls are made by patients¹³.

Follow-up visits or calls are carried out by personal nurses using various means every 2 to 3 weeks. Information channels include phone calls, videoconference and smartphone reminders in Maccabi apps. Patients can choose what suits them best, and nurses must comply with their choice. Whenever a new information channel is proposed, the patient must agree to it. Currently, around 700 patients are using tablets.

2.8 Reimbursement model and economic flow

According to the information provided by Kaye et al (2011) in their white paper by INTEL, Maccabi has reduced costs through effective use of resources, technology and EHRs. This reduction of costs comes from different sources, such as the clinical benefits associated with the use of ICTs in healthcare, the optimisation of processes and other administrative factors, such as the prompt payment to physicians through the electronic identification of members.

The MOMA economic model is based on the benefits associated with the improved health condition of the patients arising from more proactive care management which promotes self-care, better disease monitoring and compliance with protocols. Maccabi expects MOMA to achieve important outcomes in the area of patients' adherence to treatment and their perception of the disease. These factors should have an impact on their health status and lifestyle. The final goal is less hospitalisation and fewer GP visits and resource saving as a consequence of a better care approach. Maccabi also considers non-economic outcomes in the business model, such as those which affect the quality of patients' and caregivers' lives.

The aim of Maccabi is to establish MOMA as a self-supporting initiative. All the profits are reinvested in the implementation of the strategy, and they expect the Call Centre to produce enough profit to become self-financing, although this has not been achieved yet.

The MOMA project is funded mainly from two different sources:

- Maccabi budget for on-going medical services (50% of the total budget): These funds are included in the regular budget. Maccabi has not received any additional support from the Government or any other body. Nevertheless, Maccabi Healthcare Services already had a separate line in its budget for the application of ICTs and technology in

¹³ Data provided by Maccabi.

health care. The majority of Maccabi's resources come from the National Health Insurance Law budget.

- Financial support from the Gertner Institute (50% of the total budget): the Gertner Institute is funded by the Ministry of Health, as one of the main centres for health research in Israel. Its role in the MOMA economic model can be divided in:
 - Initial set up costs: the Gertner Institute contributed to the pilot study with 50% of the total budget.
 - On-going costs (for 3 years): the Gertner Institute agreed to support MOMA for a period of three years. They established this timeline to allow Maccabi to fully implement the initiative and overcome all the possible barriers that might arise.
 - Use of the telecare centre as an incubator for continued technological development.

3 Transferability

The three other HMOs in Israel and other organisations in the field are aware of MOMA's success and have started evaluating the feasibility of applying similar formulas in their treatment of chronic patients. Maccabi is therefore cooperating with some of these HMOs, and has been discussing cooperation agreements and collaboration between hospitals. Nonetheless these organisations have not yet been able to launch similar initiatives, mainly due to the economic burden associated with the first stages of implementation.

Another important key player for the transfer of the initiative to other systems may be the Gertner Institute. It is a National Institute for research and it could contribute to the implementation of new coordinated care models in other HMOs. Indeed, it has led several breakthrough projects in the management of chronic diseased people in the community since 2007, together with Maccabi Healthcare Services and Clalit, another HMO. This collaboration on pilot projects may promote the final scaling-up and implementation of new strategies in other Sickness Funds in Israel, along the lines of MOMA in Maccabi. The existence of EMR in all the HMOs in Israel could be a further trigger for the design of similar solutions and models.

Maccabi is willing to share its experience and the lessons it has learned. They have developed computerised protocols which could become the guidelines for future implementation of integrated care in other organisations. Most of these protocols are written in English. Although Maccabi tries to make this information available to any interested party, their repositories have not yet been opened up widely, so the dissemination of Maccabi's experiences has been limited up until now. Nevertheless, Intel¹⁴ created a working white paper that raises awareness of Maccabi's experience.

The MOMA model may have a positive impact in other countries, although they would probably have to adapt it to their own health system. MOMA was designed within a Bismarck health system model. Other countries with insurance-based health care systems could adopt MOMA without any organisational constraint. Nevertheless there are no two identical health systems or legal environments in the world, and differences may appear at different levels. For instance, in countries where patients do not have access to their own medical record, and health care providers do not have access to each other's records, some legal or political changes would have to be introduced to enable a MOMA-like strategy.

