



This is about Change
*Ten years as an on-going evaluator
of the Triple Steelix initiative*

JAN MESSING

VINNOVA REPORT
VR 2016:05

VINNOVA IN COOPERATION WITH

JERNKONTORET
THE SWEDISH STEEL PRODUCERS'
ASSOCIATION



Title: This is about Change - *Ten years as an on-going evaluator of the Triple Steelix initiative*
Author: Jan Messing - JLM Konsult
Series: Vinnova Report VR 2016:05
ISBN: 978-91-87537-46-2
ISSN: 1650-3104
Published: March 2016
Publisher: Vinnova - Swedish Governmental Agency for Innovation Systems / Verket för Innovationssystem
Registration no: 2002-00568

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Production: Vinnova's Communication Division

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Vinnova's Preface

VINNVÄXT is one of Vinnova's longest-running programmes. Its first call for proposals was issued in 2002 and new calls for proposals have been issued on a recurring basis ever since. Fifteen regionally-based growth initiatives have been funded under the programme's auspices. The longest-running among these are now in their 13th year of operation.

VINNVÄXT also introduced on-going evaluation as a key part of the learning strategy that forms part of the programme. On-going evaluation is a concept that has since been applied by other financiers and programmes and which, over time, has taken on an increasingly broader meaning and application. On-going evaluation was included in the VINNVÄXT programme for a simple reason: increasing the likelihood of effective learning in the complex and lengthy processes supported by VINNVÄXT requires an element of reflection and constructive criticism as a complement to the process management's and the steering committee's action-oriented day-to-day work. In practice, achieving this requires one or more people with both proximity and distance to the initiative and with access to tools and methods who can provide feedback on, question, document and report important initiative events and developments to the process management group and steering committee.

In this report, the author describes his role as an on-going evaluator working within the Triple Steelix VINNVÄXT initiative over a period of ten years, what type of activities were carried out and their results. It is Vinnova's hope that the report will provide a source of inspiration, but also that it will shed light on what on-going evaluation means in practice, what role it can play in complex development processes and how it contributes to their development.

Vinnova in March 2016

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Author's Preface

This document comprises a reflective retrospect to the period of on-going evaluation carried out between 2004 and 2014 within Triple Steelix, a steel-industry initiative that was announced as a VINNVÄXT programme winner in 2004. I have been deeply involved in this initiative's work, which has helped in knowing what has been done and why, but is a weakness when evaluating it. It is risky to 'remember', because memories and our understanding of them change over time. My ambition here is to attempt to convey how the on-going evaluation was formulated during these years, and how it can be understood today, given that, at the time, its design was not always conscious or deliberate.

Like the majority of actors involved in Triple Steelix, as its on-going evaluator I sought to find my role and function within the initiative. I gathered knowledge, experience and influences from many different sources and, ultimately, these led to the design of the activities and approach to the task becoming what they did. In hindsight, it is difficult to deduce just how various influences and my own experience played a part in this. I ask readers their forgiveness should I happen to have failed to give due credit to any particular 'originator'.

My hope is that this description of, and reflection on, the ten-year on-going evaluation will provide practical examples of activities and approaches. Moreover, I hope that it will deepen its readers' understanding of how the on-going evaluation function can be used in complex development processes and also provide some thoughts on what makes this function effective.

The Swedish Steel Producers' Association (Jernkontoret), Triple Steelix and Vinnova have not only provided the financial means to make this report possible, but have also motivated and encouraged me to summarise my experiences. My thanks go to Peter Samuelsson, Bo-Erik Pers, Göran Andersson and Lars-Gunnar Larsson. Thank you also to Maria Engholm, Bosse Lilja, Monica Rönnlund and all the other people who have actively and generously contributed to the many activities associated with the on-going evaluation. Without your contributions and willingness to tackle demanding learning processes, the on-going evaluation of Triple Steelix would have become something else entirely.

Ludvika, August 2015

Jan Messing

On-going Evaluator, Triple Steelix

Introduction

A sudden change was enacted in Sweden's economic and regional policy at the end of the 1990s. The basic idea was to focus on innovation-driven development and to further build on existing areas of regional strength. One concrete manifestation of this policy-shift was Vinnova's VINNVÄXT programme. The programme was developed in the early 2000s and, in 2003, an open competition was held to select the first initiatives to be awarded grants. Winners were enrolled in a ten-year programme under which they received significant financial support from Vinnova, regional organisations and businesses. The winners' task was to further develop regional innovation systems and intensify needs-driven research in partnership with the business world, academia and public authorities. Its purpose was to increase local businesses' competitiveness and, thereby, to contribute to the region's growth and attractiveness.¹

In the autumn of 2004, Triple Steelix was announced a VINNVÄXT winner. Triple Steelix refers to the technological innovation system that has grown up around the steel industry in Sweden's Bergslagen region over a period of several hundred years. The system's core and economic engine is comprised of a number of specialised steel producers who are active on the global market, namely SSAB, Outokumpu, Ovako and Sandvik. Winning the VINNVÄXT competition made it possible to establish an operational organisation with a two-fold task — promoting the industry's development and enhancing the region's attractiveness. In this case, the region involved includes Gästrikland and Dalarna counties, and the northern and western parts of Västmanland county. A special board of directors was appointed and given broad responsibility for implementing the mission. An operational organisation was also established, consisting of 6-7 full-time positions, to implement the initiative. At the same time as this administration was being formed, the Swedish Steel Producers' Association (Jernkontoret) tasked what was then Dalarna Research Institute with monitoring and evaluating the initiative and with providing advice to its principal organiser and operational organisation by means of an on-going evaluation. It was expected that this on-going evaluation would actively contribute to the on-going process, helping it to stimulate increased competitiveness and regional growth and attractiveness.

This report describes this ten-year on-going evaluation mission. The author was himself deeply involved in this evaluation and this report is a personal retrospect and reflection on *what* was accomplished within its framework. *The report also discusses how* this work was carried out and it attempts to provide greater insight into *why* it came to take the form it did. A number of influences on Triple Steelix' work attributed to the on-going evaluation are also described. The report provides no definite instructions for conducting an on-going evaluation nor any normative method to follow. Instead, it is hoped that the activities described and the discussion surrounding them will provide guidance and inspiration. Also, not least of all, it is hoped that the report will contribute to the mutual understanding of learning evaluations by using

¹ Vinnova 2011a.

interactive research(ers) and to understanding how the function may be used in complex development processes.

A Summary of On-going Evaluations

Using projects as change strategies is commonplace, as is the experience that doing so is not always especially successful. The VINNVÄXT programme has highlighted both the importance of network strategies in achieving fresh thinking and innovation and the fact that learning processes are an important part of this. It has been explicitly stated that Triple Steelix is not a ten-year project, but a process. Consequently, the evaluation function was designed to support this view. What was desired was 'an on-going evaluation that is flexible, demand-driven, development-promoting, forward-looking and process-oriented and that can quickly relay its results to management and those in charge'.² It has also been pointed out that leadership in a process is different from project leadership and that multiple groups of actors are involved and generate conditions favourable for utilizing what the on-going evaluation contributes.³ In other words, on-going evaluations are highly varied assignments accompanied by a broad spectrum of expectations. Implementation requires an on-going evaluator able to maintain both proximity and distance and to monitor and contribute to learning. It also requires both dialogue and an independent position in relation to the actors involved in the development process. These dichotomies constitute genuine dilemmas that on-going evaluation needs to address if it is to fulfil its desired purpose.

² Svensson et al. 2009.

³ Eriksson 2010.

1 Three Change Processes in a Single Story – A Reader’s Guide

To make the following account easier to grasp, I will begin with an explanation of some of the key terms and concepts used. The Triple Steelix initiative and the term ‘technological innovation system’ (TIS) have already been referred to. The innovation system includes all of the companies and the training, research and community organisations that depend on one another in the production of high-quality steel. In a broad sense, this is a technology that binds together the actors involved with it, and it is within this system that fresh ideas and innovations have been developed for several hundred years. VINNVÄXT provided the opportunity to introduce yet another actor into this TIS, the Triple Steelix operational organisation, hereafter referred to simply as Triple Steelix. Experience has shown that it is important to distinguish between the innovation system as a whole and the component within it known as Triple Steelix. The technological aspect of the innovation system would exist regardless of whether Triple Steelix were active or not. Other terms used frequently in this report are ‘on-going evaluation’ and the ‘on-going evaluation function’. As will become clear, the on-going evaluation function grew out of vague instructions and an unclear, if not fumbling approach. As time has passed, the function has become more clearly defined both in relation to its practical execution and to how it should be understood.

