



KM in healthcare innovation

Developing a uniform standard and support structure for innovative, hospital-based, integrated care projects, based on principles of knowledge management – is it possible? **Hedwig M.J. Slot, Paul Louis Iske and Dr Niek Klazinga** report.

The stimulation of healthcare innovation has resulted from the reality that every organisation uses its own system of developing and performing initiatives. A lack of knowledge sharing caused an enormous overlap of subjects and types of initiative, therefore many innovations disappeared after the projects were finished, independent of their results.

In 1994, the so-called Biesheuvel Committee for the Modernisation of

Curative Care published a report that contained proposals for solutions to problem areas in the Dutch healthcare system. One of these issues was the major gap between primary and hospital care, as a result of separate organisational and financial systems. The committee recommended the stimulation of transmurals [an interface between primary and secondary] care as a possibility to bridge this gap.

In 1998, the Dutch Association of Medical Specialists received

a government grant to build the transmurals healthcare innovation programme, and a regional support structure was created.

One of the goals was to stimulate medical specialists to develop and implement their own transmurals healthcare innovation projects. Shortly after the start of this programme, the participants realised themselves just how many initiatives were already being undertaken to improve healthcare and, at the same time, they became aware

of the enormous overlap between the projects. There was no database of existing programmes, so everyone reinvented their own wheel. It was difficult to compare projects because every organisation dealing with healthcare innovation designed the project in its own way.

In 2001, therefore, the Dutch Association of Medical Specialists decided to develop a standard for healthcare innovation projects. This would help to attain a structural, uniform approach for the development of such programmes, and to facilitate the dissemination and implementation of the results. The standard was called 'Good Healthcare Innovation Practice' (GHIP). This article will cover the development of the standard and the formation of a central support structure. Both processes will be



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evaluated, in order to ascertain whether or not successful development is possible in both cases.

Methods and theories used

Innovation is a process of value creation through the application of insights and techniques where it didn't happen before. One of the important aspects of innovation is the innovation funnel (see Figure 1) – which shows the different steps of the innovation process. Turrell *et al* described this as a 'framework for organisations to achieve corporate objectives through the systematic and sustainable application of innovative processes and methods,

in all areas of organisational activity'.¹ According to a Product Development & Management Association (PDMA) best-practices study, 68 per cent of leading US product developers now use some type of gating process to evaluate and progress innovations from conception of the idea, through to full launch of a new product.

Innovation is a knowledge-intensive process. Knowledge emerges in the interaction between information, insights and imagination, and facilitates decisions that result in value creation.² The innovation process allows for improvement through collaboration and learning, and retains the creativity and problem-solving capabilities that are essential for innovation.

Knowledge management

There are many definitions for knowledge management (KM). In fact, it is better to talk about 'knowledge-conscious' management. It is not the purpose to manage the knowledge (if that is possible at all), but to manage an organisation and/or processes in such a way that knowledge can add maximum value. Basically, knowledge-conscious management is connecting people-to-people and people-to-content.

KM is essential to make the knowledge achieved through innovation a structural part of the healthcare process. Based on the 'knowledge-value chain', it consists of the following activities:

- Determination of the knowledge needed;
- Inventory of the knowledge-in-use;
- Development of the knowledge;
- Sharing of the knowledge;
- Adjusting the knowledge; and
- Evaluation of the knowledge.³

Interventions are possible at each stage of the knowledge value-chain – the organisation, the systems and the culture.

Knowledge application (learning)

It is clear that the different stages of the innovation process both require and

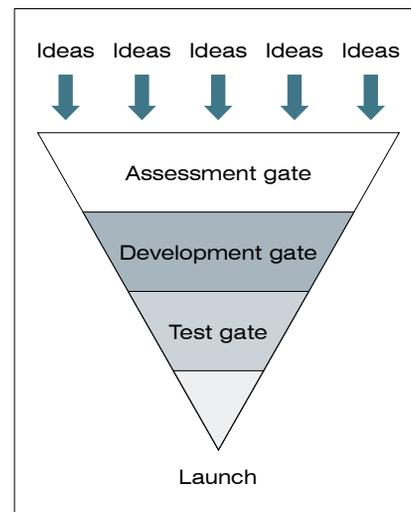


Figure 1: Innovation Funnel
Source: <http://www.leader-values.com/Content/detail.asp?ContentDetailID=1106>

produce a lot of knowledge. People learn when they apply the available knowledge for the performance of their changing tasks. Argyris and Schön (1979) developed the learning theories: 'single loop', 'double loop' and 'deutero learning'. Double-loop learning is especially important when innovation is considered as a core competence, and its ongoing development is an organisational goal.