¹⁴ <http://www.intel.com/content/www/xr/en/healthcare-it/healthcare-overview.html>

Therefore, an exhaustive analysis must be performed at every level prior to the implementation in order to customise the initiative and allow a successful and smooth adoption.

4 Conclusions

MOMA can be considered to be a good example of integration of an eHealth system with routine care. The integration of MOMA has enhanced vertical coordination, as it involves professionals in the different tiers of care within the Maccabi healthcare service, from nurses to primary care to secondary care. Even home care services are part of the services provided by Maccabi.

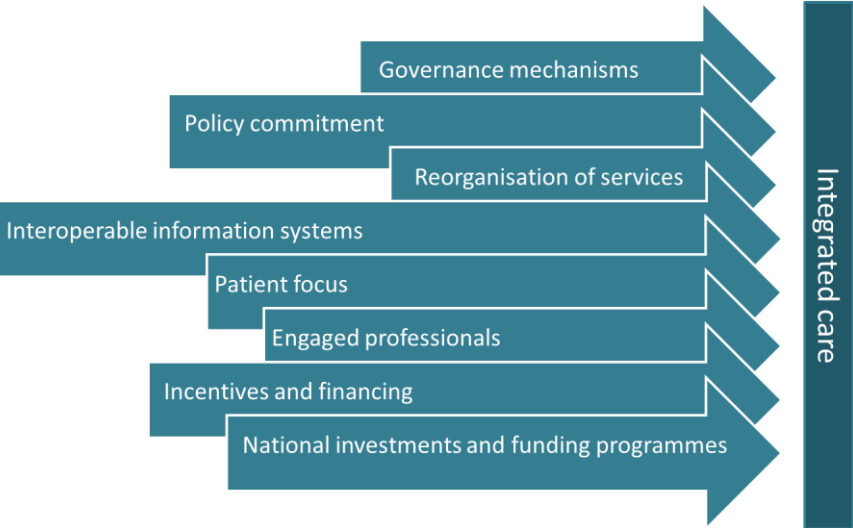
One of the key factors for the success of MOMA has been the maturity of the ICT infrastructure in Maccabi. Maccabi has been a pioneer in the development of ICT solutions for healthcare worldwide. In 1983, the leaders of Maccabi concluded that the healthcare IT system of the future would require sophisticated information and communication technologies for efficient management of the healthcare systems, and effective and innovative healthcare IT services delivery. The work on developing the ICT system started as early as 1984, and by 1994 Maccabi had already deployed a functional Electronic Health Record. The transition to the common use of the EHR was gradual: first, some doctors volunteered to participate in a pilot, in order to ensure the usability, accessibility and other non-functional parameters, such as security and scalability of the system; some years later, all new doctors hired by Maccabi were obliged to use the EHR in their daily practice. Moreover, Maccabi has also developed ICT solutions for patients. Patients have access to their own medical history, can contact their doctors via telephone or teleconferencing and can receive, if they request it, electronic messaging with advice on healthy lifestyle or self-care. This technological maturity has helped to create a culture where technology is considered as a tool, not an obstacle.

In this environment, the implementation of MOMA seemed a logical next step. Another key success factor was the presence of a champion with a vision. In this case, the Gertner Institute, a research institute for the study of epidemiology and health policy founded in 1991 by Prof. M. Shani, was the champion. It had the idea and collaborated actively with Maccabi to turn MOMA into reality.

Maccabi and the Gertner Institute are also collaborating with other HMOs in Israel to promote the implementation of similar initiatives to MOMA. However, in order for these initiatives to be integrated into the routine process, a certain degree of technological maturity is required which has not yet been reached in other HMOs, or in other countries.

To sum up, Figure 8 shows the main facilitators (Villalba, 2013) that characterise the MOMA case. These were the maturity of the technological infrastructure within Maccabi, and the active involvement, both conceptually and financially, of the Gertner Institute. On the other hand, one of the main barriers faced by Maccabi has been the engagement of patients and professionals. Despite the cultural readiness within Maccabi, full trust between professionals needs to be developed and responsibilities must be clearly distributed between the Call Centre Nurses and the primary care doctors.

Figure 8: Facilitators towards Integrated Care in the Maccabi case



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