In the description of the on-going evaluation, this function will be interwoven with both the innovation system’s and Triple Steelix’ development processes. These three perspectives are connected and influence one another. The first international review of Triple Steelix was conducted in January 2008, followed by a second review in 2011. These reviews helped shape and further Triple Steelix’ development. For this reason, it is natural to divide the account into sections, with the first section covering the initial phase (2004-2007), the second section covering the intensification and consolidation phase (2008-2011) and the concluding section covering the re-orientation phase (2012-2014). The table below illustrates Triple Steelix’ on-going evaluation for the activities discussed in this report as well as important junctures in its development. A list of all of the on-going evaluation reports submitted to Triple Steelix can be found in Annex 1.

TRIPLE STEELIX, ON-GOING EVALUATION 2004-2014

TRIPLE STEELIX VINNVÄXT WINNER	1 ST INTERNATIONAL REVIEW	2 ND INTERNATIONAL REVIEW	
Initial Phase Orientation interviews Company mappings Reflective discussions	Intensification and Consolidation Phase Functional analysis Specialised follow-up studies On-going evaluation in strategy work Company mappings Reflective discussions	Re-orientation Phase The focus of the strategy process Operational development Triple Steelix post-2014 Reflective discussions	
2004	2008	2011	2014

2 The Initial Phase – 2004 to 2007

2.1 Introduction

The emergence of the Triple Steelix initiative, regardless of whether seen as beginning with the commencement of the application process in 2002 or with the VINNVÄXT decision in 2004, saw the introduction of a new element into the prevailing research and development system connected with the steel industry. During the application process, leading representatives for the industry, academia and the region's public authorities lent their support to the Triple Steelix concept and focus. In effect, they gave the initiative the legitimacy it needed to actively have an impact. Although the application documents and action plans broadly described what was to be done and how, it was not specified how the initiative would function in practice. How would the system be affected if its structure were altered? What benefits and risks were involved? In other words, the thoughts and ideas behind the proposal would now be tested in earnest through practical application.

The people tasked with managing the process within Triple Steelix found themselves facing new challenges. Although they possessed a solid skills base and lengthy experience from their work with business development, project work, company management, research and the like, they now faced somewhat new and different tasks that required different work methods and approaches. In reality, both the collaborators and those working within the practical administration were seeking to determine what should suitably be done and how. These practical questions also came to dominate the on-going evaluation's focus during the initial phase.

In hindsight, three activities through which the on-going evaluation attempted to provide input in resolving these questions stand out: orientation interviews, company mappings and reflective discussions. These are described below in how they were conducted and the thoughts behind them, as understood from today's perspective.

2.2 Orientation Interviews

The task of generating support for the initiative among its stakeholders involved major uncertainties, which the board of directors and process management needed to manage constructively. They needed to know about the various actors' opinions and actions as they went about making the initiative's visions and overarching objectives concrete. They kept themselves apprised of the situation through a range of channels, including personal contacts, network meetings and the board's work. They decided that the on-going evaluation could supplement the information they received by, in the capacity of their independent role, interviewing key persons connected with the collaborating actors. By allowing individuals to provide both positive and negative feedback to a neutral party in these interviews, the likelihood of receiving honest answers increased. The on-going evaluator was granted permission to freely approach the actors by the initiative's organiser, board of directors and process management, and the actors had

been encouraged to be candid in the interviews and other on-going evaluation activities in which they participated. There was a genuine willingness on the part of the process management team and board to know the actors' opinions. The orientation interviews aimed to supplement process management's need for information by independently acquiring knowledge of the collaborators' true attitudes to and appraisal of Triple Steelix. The interviews also provided the on-going evaluator with a deeper understanding of the system in which Triple Steelix was operating.

In cooperation with the process management group, key persons from the collaborating entities — companies large and small, academic institutions and public authorities — were identified. One of the selection criteria applied was that the actors should have personal experience of collaborating with Triple Steelix and have an important function within their parent organisations. Through their participation in the Triple Steelix cooperation organisation, these actors became 'border crossers' playing a dual role: they both relayed their own organisation's way of thinking, values and priorities to Triple Steelix, and conveyed the collaboration's opportunities and limitations back to their own organisation. That is to say, they simultaneously represented both their own organisation and the cooperation organisation and, thus, could assess which collaboration activities were desirable, possible, or challenging in the eyes of the respective parties.⁴ As initiated border crossers, they also played an important role in their parent organisation's evaluation of the collaboration, either as ambassadors or as sceptics.

The on-going evaluator and respective informant met in open, thematic interviews held at the informant's workplace. The highlighted themes focused on the present situation and assessed the Triple Steelix' work, both from a personal standpoint and from the organisation's standpoint (as interpreted by the informant), important information, expectations and fears. The information gathered during the interviews was processed by the on-going evaluator and documented in a brief report.⁵ In addition to the summary of these interviews, the report also contained a summary reflection by the on-going evaluator. This reflection discussed strategic policy issues that had emerged based on the information gathered by the on-going evaluation. This information was included at the specific request of the process management group: 'We don't have time to analyse. Write what you observe and your assessments and we'll take these into account, although we can't promise we'll follow your recommendations,' stated the process manager.

The report also included a theory section on various change strategies. The information gathered at the interviews revealed that the informants advocated different ways of proceeding and achieving the stated objectives, which could potentially be a source of conflict and obstacles in the on-going process. The presentation of Theory E (economic value-driven change) and Theory O (organisational capability-driven change) revealed the opportunities associated with, and suitability of, the various approaches in different change processes.⁶ To provide a very brief explanation, Theory E focuses on structures and systems within an organisation and on achieving change by manipulating these. Theory O, on the other hand, attempts to effect change by influencing the organisation's culture and competence. In the on-going evaluator's

⁴ Arnkil 1991.

⁵ Messing 2006 a.

⁶ Beer & Nohria 2000.

assessment, this constituted a relevant contribution to the learning process that was occurring within Triple Steelix. The report was submitted to process management, the board of directors, the organiser and the most important financiers.

Orientation interviews with similar formats were used on several occasions when strategic changes were initiated within Triple Steelix.

2.3 Company Mapping

In the region where Triple Steelix was to operate (Gävleborg and Dalarna counties and parts of Västmanland County), there were an estimated 700 companies that were a potential target group. For the board and process management team, it was important to know which companies were actively involved in the collaboration, how these companies were distributed geographically and how the group of active companies changed over time. This knowledge provided an important basis for the initiative's strategy work. The trend over time was viewed as an indicator of Triple Steelix' legitimacy among the industry's small, medium-sized and large enterprises. The on-going evaluation's approach to meeting this need for information took the form of an annual mapping of the active companies.

The companies themselves had explicitly stated that they were 'tired of all the surveys'. With this in mind, it was decided that the information would be collected in a way that did not require any further effort on the part of industry actors. A number of Triple Steelix' operational staff had formerly worked with business development in the region for many years. They had acquired a personal knowledge of the relevant companies through this work, and this served as a source of information during the mapping work. The necessary definitions were formulated with the help of these employees: When should a company be considered active? Which data were relevant to collect? The discussions ended with the following conclusion: 'A company should be considered active in Triple Steelix if its representatives have actively participated in projects within the Triple Steelix framework or have participated in courses, seminars or business gatherings with some kind of regularity'. It was also decided that the mapping should include the following: number of employees, sales, earnings, assessments of the companies' products or services with regard to technology content and production processes, their markets and the companies' resource systems (i.e., facilities, machines, an external board, quality management systems, strategic development initiatives and professional networks).

Triple Steelix' operational staff drafted an annual list of the companies considered active within the collaboration in accordance with the agreed definition. On the basis of this list, the on-going evaluation interviewed the respective employees and received their assessments of the companies' products, markets and so on. Data on employees, sales and earnings were retrieved from publicly available statistics. This material was then processed and presented at group level and in the form of annotated tables. The groups reported on were large companies with more than 200 employees, small and medium-sized enterprises that generated their primary income from a proprietary product or service, and small and medium-sized enterprises that primarily worked as subcontractors or provided services. The first mapping was carried out in the autumn of 2006. Following that, between 2007 and 2011, simplified mappings were conducted that

included active companies and their economic data. From 2012 onwards, these data were included in Triple Steelix' regular reports to Vinnova. The mappings were presented to the initiative's board of directors, process management, organiser and financiers.