A learning organisation is skilled at creating, acquiring, interpreting, transferring and retaining knowledge – and at purposely modifying its behaviour – to reflect new knowledge and insights⁴. Question and answer systems enable users to interact with each other and can play an important role in the transfer of knowledge between people, and thus support the learning organisation.

Change management

Change management can be divided into seven different stages: making contact, creating awareness, building understanding, testing and achieving acceptance – with the objective of institutionalising, and finally, internalising. (See Figure 2).

Careful awareness building, strategic testing, and ensuring acceptance are the key success factors in any change process.

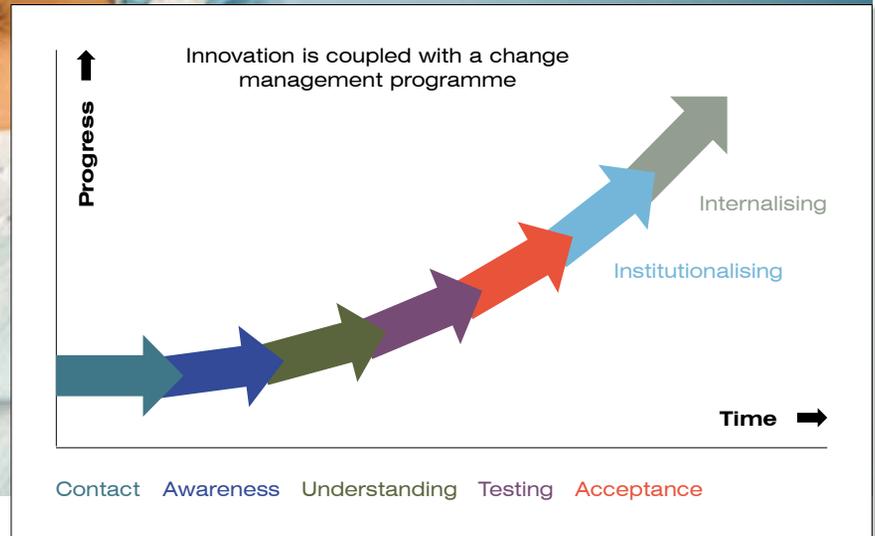


Figure 2: Innovation & change management
Source: Connected brains, P.L. Iske and W.H. Boersma, *Journal of knowledge management*, 2005:Vol. 9, nr. 1

Communities of practice

Communities of practice (CoPs) are groups of people informally bound together by a shared expertise and passion in a joint enterprise. Their value lies in an ability to connect personal development, and the professional identity of people, to the strategy of the organisation. Managers cannot mandate CoPs; rather, successful managers bring the right people together, provide an infrastructure in which communities can thrive, and measure their value in non-traditional ways. CoPs yield short-term and long-term benefits to both the organisation and the individual community members. They don't usually require heavy institutional infrastructures, but their people need

should include education, initiative planning and coordination, coaching for community leaders, managing infrastructure, and liaising with the community. Executive sponsors are required to confirm the organisational legitimacy of the community. The sponsors' investments, guidance and legitimacy are crucial for the success of the community initiative.

Strategy for change

GHIP standard process

The process described in this article began with an inventory of the most well-known organisations dealing

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Eventually 25 organisations pledged to be involved in the initiative. Participants communicated the desire to share their knowledge because they realised that if the process of the development of the GHIP was successful, it would be of great advantage to everyone working in the profession. In October 2001, the first meeting was arranged during which the following conditions were formulated:

- All relevant organisations should be involved. Everyone who's interested in taking part is welcome, and nobody will be excluded;
- GHIP must become a tool to facilitate the bottom-up approach of healthcare innovation;
- Everyone must be able to access it (open-source or public domain);
- The GHIP must be geared to the needs of people dealing with healthcare innovation in practice and healthcare workers, as well as patients;
- Pragmatic approach – 'using existing tools as much as possible', should enable the participants to complete the GHIP standard within one year.



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the time and space to collaborate.

The key to successful CoPs is an appropriate leadership infrastructure that can guide, support and renew the community initiative over time. The support team and executive sponsorship are important elements of this infrastructure. Support team activities

with healthcare innovation – all of which were confronted with the same problems: lack of knowledge about existing or completed projects and their results. The different ways in which the organisations described and performed their projects also made it very difficult for others to judge or compare them.