The benefit of the mappings was that they revealed changes in the group of active Triple Steelix companies over time. They showed both the scope of participation (revealing an increase from 48 active companies in 2006 to 182 active companies in 2009) and the proportion of sales and earnings from small and medium-sized enterprises (SMEs) in relation to the larger companies. In 2006, the share from SMEs was 2.8 per cent of sales and 1.7 per cent of earnings. By 2009, the same figures had increased to 12.9 per cent and 8.2 per cent, respectively. This trend was viewed as an indication that Triple Steelix was on the right track and had strengthened its legitimacy among industry companies. This information was also important for the public-sector actors involved. Local companies' commitment to the initiative increased the municipalities' willingness and opportunity to contribute to the process from both financial and HR standpoints.

The 2009 and 2010 mappings clearly showed how dependent the industry is on the global economy. The 2009 financial crisis was clearly reflected in the sales and earnings of all groups, not just of the major companies.

2.4 Reflective Discussions

The third on-going evaluation activity, reflective discussions, focused on the process manager. To a large extent, process managers for VINNVÄXT initiatives are expected to design their own role and function independently. Experience and knowledge gained from serving in corporate management posts or as head of an organisation, or from working as a top-level researcher are useful, but not automatically transferable to this new role. Moreover, the process manager role is important. Ffowcs-Williams writes that the process manager is a 'rare jewel' who, if an initiative is to be successful, must:

- have the ability to create networks and build bridges between actors in the cluster;
- have a firm foundation of support within the cluster and be able to attract external resources to strengthen the cluster;
- have the ability to manage from behind the scenes and to focus the spotlight on others;
- be open, but also trustworthy;
- have no other personal interests in the cluster;
- reside in the geographic area where the cluster is located.⁷

That is to say, he or she would be required to handle a complex function. To provide support for their process managers, Vinnova created an 'experience network'. Network meetings gave these managers the opportunity to learn from one another. The reflective discussions were another tool for the process manager to help shape management style and offered a deeply personal learning process. The on-going evaluator's role in these discussions was to provide feedback on courses of events within the development process, including the process manager's activities, to

⁷ Ffowcs-Williams 2012.

relay knowledge from studies conducted and to share relevant knowledge and experience from research in the field, among other sources.

In practice, these discussions were held once a month. The process manager and on-going evaluator met for two hours at a time and most often away from the process manager's office. The process manager was primarily responsible for the content of the discussions and was expected to raise the issues that they wished to discuss. The on-going evaluator also had the right and obligation to bring up important topics for discussion. The content of the discussions ranged widely, from deeply personal reflections on their role in everyday matters concerning employees, the primary collaborators, the project portfolio, the budget and so on, to development strategies and strategic intelligence. No minutes or notes were taken of these discussions. It was expected that both the process manager and the on-going evaluator would use the information and insight provided by the discussions in a discreet manner in their respective functions.

To understand the reflective discussions' seemingly unassuming and open form, one needs to understand the learning experience that the process manager was undergoing and was busy with. Their existing knowledge and experience were adequate for parts of their work. For example, as a former business executive, they had the skills and experience needed to manage employees and to steer the operation in the direction of established objectives, namely to achieve profitability and a financial yield. On the other hand, what did they need to do to give others the opportunity to achieve profitability and a financial return, or to contribute to the region's attractiveness? One process manager possessed a deep understanding of the function of a company executive, while another understood leadership in academia or within the public sector. The experience network provided process managers with excellent opportunities to learn from one another's diverse skill sets, so long as they were open to doing so. Irrespective of where the tips and advice about the process manager's role came from, it still remained for each of them to apply them.

Each group — such as executives in SMEs — has developed over a long period of time a collective base of knowledge and experience concerning a managing director's tasks and how these should be executed. To borrow Fleck's term, these executives constitute a 'thought collective'; that is, a group who view the world a certain way.⁸ By this, Fleck means that, in the chatter of information that surrounds us all, company executives have developed their ability to understand what is important to note and take into account in order to fulfil their function. Fleck describes this as 'selective perception'. Guided by what they have chosen to observe, they have developed an appropriate way of acting; i.e. if the situation is 'x', it is appropriate to do or think 'y'. This experience has been developed and refined over a long period and has been passed down from one generation of managing directors to the next. Significant elements of this practice have been researched and documented and can be disseminated through training courses. Other kinds of knowledge and experience are either so specific to the industry, or parts thereof, or so closely linked to local circumstances that they remain largely unknown to the uninitiated. It is important for a newly-appointed managing director to gain access to this hidden

⁸ Fleck 1997.

knowledge and experience that resides with their colleagues. Thus, there is a strong motivation for them to become socialised into this thought collective and to adopt its way of understanding, thinking about and exercising its leadership. Apart from providing knowledge and expertise, this socialisation process also contributes greatly to shaping the person's identity.

For the process manager, developing this function and making it their own was a matter of both acquiring an understanding of what this complex task involved and of how it affected them personally. For the individual, there was a risk involved in leaving a context that had contributed to their status and identity to embark on an exercise with an unforeseeable outcome. Would they find a meaningful way to fill their function? Would others understand and affirm the work they did? This was, and still is, a sensitive and demanding learning process. The reflective discussion provided a discreet and secure, though also demanding forum in which this learning process could take place. In part, this learning involved taking on board and understanding others' experiences, though in the main, it focused on challenging and testing one's own way of looking at the world or style of thinking. Reflecting on one's own way of being and acting provided an opportunity to learn and to change. 'In these circumstances, reflection is anything but a luxury. Rather, it is a way to regain balance; to orient ourselves anew in a situation that is chiefly characterised by incomprehensibility,' writes Janik.⁹ He continues: 'What situation requires that we "view ourselves from an outside perspective," something that no one else can do for us. Paradoxically, at the same time, neither is it something that we can do without help. What we need is something like a mirror, from which we can gain the necessary glimpse of ourselves, of our way of doing what we do, of our way of "thinking".' It is around this glimpse in the mirror that the reflection revolves and it is the on-going evaluator, alongside a number of other sources, who plays the role of the mirror.

The reflective discussions focused on the process manager and their way of executing the process manager function. The breadth and depth of the learning process during the reflective discussions depended greatly on the quality of the working relationship between the process manager and the on-going evaluator. How open did they dare to be with one another? How ready were they to challenge their own basic assumptions? Besides these personal aspects of the working relationship, it was important that both parties respected and maintained their respective roles and functions within the Triple Steelix initiative. It was especially important to take into consideration the process manager's power and responsibility either to act or to abstain, as well as the on-going evaluator's independent position with the responsibility to both monitor and support the process manager's development and learning process. In this context, it was important to explicitly agree that both the on-going evaluator's and process manager's loyalties lay first and foremost with Triple Steelix' development process, and not with a person, organisation or financier. The purpose of the learning process was to increase the process' potential for achieving its objectives. This required both acknowledging and challenging one's own views in matters both large and small. The discussions influenced the operational and strategic work models that gradually developed within Triple Steelix, including the following aspects: the understanding of the innovation system's functions, viewing the industry from a

⁹ Janik 1996.

value-chain perspective, defining the relationship between research and development projects and identifying the operational organisation's functions in the innovation system.

The reflective discussions began in 2006 and continued until the conclusion of the period under consideration here, in December 2014. The focus and form of the discussions varied, in part due to the prevailing situation within Triple Steelix, and in part due to personnel changes within the process manager function. A new working relationship was formed with the arrival of each new process manager.

Having discussed these three aspects of the on-going evaluation's activities in the initial phase, I will now turn my attention to the period 2008-2011, the intensification and consolidation phase.

3 The Intensification and Consolidation Phase – 2008 to 2011

3.1 Introduction

In the autumn of 2007, Triple Steelix was heading into its fourth year. The project's collaborators had expressed their confidence in Triple Steelix as a collaborative concept and development organisation. There was no longer any serious doubt as to whether Triple Steelix should exist. Instead, a clear request was made that the initiative should now 'do more'. This meant designing and carrying out even more development projects for the benefit of the stakeholders, particularly the SMEs. The industry was experiencing a boom that both stimulated and impeded development simultaneously. The companies' resources were very much tied up in maintaining daily operations and the time available for long-term development projects was limited. Despite these less than ideal circumstances, Triple Steelix' project portfolio still managed to expand. The initiative's operational staff devoted much mental effort to deepening their understanding of what 'doing more' entailed for a development organisation like Triple Steelix.

In parallel with these efforts, preparations also began for the international review that was to be conducted in early 2008. This review was commissioned by Vinnova and was intended to provide material on which the agency could base a decision as to whether or not to continue funding Triple Steelix. As such, it was a time in which both parties looked to the past to summarise what had happened and also looked to the future to formulate the strategic challenges for the coming years. The on-going evaluation was also involved in these development processes. Functional analysis, specialised follow-up studies and the on-going evaluation of strategy work were activities that characterised the on-going evaluation during this period.

3.2 Functional Analysis

Winning the VINNVÄXT competition greatly boosted the collaborating actors' interest in the innovation system and cluster concepts. The majority had a loose understanding of what the concepts stood for, namely collaboration between multiple actors with the aim of providing a breeding ground for new ideas and innovation. Within Triple Steelix, significant energy was devoted to providing the collaborating actors and their employees with knowledge that improved their understanding and laid a common foundation for the on-going work. Among other methods, this was achieved by holding a number of seminars entitled *Kluster och Klusterpolitik* [trans.: Clusters and Cluster Policy]¹⁰, *Triple Helix Management*¹¹ and *Triple*

¹⁰ Örjan Sölvell, Stockholm School of Economics.

¹¹ Lars Christensen, Vinnova and Region Värmland.

*Steelix: Developing the Internationalisation*¹². The process management team and board of directors also needed to deepen their understanding of the concepts and gain insight into how they applied to the region's steel industry, in particular. Vinnova's on-going evaluators' network, particularly the discussions with Björn Eriksson and Annika Rickne, had acquainted Triple Steelix' on-going evaluator with a method for analysing technological innovation systems.¹³ This led the evaluator to initiate a functional analysis of the steel industry's innovation system.¹⁴

Triple Steelix was operating in an industry and a context characterised by long-running traditions. These had their own established methods for developing knowledge and for disseminating it and other experience among their actors. One risk associated with all established systems of thought is that they easily lead to the furtherance and refinement of that which has previously proven successful, meaning that less attention is paid to changes in the surrounding environment, such as alternative materials suppliers or structural changes in related industries. The functional analysis was based on a research project in which qualified evaluators studied their collective experience, thereby identifying a number of key functions that characterise a well-functioning innovation system. What picture of the steel industry's innovation system would emerge if it were studied using this theoretical tool?

The principal focus of the analysis was to investigate how well the steel industry's innovation system operated, using the identified functions as a starting point. To gather information that would shed light on this question, ten individuals who were deeply involved in either the industry itself or in academic environments and public authorities important to the industry were interviewed. Prior to the interviews, the informants received a written introduction to the theory that would be used in the study. The interviews took the form of thematic discussions structured according to the theory's seven principal processes, which had been defined as the innovation system's core. These were: knowledge development and diffusion, influence on the direction of search, entrepreneurial experimentation, market formation, legitimation, resource mobilisation and the development of positive externalities.¹⁵ The study's results and theoretical bases were documented in a report. The report also described the policy implications for the on-going work that had emerged in the study. The results were reported to the board of directors and process management team both orally and in writing.

One result of the functional analysis was that understanding of the innovation system concept was increased among both the operational staff and a wider circle of collaborators. The theoretical underpinning increased the opportunities to determine what Triple Steelix should focus its efforts on. Moreover, the analysis also clarified the various actors' roles and functions within the innovation system. Though perhaps a slight exaggeration, it could be said that a common language was created for discussing the system and its opportunities and limitations. The somewhat altered way of looking at and describing the industry's innovation system, as made possible by the theory, helped elucidate the restructuring process that was taking place for

¹² Ifor Ffowcs-Williams, Cluster Navigators Ltd., New Zealand.

¹³ Bergek et al. 2008.

¹⁴ Messing 2008.

¹⁵ Bergek et al. op. cit.

the service and maintenance companies, for example. Although there was already an awareness that this was occurring, the extent of the change and its significance for the steel works became clearer in both its positive and negative aspects. These insights tangibly affected Triple Steelix' work at both the strategic and operational levels. Greater priority was given to the companies operating up-stream from the steel works. Additionally, a special group was formed in which buyers, suppliers and academia were represented. Its task was to identify and initiate R&D projects with a focus on strategic issues for this section of the value chain. One project initiated by the group focused on validation. It was asked: how could this project be designed to make it possible to influence the procurement process for service and maintenance, so that knowledge and expertise were assigned greater weight? This aspect was considered a necessary incentive for relevant SMEs to develop their areas of strength, i.e. smart specialisation, and thereby maintain their competitiveness both domestically and internationally.

3.3 Specialised Follow-up Studies

A host of activities had been started and completed within Triple Steelix' framework. It was not easy for the process management team and board always to be completely in-the-know and able to assess whether these activities contributed to development in line with the established objectives. The specialised follow-up studies conducted as part of the on-going evaluation were a means to review how individual activities functioned and were appraised. At the same time, the studies also analysed how the activities contributed to the desired development of the innovation system as a whole. These specialised follow-up studies comprised traditional follow-up or evaluation activities.

One of these follow-ups concerned the initiative *Kvinnliga ledare i stålindustrin. En utbildning inom K2-projektet* [trans.: Female Managers in the Steel Industry. A Training Course within the K2 Project].¹⁶ The study aimed at analysing how the course performed in relation to the explicit aim of improving its participants' leadership abilities. The study was also intended to investigate and evaluate how the course contributed to the overarching objective of achieving increased gender equality within the steel industry. The course ran for one year and was divided into six sessions lasting two days each. Its focus was on giving participants the opportunity to develop their personal leadership skills. Information that would help answer these questions was collected by interviewing the 14 course participants, their managers and the course managers. The interviews were conducted sometime after the course concluded. The study showed that the participants considered that they had successfully developed their leadership abilities on a personal level. This assessment was confirmed by the participants' managers. The managers also noted that this increased ability had already been put to use by the companies and a number of the course participants had been able to take on increased managerial and leadership responsibility. Some of the participants had also elected to change jobs. The study also provided the course managers with suggestions on how the course's content and structure could be improved.

¹⁶ Ahnberg, Messing 2008.

A separate follow-up study focused on Triple Steelix' internal work. One aspect of increasing Triple Steelix' impact (i.e., 'doing more') had been to define the focus areas on which the initiative would concentrate. These were: product and materials applications, production engineering, service production, and human resources and professional development. Moreover, there was an explicit strategy in place for the projects to be carried out in the form of triple-helix collaborations. The primary concern in this specialised study was to review how well the project portfolio and the project processes aligned with the established focus and work methods-related prioritisations.¹⁷ Data were collected by studying the internal documents drafted during the project process, through supplementary interviews with operational heads and by participating in project follow-up meetings. The project portfolio review revealed that projects were on-going in all of the focus areas. The majority of these focused primarily on technological development. The SMEs had been given significant opportunity for involvement and either managed or participated in all of the reviewed projects. The study also showed that triple helix-style collaboration had greatly influenced the practical project work.

The specialised follow-up studies had a limited mandate and provided information on only part of Triple Steelix' activities. The elapsed time between the emergence of an issue and the presentation of results was relatively short. As a result, the knowledge generated through the studies could be actively incorporated into Triple Steelix' on-going development work at both the operational and strategic levels.

3.4 The On-going Evaluation's Role in Strategy Work

The intensification and consolidation of the initiative's activities took place on several planes. At the strategic level, a discussion was on-going about how the innovation system was functioning and how the collaborating organisations could contribute to its development. The functional analysis provided some of the basis for these discussions. Triple Steelix' operational organisation was modified so as to more effectively meet the requirement that it act to promote tangible development. Additionally, the operational staff were busy refining their approach and work methods to become even better at seizing on ideas and developing these into manageable projects.

The on-going evaluation was actively involved in these processes through its participation in meetings discussing the initiative's work and in interim working groups. The on-going evaluation contributed to these fora by providing complementary perspectives on the matters being discussed. These perspectives were often taken from research findings and from knowledge fields not specifically linked to the steel and engineering fields. For example, general information was provided about projects and project work in connection with a discussion about Triple Steelix' project grant.¹⁸ As another example, the working group tasked with formulating Triple Steelix' R&D and internationalisation strategy was made aware of various models for describing innovation processes.¹⁹ As an alternative to the linear model (i.e., a progression from research-based knowledge to a market product), the processes between

¹⁷ Ahnberg, Messing 2009.

¹⁸ Selin 1990.