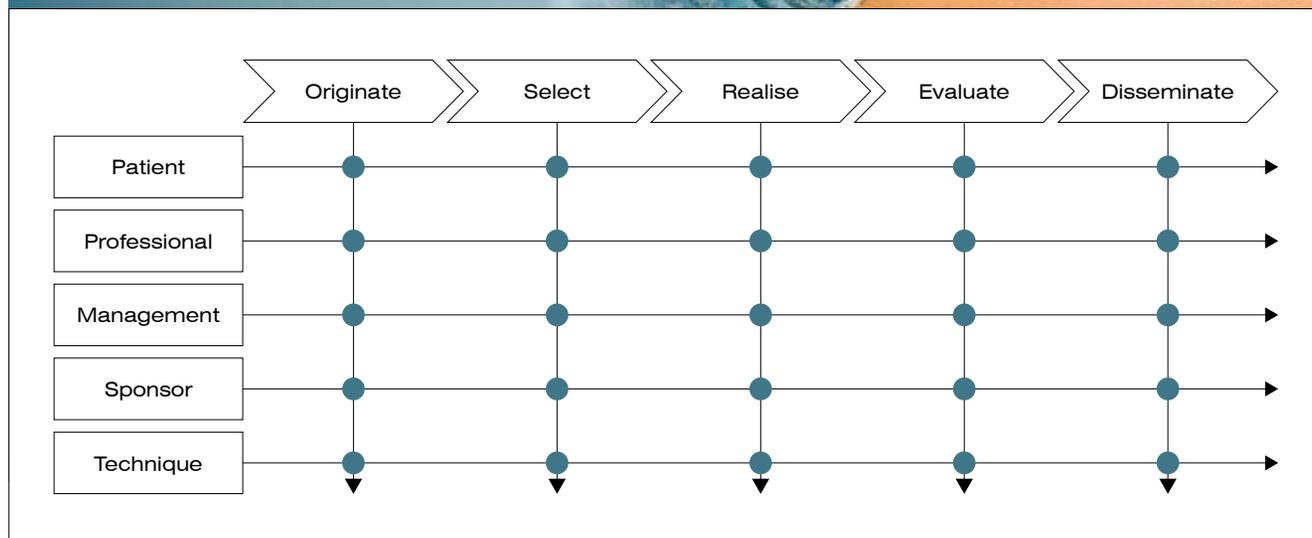


Figure 3: GHIP Matrix

The Dutch Association of Medical Specialists offered its support by performing the administration and coordination of the process. This was facilitated by someone with specific experience in supporting communities and KM. Meetings were scheduled every two months and, in order to simplify the mutual communication, a virtual team room was created.

The first sessions were used to gain consensus on definitions, goals and approaches. Based on the principles of good clinical practice, the EU guideline for clinical investigation of pharmaceutical products, and the innovation funnel as a principle of innovation, five different steps were defined as a part of the healthcare innovation process:

- Originate – the design phase, in which the problem and the possible solution are described;
- Select – the test phase, in which the formulation of the problem and the proposed solution are judged by funders or other referees;
- Realise – the realisation and internal evaluation of the healthcare innovation project;
- Evaluate – the external evaluation of the project;
- Disseminate – the implementation of the results of the project in

the appropriate environment, and the dissemination of the results to other locations.

At the same time, five different stakeholders were identified – the patient, the professional, the management, the sponsor and the supplier.

Six working groups were then formed to coordinate each part of the project; five groups to develop the five defined steps to be included in the GHIP standard, with the sixth describing the vision, definition and scope of the GHIP. One member of each group was assigned the role of team leader and any results

version was completed. After several rounds of editorial comments, version 1.0 of the GHIP guideline was formally launched on December 1, 2002.

Central support structure process

After the completion of version 1.0 the Knowledge and Coordination Centre (GHIP KCC) was founded. This plays a central role in the operational organisation and maintenance of the guideline – and KM. It also functions as a helpdesk for people interested in the GHIP approach and plays a role in the communication of the GHIP principles *via* publications and the GHIP website.



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were opened up for general discussion at bi-monthly meetings. In the meantime, the progress of each working group could be followed on the virtual room.