¹⁹ Lilja, Nilsson, Messing 2009.

suppliers and customers in which new products and production processes were formed were discussed. How could Triple Steelix stimulate and expand this interchange of experience so as to strengthen its innovative potential? Among other sources, guidance was sought in Bhidé's ideas on how different actors contribute to 'the complex multiplayer game of innovation'.²⁰ Service research's conceptual apparatus was used to describe the operational organisation's everyday praxis in words.²¹ By applying these concepts, this professional praxis could be more clearly defined and, thereby, also discussed among the staff. Thus, to a greater degree, each individual's knowledge and experience became the working group's shared knowledge and experience. In this way, both research-based knowledge and empirical knowledge were applied in the development-focused learning processes that characterised Triple Steelix during this phase.

²⁰ Bhidé 2008.

²¹ See, for example, Edvardsson, Larsson 2004.

4 The Re-orientation Phase – 2012 to 2014

In September 2011, Triple Steelix underwent a second review by a group of international assessors.²² As with the 2008 review, the preparation and drafting of a revised action plan entailed a mobilisation of the organisation's work. The strategic issues of the focus and development of the operational work were still relevant. The question of what would happen to Triple Steelix after 2014, when the current form of financing would cease, had been raised and was given increasingly greater priority during this phase. In this same period, the on-going evaluation became deeply involved in the strategic work that focused on if and, in that case, how Triple Steelix would continue after 2014. In addition, the on-going evaluation also continued to contribute to the development of the operational work.

4.1 Giving the Strategy Process Direction

In conjunction with the 2011 international review, a summary of the past years' results and the impact of Triple Steelix' work was prepared within the framework of the on-going evaluation.²³ This report served both as a means to describe Triple Steelix' operations and a presentation of the on-going evaluation's overarching evaluation of these operations. The report was subsequently used as a basis for the initiative's strategic work going forward. The categorisations of Triple Steelix' impacts, functions and prerequisites, as formulated in the report, informed the strategy discussion that followed.

In addition to the impact made in the form of new products, services, enterprises and so on, the innovation system itself was also affected. During Triple Steelix' period of operation, a host of other cooperation organisations had emerged with the active support of the initiative: The Roll Forming Centre (RFC) in Fagersta, the Forum for Industrial IT Solutions (FindIT) in Sandviken, the Clean Production Center (CPC) in Hofors and the materials processing centre BearbetningsCentrum in Borlänge. These cooperation organisations strengthened the innovation system's potential by developing the knowledge base within their respective fields, but also by disseminating their knowledge and supporting its use in various applications. Other effects on the system included an influence on regional education and research, an increase in actors' willingness and ability to use the innovation system, and the promotion of the emergence of a functional region related to steel and other related engineering and service industries. This broadened view of what were to be considered relevant impacts was embraced by the collaborating actors and served as a source of guidance in both strategic and operational matters.

Triple Steelix' functions within the innovation system and the way the organisation created value in the system and among its actors were formulated in a similar way. Describing the

²² Vinnova 2011b.

²³ Messing 2011.

functions made it clearer for a wider audience just why Triple Steelix existed and what it was expected to do, as explained below:

- One of its basic functions was to create, tend and enable the use of the innovation system. This involved promoting structures and a culture that enabled the actors to benefit from a diverse range of knowledge, expertise and experience. In other words, it was a matter of helping to develop social capital and inspiring confidence among the actors.
- A second function was to assume the role of a neutral party in complex collaboration contexts. That is to say, to play the role of an actor with no interests besides the officially-sanctioned interests, namely to promote the industry's development and the region's attractiveness.
- A third function was to glean ideas from the dialogue held with the innovation system's actors and, using these, to create manageable projects that promoted development. Alternatively, Triple Steelix could initiate projects on its own, based on discussions with both companies in the industry and the academic environments involved.
- A fourth function was to funnel financial support to research and development projects.

These clarified functions also helped give direction to the development of the operational work. Finally, the report also highlighted a number of prerequisites and conditions for maintaining Triple Steelix' functions and for ensuring that, in the future, these could contribute to generating impact in the form of commercial successes. Responsibility for ensuring that these prerequisites were in place was shared among Triple Steelix and the collaborating organisations. For example, it was required that both groups be proactive and accept responsibility for maintaining a close and mutual dialogue. It was also important that leading actors such as the Swedish Steel Producers' Association, the steel works and the regions clearly expressed their confidence in the initiative. This was especially crucial during the initial phase, before Triple Steelix was able to independently demonstrate the impact and results of its work. An initiative like Triple Steelix was constantly being evaluated by the actors who involved themselves in projects and other activities. Moreover, each of these had their own ideas about what was valuable and useful. As such, it was important for Triple Steelix to be able to balance its activities, so that they satisfied the developmental needs of the various actors. In addition, the organisation was also dependent on the operational staff possessing relevant expertise and executing their duties in a professional manner. In hindsight, it can be said that the definitions of impact, functions and prerequisites strongly influenced the focus of the on-going discussion on strategy.

4.2 Operational Development – Open Innovation Arenas

One of the operational staff's key functions was to be alert to ideas and development trends and, from these, to design manageable projects that promoted development. The question of how to achieve this in the best possible way has been a topical question among Triple Steelix' employees throughout the initiative's lifespan. Development efforts were focused on how the formats for open innovation arenas could be made concrete and refined in day-to-day operations. The on-going evaluation helped resolve these questions. It did so by gathering strategic intelligence, borrowing knowledge and experience from relevant regional and national

operations.²⁴ Two experiments trialling different types of open innovation arenas were also conducted in parallel. The on-going evaluation participated in these experiments as an observer and chronicler. Its observations were documented in a report that was presented to the participating actors.²⁵ The report made use of service research's structures and concepts to describe the test projects.

4.3 Triple Steelix Post-2014

The question about what would happen to Triple Steelix after 2014 received increasing attention. An interim working group was formed by the board of directors, tasked with producing supporting material for the coming discussions and decisions about continuing Triple Steelix. This working group included the chairman of the board and representatives for collaborating companies, academic institutions and public authorities. The on-going evaluation was invited to participate in the working group. The on-going evaluator was assigned a number of tasks in the process initiated by the working group, which was later expanded to include the entire board and process management team. These tasks were: to structure and document the working group's discussions, to contribute the experience and knowledge generated by the on-going evaluation and other relevant evaluations, and to sound out key persons among the collaborating actors concerning ideas and proposals.

The working group's strategy was to investigate thoroughly the question of *whether or not* Triple Steelix had a future and, if so, *what* its mission would be. Experience said that, in this type of discussion, it was all too easy to fall into debating *how* this should be organised, financed and so on. The group's work resulted in material on which to base discussion that was a revised version of the on-going evaluation report that had been submitted in the lead-up to the 2011 international review.²⁶ Some preliminary decisions on the part of the working group concerning key questions were presented as annexes to this material. These were as follows: the group agreed with the on-going evaluation's description of the impact and functions of Triple Steelix; that the functions that Triple Steelix had supplied the innovation system with had been so valuable that they should be continued after 2014; that the functions required their own organisation and long-term basic funding; and that it was desirable for the current organiser, the Swedish Steel Producers' Association, to continue to shoulder this responsibility. The working group's assignment concluded with the presentation of the supporting material to the board of directors, which subsequently assumed responsibility for the on-going process.

Discussions about the future of Triple Steelix continued at a number of board meetings in which the on-going evaluator participated. Work to introduce a new process manager for Triple Steelix was carried out in parallel with these discussions. As a result, the question of the initiative's future received less attention for a period of time. However, the situation changed radically when, in the autumn of 2013, Vinnova invited Triple Steelix and other VINNVÄXT initiatives to apply for continued funding during an acceleration and overdrive phase. As a result, Vinnova also became a more active actor in the question of Triple Steelix' future, alongside industry

²⁴ Messing, Rönnlund 2012.

²⁵ Messing 2013.

²⁶ Messing 2011.

companies and the region's academic and public authorities. Vinnova's requirements for allocating continued funding were that the innovation environment raise its level of ambition and improve its quality and that the industry and regional actors should assume clear responsibility for the initiative's long-term survival. Compared with the discussion that had been held to that point, these terms increased demands for Triple Steelix to make more progress in its ambition and direction.

The question of Triple Steelix' future, manifested in the form of preparing an application to Vinnova, was now given the highest priority. The initiative's operational staff and collaborators were now called on to assist with the work in earnest. The process of compiling the application was demanding. For one, many different interests needed to be evaluated and prioritized. The operational staff were also required to reconsider their approaches and work methods to some extent. The process resulted in an application that entailed that Triple Steelix' operations would now focus on three areas: the value chain, resource efficiency and expertise. It also involved a proposal to implement organisational changes that reflected the stated focus areas. During this period, the on-going evaluator's main task was to support the employees during the application process and to continuously supply previously-acquired knowledge and experience. At the same time, the evaluator's reflective discussions with the process manager and participation in the board's activities continued. The topics that dominated these concerned preparing for scenarios whereby Triple Steelix would either continue to operate or be decommissioned.

In April 2014, the application was submitted to Vinnova together with pledges of content and financial support from the industry and regional organs. In October 2014, Vinnova decided to grant continued financial support to the initiative up to and including 2018. Thus, a new chapter was opened in the history of Triple Steelix.

5 The On-going Evaluation's Activities – A Summary

This report on the on-going evaluation of Triple Steelix has included a description of a number of activities and approaches designed to satisfy the expectations and requirements placed on the function. In some cases, these activities have been clearly delimited, while others have been more continuous in nature and integrated into the initiative's work. The various activities are described in the table below using a summary and examples.

ACTIVITY	PURPOSE	IMPLEMENTATION	APPLICATION
ORIENTATION INTERVIEWS	To generate independent knowledge with which to supplement process management's and the board of directors' need for information	Thematic interviews with key individuals connected with the collaborating actors	To investigate the actors' views on and evaluation of the initiative, strategy decisions and the like
COMPANY MAPPINGS	To regularly review the group of active companies, thereby acquiring knowledge of any changes	A combination of interviews with operational staff and data gathered from official statistics	To acquire a knowledge of changes over time on which to base strategic work
REFLECTIVE DISCUSSIONS	To provide the process manager with a personal learning process focused on process management	Regular discussions in which the on-going evaluator relates knowledge and experience gained through the on-going evaluation and addresses issues raised by the process manager	To develop the manager's personal process management skills
FUNCTIONAL ANALYSIS	To provide an alternative view of the innovation system by studying it from a theoretical perspective	Using theory as a basis, collect relevant information from key persons connected with the actors in the innovation system	To study the prevailing way of describing the industry and its innovation system and possibly also to clarify other opportunities and threats
SPECIALISED FOLLOW-UP	To study and evaluate related activities to meet process management's and financiers' need for oversight and learning	Design and method selection based on the issue at hand	To both monitor and gather information for use in operational and strategic development
PARTICIPATION IN STRATEGY DEVELOPMENT	To supply knowledge, alternative perspectives and structure to the board's and management's strategy-related processes	Active participation in working groups, strategy meetings and the board's activities	To enrich the strategy work
PROCESS SUPPORT	To assist management and employees to earnestly participate in internal and external development processes	Active participation in processes and individual discussions with the persons concerned	To improve the opportunities for positive development for individuals and the organisation

5.1 The On-going Evaluation's General Conditions

It has been possible to carry out the on-going evaluation activities reported on here based on conditions that the commissioning principal, the on-going evaluation and the operational organisation have developed jointly. These conditions include more than just a financial framework and formal commission. One important aspect has been the on-going evaluation's clear demonstration of its position as a proponent of the operation's objectives and of its desire to contribute to the process in a constructive way. In this way, the fact that its loyalty did not lie with any organisation or person, but with the process itself, was made clear. This premise was made easier to establish and maintain by the stakeholders' acknowledgement of and respect for each other's roles at both the organisational and operational levels. That is to say, they trusted in one another's ability and willingness to work for the good of the process. They all shared joint responsibility for moulding and maintaining the working relationship between the on-going evaluation and the system's actors. The clarity in this working relationship and the respect expressed for one another's roles helped promote the perception of the on-going evaluation as an asset among both the operational staff and collaborators. In time, the on-going evaluation's own activities and the way in which they were conducted contributed to the prevailing view of the function as a force for good. Integrity, professionalism and discretion were key among the evaluation's values and integral to the way it carried out these activities.

From the outset, the board of directors and process management made it known that the on-going evaluation had the right to evaluate every aspect of Triple Steelix' operations. This meant that interviews and assignments intended to provide the on-going evaluation with information could be carried out without resistance or complaint about the effort required to do so. Another positive aspect was that the financial framework made it possible for the on-going evaluation to be actively involved in the initiative's day-to-day work; that is, to participate in activities and to have the time for meetings and discussions with the actors and to read documentation and relevant literature. This regular presence was necessary to identify important issues related to the process' development and in seeking out and relaying relevant and practical knowledge to the actors.

Triple Steelix operated in a context where rapid changes and unexpected events were the norm. Being able to manage major uncertainty in a flexible way has contributed to the operational organisation's success. At the same time, it is also positive that the organisation has had the courage to be proactive and to stick to its overarching objectives in a changing world. For the on-going evaluation to be an asset in these processes, it has needed to be highly flexible. It has been important for the evaluation's focus to use the development tasks that Triple Steelix has been assigned as its point of departure. This work method required the evaluation to have access to knowledge and expertise that enabled the use of multiple methods, including gathering information, seeking knowledge through research findings, providing pedagogical feedback, familiarity with change strategies and more. This flexible work method also meant a short turnaround time between the formulation of an issue and the relaying of feedback on the matter.

5.2 The On-going Evaluation's Impact and Results

In a complex system like Triple Steelix, it is difficult to determine the impact and results attributable to individual activities, in this case to the on-going evaluation. Comments made by process management and the board have pointed out situations where the on-going evaluation has played an important role in the development that has taken place. Some of these instances have already been touched on in the report about the on-going evaluation activities carried out. In this section, three more overarching areas in which the on-going evaluation has exerted an influence and generated impact and results at both the strategic and operational levels are discussed, namely increasing the actors' knowledge of the system, driving the learning processes and supplying relevant knowledge.

Interviews with process management and board representatives have highlighted the on-going evaluation's important role in increasing knowledge about the innovation system surrounding the steel industry. The actor's increased knowledge about one another, which, in part, has been provided by the on-going evaluation reports, has been an important precondition for their close cooperation. The on-going evaluation's clear mandate to move freely within the system and have access to all meetings and documents has made these reports credible. In this way, the transparency that Triple Steelix has given the on-going evaluation, both in concrete terms and symbolically, has benefited everyone and has contributed to increasing the confidence of the systems' actors. The knowledge of one another's potential and limitations and the increased familiarity with one another's wishes and incentives have strengthened the system's ability to act cohesively, i.e. the system's capability.

One of the process managers interviewed commented that 'the on-going evaluation generated knowledge that it took several years to make use of'. In another interview, an informant gave this description: 'It means continuously remaking yourself and your role'. Both quotes reveal the far-reaching and protracted, not to mention on-going, learning process that active involvement in Triple Steelix has entailed. The on-going evaluation was ascribed important functions in these learning processes. For one, it contributed to relevant definitions of problems. Through its long-term presence, it also 'administered' the process' history. When the time was right, the on-going evaluation re-supplied this past experience, introduced others' experience and theories into the learning process and helped identify and shape learning situations. The learning processes had an impact at both the operational and strategic levels. On the operational side, the motivation for and ways of tending the system — i.e. of building the system's social capital — were improved. The project initiatives developed from focusing on individual companies to involving a number of the system's actors. Moreover, the entire system was identified as a relevant sphere of activity. This development of the operational work occurred in parallel with and was dependent on everyone involved in the system understanding and being aware of the motives behind the changes, i.e. that they possessed a knowledge of the system. This was part of the reason why changes at a deeper level took time.

The on-going evaluation was viewed as an important factor in the learning processes that were on-going within the framework of Triple Steelix' strategy work. Part of the evaluation's impact involved supplying alternative perspectives to the work. One example of this was the functional

analysis, which helped to direct attention to the steel industry's service and maintenance companies and to give them priority in the development work. Another example highlighted was the on-going evaluation's summary and evaluation of Triple Steelix' work in the lead-up to the 2011 international review. This report identified the functions Triple Steelix contributed to help create value in the system and among its actors. These functions and their requirements had a strong influence on the direction and structure of the discussion on strategy that ultimately resulted in the application for financial support during an acceleration and overdrive phase.