A tight timetable was scheduled in order to keep up the pace. Between the first meeting in October 2001, and the first deadline in April 2002, three plenary meetings were scheduled and, additionally, two meetings between the team leaders. In June 2002, the rough

The website also contains an ‘expert’ community, a Q&A system based on the internet tool, an ‘expert panel’ (where experiences and personal know-how can be shared with the healthcare community, in particular those involved in innovation projects), and a ‘public panel’. Here, questions connected to innovation projects can be posed to a couple of thousand healthcare consumers. The combination of the

two panels enables the experience of the experts in innovation to be broadened, refined, and compared with the opinion of a broad public base.

Results

GHIP standard

Healthcare innovation is defined within the GHIP as ‘the entity of chosen activities aimed at the realisation of a change in healthcare – in order to meet more efficiently and effectively’. The two principles of the GHIP are good documentation practice (a uniform way of documenting and arguing) and KM (to produce and gain knowledge).⁶ Innovation must be seen as a process with a fixed number of intermediate steps and a variety of stakeholders. The connection between the defined steps and stakeholders is visualised in the GHIP matrix (see Figure 3).

Each step must be considered from the perspective of every stakeholder. This approach ensures that all stakeholder issues and all process steps of a healthcare innovation project are addressed. The result of the documentation according to the GHIP matrix, is the GHIP file. This is a collection of systematically arranged data

Development Group (GHIP Kern- en Ontwikkelgroep, GHIP KOG). This community gears the content of the guideline to field requirements and is responsible for its ongoing development. The GHIP KOG consists of the participants in the GHIP development process (representing 29 organisations).

The Dutch Healthcare Insurance Council (the trusted party) was responsible for the financing of the GHIP KCC during the first two years, and The GHIP KCC, GHIP KOG and trusted party, together, are the GHIP network.

Analysis and interpretation

GHIP standard

In 2003, 15 projects were selected by the GHIP KOG, to be performed according to the GHIP format and with the support of the GHIP KCC. The detailed analysis of some of these projects revealed that the GHIP-methodology was very useful in better understanding the results in relation to the approach taken in the projects. By application of the GHIP-matrix, it became very clear that if the perspectives of the various stakeholders

considered free access to knowledge about healthcare innovation as important. Useful knowledge was, in the opinion of 26.7 per cent of respondents, hard to find, and 83.7 per cent thought that the possibility to share their experiences with others was important. Around 70 per cent of the respondents were more or less familiar with the different components of GHIP.

In 2004, the Dutch Healthcare Insurance Council evaluated the GHIP KCC – part of which included a SWOT analysis. Potential opportunities included the development of GHIP into an independent quality mark institute, the possibility for GHIP to join other initiatives and/or to connect the GHIP guideline to central themes of the Ministry of Welfare, the positioning of GHIP as a business case format, and the use of GHIP as a standard for the description of healthcare innovation projects.

The guideline, infrastructure, website and motivated personnel were regarded as strong.

The most important weaknesses were opportunism (healthcare innovation was a topic for the



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that makes knowledge about the project findable, exchangeable and interpretable. The GHIP file contains the project plan, analysis, interim results and evaluation of the GHIP process, and the final results and evaluation. It's an outstanding way to encourage other organisations to adopt [parts of] the project. This completes the cycle and makes healthcare innovation a product that can be judged on its merits – and one that can be reproduced.

Central support structure: CoP

The GHIP guideline is the intellectual property of the GHIP Core and

were taken into account, the success was positively influenced. Some of the projects lacked real ownership, so were more difficult to analyse because information was lacking and could not be retrieved. In later projects the GHIP approach was applied from the beginning, which resulted in better project plans and planning, and in better decisions during the projects.

CoP

In 2004, the GHIP KCC performed a survey *via* the GHIP website. Of the 116 respondents, 93.1 per cent

Minister of Welfare), an approach of communication unfamiliar for the professionals in healthcare, a lack of content and a lack of a financial analysis.

Threats were that the guideline hadn't been established for long (no time to prove itself) and future methods of financing.

When the evaluation was performed, the Dutch Healthcare Insurance Council had already decided not to finance the GHIP KCC for another period. At the same time a number of members of the GHIP KOG wrote a letter to the other

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members and the GHIP KCC in which they expressed their concerns. Although GHIP was recognised as the unique product of a lot of different organisations, they were worried about the distance between the GHIP guideline and the needs of the healthcare field. They also made an important statement about the inability to pay the GHIP KOG members for their efforts, while at the same time the results of their efforts were used by other parties.