6 The On-going Evaluation – Motive, Focus and Means

The task assigned Triple Steelix' operational organisation, including its board of directors and organiser, was to effect a change within an established technological innovation system. This system consisted of independent companies, academic environments and public authorities. The intervention aimed to promote new thinking and innovative capacity and to enhance the region's attractiveness. These results and impact were to be generated both among the system's actors and within the system itself. Neither Triple Steelix nor any other actor had a mandate or the power to command the other actors. Instead, development was to emanate from the actors' own desires and choices. The change strategy involved demonstrating the opportunities associated with intensifying collaboration among the actors. One way this was achieved was by either increasing their understanding of the context they were working within, or of the opportunities made available by utilising academia's knowledge and expertise more fully. The idea was that the actors, both individually and collectively, would strengthen their capabilities and that this, in turn, would result in new products and services that were competitive on the market. That is to say, the on-going evaluation would 'monitor, evaluate and provide advice' to an operation, which, in turn, would influence independent actors in an innovation system and this would ultimately lead to an improvement in their competitiveness and attractiveness.

The description of Triple Steelix' on-going evaluation has revealed a host of different ways to tackle the task. A great many more activities and work methods could feasibly have been used within the complex reality in which Triple Steelix operates. This reality included a large number of actors with both individual and common needs for knowledge about and oversight of the work that was taking place and its results. Although the financial framework for the initiative allowed room for an extensive on-going evaluation, the funds allocated were still finite. The actors in the innovation system also had limited access to relevant expertise and time. As such, the on-going evaluation presented here is a result of strategic choices and prioritisations made privately. Triple Steelix' on-going evaluation has come primarily to be characterised by what Karlsson Vestman has described as *praktik och erfarenhetsbaserad utvärdering* [trans.: practice and experience-based evaluation].²⁷ One characteristic trait of this type of evaluation is its intention to understand processes and, using this knowledge, to refine professional and strategic action. This chapter provides an account of the conscious choices made and of the arguments in support of these choices.

6.1 Why This Method of On-going Evaluation?

The foundation for this on-going evaluation was a commission from Jernkontoret. This commission was based on a broad framework, the collective purpose of which was to supply the

²⁷ Karlsson Vestman 2009.

functions of monitoring and evaluating the initiative's work and of providing advice to its organiser and operational organisation. The on-going evaluation was gradually moulded within this framework, so that its primary task became contributing to the learning of the actors involved in the initiative. The knowledge and learning processes on-going within Triple Steelix' operational organisation (as comprised of its employees and board of directors) were given special attention.

One important argument presented was that Triple Steelix was expected to serve as an active and constructive actor in a well-established innovation system. This was a not groundbreaking work for Triple Steelix. The system had already been shaped and developed by companies, academic environments and public authorities for a long time prior to Triple Steelix' arrival on the scene. There were already many actors who saw it as their task either to develop the industry or to promote the region's attractiveness in some capacity. It was in this environment that Triple Steelix was expected to contribute something new and, at the same time, also establish itself as a recognised actor. 'The new' involved implicit challenges to the prevailing system. Were the actors prepared to adjust their view of the things that the new actor, Triple Steelix, was tasked with influencing, namely themselves, the world around them and their role and function in it? This delicate situation meant that Triple Steelix was forced to manage a great deal of uncertainty and risk in executing its assignment.²⁸ Moreover, there was no clear example to look to for guidance in this work. It was the task of the board of directors and operational staff to design the work and to learn what was to be done and how. This learning was largely based on experience gained 'along the way' and from this 'space of experience', the new 'horizon of expectation' (to borrow Koselleck's terms, as discussed by Uhlin) was continuously re-shaped.²⁹ The on-going evaluation became part of these learning processes. Its task was to enrich the space of experience by supplying knowledge and experience from Triple Steelix' process as well as from research findings and others' experiences. At the same time, the on-going evaluation also became an actor involved in staking out the initiative's future through its contribution to discussions and to formulating policy.

One important prerequisite that enabled the choice of this particular direction for the on-going evaluation was the existence of additional systems of oversight. When Triple Steelix received a VINNVÄXT grant and the ensuing financial support made it possible to create an operational organisation, this organisation was included in the organiser's accounting system, with its related checks and audits. In addition, Vinnova's terms and conditions for receiving financial and procedural support included extensive reporting on a large number of indicators. To a large extent, these functions satisfied the financiers' legitimate needs for oversight and transparency in the way the allocated funds were used by Triple Steelix. At the same time, as mentioned in the description, the oversight aspect was also present in the on-going evaluation's work. Its proximity to the initiative's day-to-day activities provided a well-informed picture of what was taking place. From this vantage point and based on the information it afforded, the on-going evaluation made both positive and negative assessments of the relevant development processes.

²⁸ Uhlin 2006.

²⁹ Op. cit.

These assessments were conveyed to the board of directors, process management and the organiser by way of reports and oral presentations.

6.2 The On-going Evaluation's Focus

The description of the on-going evaluation has revealed that its focus varied over time. Initially, it focused on the actors' views on and appraisal of the Triple Steelix initiative. One motive behind mapping the active companies was to gain an indication of whether or not the initiative was on the right track. That is to say, the interest lay in understanding what others thought and how the companies acted in relation to the initiative, respectively. Was it a positive thing? Was it worth getting involved in? These questions concerned the justification for Triple Steelix' existence, i.e. its legitimacy. During the subsequent period, the interest was on intensifying Triple Steelix' activity and increasing its tangible results. Efforts to achieve this were carried out on multiple levels. The organisation and its functions were revised and clarified from organisational and administrative perspectives. The on-going evaluation provided the functional analysis during this period, which helped to deepen the actors' understanding of what an innovation system is. This analysis was primarily used at the strategic level to help guide and prioritise the operation's direction. At the same time, development projects were underway that aimed to produce strategies for guiding Triple Steelix' involvement in R&D and in efforts to achieve internationalisation. The issues concerned what Triple Steelix should do and how; in other words, they concerned the initiative's identity. Over time, the final phase became increasingly marked by the question of what would happen after 2014, when financing in its current forms would cease. A discussion was on-going within the operational organisation and among the collaborating actors as to if and how Triple Steelix would work in the future. In key aspects, these discussions concerned a radical reappraisal of the current operation's focus and work strategies. The on-going evaluation was involved in these processes and its main contribution was keeping the process' ten-year history alive and supporting the people involved in the demanding re-appraisal process.

How should we understand these changes in the on-going evaluation's focus? This report has included mention of a couple of concepts, namely legitimacy and identity, as a means by which to characterise the issues that were central to Triple Steelix' development efforts, and thereby also to the on-going evaluation. There are many sources of experience concerning establishing a new operation in a pre-existing context from which to learn. In a study of practice-based research environments within the welfare field, Odratt identifies a number of key concepts (legitimacy, authority, identity and communication),³⁰ which were later supplemented with the concept of autonomy by Hyvönen et al.³¹ These concepts can serve as points of reference in helping a new operation orient itself in its relationship with its surroundings. The concepts denote basic factors that illustrate an operation's preconditions for existence. *Legitimacy* concerns the question of whether or not the operation is desirable and is allowed to act in the prevailing system. Initially, the new operation's legitimacy rests on what kind of signals important actors in the system send. In Triple Steelix' case, this involved the industry's major

³⁰ Odratt 1998.

³¹ Hyvönen et al. 2004.

companies, regional academic environments and public authorities acting as clear advocates for the organisation and its assignment. Closely related to legitimacy are the concepts of authority and identity. *Authority* concerns the operation's and its representatives' position and reputation. In Triple Steelix' case, this related to the initiative's position and reputation in the eyes of the innovation system's actors. While legitimacy denotes acceptance within the system, authority is based on an acknowledgement of the operation's work as important and as being conducted in a competent manner. The operation's *identity* relates to its representing and contributing something specific that is understood by the system's actors and ascribed a positive value, both in its own eyes and those of others. No new operation remains new indefinitely. In time, its legitimacy will be tested — that is to say, its reason for existence — in relation to its work and how it is carried out. For Triple Steelix, this was a matter of doing more to provide meaningful services to the innovation system's actors in a competent and professional manner.

Using the concepts described above as a basis, it was natural in the initial phase for Triple Steelix to take great interest in matters related to the operation's legitimacy. It was also clear that this interest shifted to focus on matters concerning its identity and authority once it became more evident that legitimacy had been established. The issues and development tasks that characterised the re-orientation phase meant that, in important respects, the operation started over from scratch. As during Triple Steelix' initiation in 2004, influential actors within the innovation system placed their support behind the remodelled Triple Steelix, lending it legitimacy. Now, as then, the new Triple Steelix will be tested in practice when activities and approaches are made concrete in projects. Time will tell whether or not the new initiative will find the identity and authority needed to achieve a lasting legitimacy that will allow it to act.