A number of GHIP KOG members joined together for two days to update the GHIP guideline to a 2.0 version. Essential in this update, was the possibility to enter the guideline from the perspective of the five different stakeholders. Version 2.0 includes the building blocks of project plans and examples that illustrate how the various elements could be worked out.

Current status

The financial support for the GHIP Knowledge and Coordination Center has been terminated. Since then, an independent entity, GHIP B.V. (www.ghip.nl), is active in the (commercial) exploitation of the GHIP approach – supporting healthcare organisations, but also companies in other industry areas, to apply KM and stakeholder analysis in the planning and realisation of innovative activities.

Discussion

Successful innovations need a proper climate. When the development of the GHIP standard is analysed according to the seven change steps, it can be concluded that the development of the standard itself was successful, but the ‘institutionalisation’ step was taken before all the previous ones were completed. Therefore, there wasn’t enough awareness and

understanding, which was essential for the proper climate both in the involved organisations and in the healthcare practice. The bottom-up approach was successful, as shown by the velocity of the development of the GHIP guideline. The most significant bottlenecks in the development process were the planning of the bi-monthly meetings. Due to the full agendas of the participants and the discussion about the definitions, every time a new participant joined the group this discussion started all over again. The individual professionals involved in the GHIP KOG were enthusiastic and very motivated, but there was a lack of support at the management level – and maybe even an atmosphere of suspicion in some of the participating organisations. Too little, or even no, attention was paid to the creation of the appropriate leadership infrastructure – the key to successful CoPs. Although



the finances were only guaranteed for a period of two years, the initiators were convinced that the GHIP would be able to prove its value and thereby the continuation of the sponsoring could be arranged in a more structural way. This two-year period appeared to be too short, and they weren't able to find a sponsor with the vision to recognise the possibilities, or was willing to enable the GHIP KCC and KOG to create the proper climate by following the change steps they had skipped at first.

Conclusion

It is clear that there was and still is a need for a guideline for healthcare innovation projects, and for the potential to share knowledge and experiences. This also was confirmed by the results of the GHIP survey in 2004.

With a bottom-up approach and enthusiastic professionals it is possible to start a process like this and to develop a GHIP standard in a relatively short period. Essential in this process is the planning of meetings and proper discussion of definitions.

Despite all the available knowledge about change management, the GHIP

pioneers have encountered the pitfall of their enthusiasm, and have left out essential steps of the change process. This is one of the important causes of the failure of the implementation of the project and CoP. To be successful all the known steps of the change process have to be followed and a lot of attention has to be paid to the network creation.

Without a proper network and CoP, it was impossible to achieve a widespread implementation of the GHIP standard, despite its good quality and usefulness for the daily innovation practice.

From the start, attention must be paid to the financials. When a process like this starts with a temporary financial arrangement, it's necessary to



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make clear the terms for continuation of sponsoring for a longer period.

In retrospect, it can be concluded that the GHIP process never reached the stage of internalising. It took almost two years to pass through the first two stages (contact and awareness). By the time the GHIP ended in 2004, the process found itself somewhere between the stages of understanding and acceptance. With this in mind it can be established that in healthcare it takes about two years to reach the next stage in a change process. Future projects must take that in account.

Extending programmes such as this require a proper scientific evaluation to define lessons learnt for future projects. 'Sneller Beter', for example, is a huge innovation programme, financed by the government. It was started in the Netherlands almost at the same time GHIP was stopped. This programme is set up according to a similar concept to the GHIP.

The CoP was formed by 24 hospitals. The programme met with considerable start-up problems, which could have been prevented had the experience of GHIP been used.

The fact that 'Sneller Beter' is only one of the examples of projects that show so many similarities with GHIP, is a sign that apparently the philosophy of GHIP didn't disappear. Maybe it takes at least five years to make innovating concepts in healthcare operational. [Insti: Knowledge](#)

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References

1. 'The Innovation Pipeline', M Turrell and Y Lindow, Imaginatik Research, March 2003;
2. 'Connected brains', P Iske and W Boersma, *Journal of knowledge management*, 2005, Vol. 9, Iss 1;
3. Knowledge management: Designing and Steering Knowledge Intensive Organisations, Mathieu Weggeman, blz. 167;
4. *Learning in Action: a Guide to Putting the Learning Organization to Work.*, Garvin, D., 2000;
5. Good Healthcare Innovation Practice, E.Kalter, L. Naber, P.Iske, *KM Magazine*, Volume 7, Issue 3, 2003;
6. *GHIP boek: zorginnovatie in perspectief*