6.3 The On-going Evaluation's Implementation

The basic idea was that the knowledge and experience generated within the on-going evaluation's framework would contribute to Triple Steelix' learning at both the strategic and operational levels. After a couple of years' work, a procedure was developed for determining what the on-going evaluation would focus on during the coming year. This procedure involved the on-going evaluator sounding out the initiative's organiser, most important financiers and process management in the late autumn about what they viewed as important tasks for the evaluation to undertake. The activities for the following year were then formulated based on this feedback and issues that the evaluation had identified independently and subsequently presented to the board. This annual procedure resulted in closely linking the on-going evaluation and its activities with Triple Steelix' strategy work and establishing it as an ordinary feature of the initiative's work.

The report's account of the various activities undertaken describes how it was intended that learning should take place. Ellström makes a distinction between adaptation-oriented and development-oriented learning, both of which help build up a person's professional competence.³² While adaptation-oriented learning focuses on codified knowledge, development-oriented learning focuses on the tacit knowledge that is needed for the activity the person is

³² Ellström 2009.

involved in. The codified knowledge is found in books and reports and is assimilated through traditional studies and education. The tacit knowledge 'is acquired through experience-based, informal learning; that is, by solving problems that arise in everyday situations by observing how others manage certain tasks or by cooperating with others'.³³ Because Triple Steelix found itself in a situation where it needed to find work methods and approaches that would allow it to fulfil its assignment, development-oriented learning came to dominate. The initiative's employees and board were forced to further develop their knowledge and experience to arrive at a level of competence that was adequate for succeeding in Triple Steelix' mission. In certain cases, this meant reappraising basic ideas and views, not least of all in connection with their choices of perspective. The board attached great importance to maintaining an on-going discussion about the operation's focus and priorities, so as to contribute to achieving the objectives in the best possible way. This took place in parallel with carrying out the traditional tasks of a board of directors, namely issuing instructions, supervising the operation and decision-making. As mentioned earlier, the on-going evaluator regularly participated in board meetings. Together with the organiser and process management, the board was one of the points of contact at which the on-going evaluation's results were to be received, evaluated and used as a basis for possible action. The evaluation's regular feedback and active participation in these bodies' discussions was one means to continuously enhance the basis for the initiative's strategic activities. One powerful contribution was that the on-going evaluation gave an explicit account of the policy implications that the studies had raised. This reporting meant that the board and/or process management could focus quickly on the key issues and fulfil their responsibility to either act or refrain from acting.

Development-oriented learning is a demanding process for the individual. Janik points out that a person's professional identity is interwoven with their personal identity.³⁴ This means that learning, both learning from and learning about, will very likely affect the entire individual. As professionals and individuals, we attempt to understand and to master the issues and tasks with which we are faced. Our own inability and failings generate in us an unpleasant feeling that we strive to avoid. According to Janik, this is a strong motivator for trying to learn more and understand better. Reflection, whether independent or collective, is the process by which learning takes place. The subject of this reflection, according to Janik, is 'the glimpse of ourselves, of our way of doing what we do, of our way of thinking'.³⁵ In the processes in which the on-going evaluation attempted to facilitate development-oriented learning, it was important that a number of perspectives and many people's varied experiences continued to exert an influence. This increased the opportunities for the individual to gain a 'glimpse of themselves in the mirror'. Moreover, if the learning context instilled a feeling of security in the learner, in the sense that it was possible to investigate an alternative idea or approach without being subjected to external demands, this encouraged the individual to dare to try something different. The on-going evaluation's reflective discussions are one example of this learning process, although development-oriented learning was also present in varying degrees of intensity in strategy discussions, wishes concerning on-going evaluation activities and analysis and feedback

³³ Ellström 1996.

³⁴ Janik op. cit.

³⁵ Janik op. cit.

seminars. The development-oriented learning process shared many similarities with the process that Triple Steelix wanted to establish among the actors in the innovation system.

The development-oriented learning processes also placed demands on the on-going evaluator. The evaluator was required to possess the skills needed to be a constructive participant in these processes and also to maintain a professionally and ethically tenable approach. One dilemma that arose concerned the evaluator's degree of proximity to the operation and its employees. Proximity has been both an asset and a precondition in connection with the learning processes. It has been through day-to-day conversation that the important issues and challenges have been identified. Moreover, proximity to daily operations has served as the foundation for building a working relationship with the initiative's employees and collaborating actors, a relationship that has experienced both affirmation and constructive challenges. One recurring objection is that proximity to the operation under evaluation causes the evaluator to be too strongly influenced by its 'view of the world'. This may cause the evaluator to become blind to other perspectives and, thus, unable to provide constructive criticism. Another objection raised in this context is that the evaluator's close relationships with employees cause them to withhold legitimate criticism so as not to risk damaging interpersonal relationships. A third objection is that too close an interaction with the operation under evaluation risks diminishing the evaluator's credibility in other actors' eyes. The evaluator must be aware of and continuously examine their practice in the light of these important considerations.

Like Nählinder, the on-going evaluator of the Triple Steelix initiative wished to be 'a critical friend to the project'.³⁶ Here, 'critical' is to be understood as meaning affirming and challenging in a constructive way. In Nählinder's discussion of the role of the on-going evaluator, she also emphasises that 'what one sees depends on what frames of reference one has'. As a researcher, it is critical to view a phenomenon objectively and to maintain a distance to it in order to create knowledge that is generalisable. Proximity is seen as a risk factor and possible source of error. The proximity that is an asset in development-oriented learning is a dilemma for a person who has become acclimated to a context where distance and objectivity comprise the sanctioned approach. Triple Steelix' on-going evaluator came to the assignment with a background in social work. In this context, proximity characterised by trust is seen as an asset. Educational programmes and practical training in the field provide knowledge about and training in building and maintaining working relationships that combine closeness with the power to act as an overriding authority. Against this backdrop, the proximity involved in development-oriented learning became a manageable aspect of the on-going evaluation's work. Had the objective been to create generalisable knowledge, the problem would have been the reverse.

For the on-going evaluation to serve its purpose as a driving and stimulating force within Triple Steelix, it needed to be viewed as something worth paying attention to and taking seriously. In other words, it needed credibility. Earlier, the importance of both the on-going evaluator's and collaborating actors' acknowledgement and joint preservation of the on-going evaluation's independent role was described. While this was a constructive prerequisite, it needed to be made

³⁶ Nählinder 2009.

concrete and manifested in the evaluation's actions and reports. In retrospect, a number of factors that contributed to the evaluation's credibility are discernible:

- The first was that the evaluation's choice of issues and fields of activity were perceived as being appropriate in relation to the development tasks that Triple Steelix had been assigned.
- A second factor was that the on-going evaluation conducted and presented independent analyses and syntheses about the issues raised. To be able to do this, it was necessary for the evaluator to create distance periodically and to draw support from others' experiences and from knowledge and theories borrowed from research.
- Yet another factor in the evaluation's credibility was its attitude towards presenting its results and reflections. This was not done with the pretension of presenting definitive answers, but simply as a consequence of the on-going evaluation's perspective. Respect for the fact that other relevant perspectives and knowledge existed that justified and were relevant to the board's and process management's actions and decisions was clearly emphasised. It was just as important for the on-going evaluation to respect others' roles and functions as it was for the actors to accept the evaluation.

7 Concluding Remarks

The on-going evaluation of a project or process can take many different forms. The approach presented in this report was the result of electing to pursue close involvement in the process and of a genuine desire to contribute to its success. To accomplish this aim, the on-going evaluation always took the relevant development tasks that Triple Steelix was assigned as its starting point. Although, to a certain extent, the issues were clear from the outset, significant leeway was given the evaluation — accompanied by high expectations — to find suitable and constructive means by which to contribute to the process' mission. This resulted in the varied nature of the evaluation's activities and in its taking an active role in relaying its results. Moreover, the evaluation was also involved in the board's and process management's policy discussions. Its contribution was often to lend structure to the issues and to provide alternative perspectives, but also to relate its own and others' knowledge and experiences. Last, but not least, the evaluation helped formulate strategic issues and policy documents.

This was successful in so far as the evaluation observed its own lines of thinking and formulations reflected in discussions and documents. The evaluation made an impact and some of the basic perspectives it presented came to guide Triple Steelix' work. This became apparent after the evaluation had been ongoing for 6-7 years. Although the process constantly encountered new challenges, these were handled within the frameworks of the strategies and perspectives that had been formed, in which the on-going evaluation had played an important role. In other words, the evaluation contributed what it could. Whether or not the perspectives and strategies were appropriate to the task and whether they led the initiative in the direction of its objectives are questions that could suitably be assessed by the next group of on-going evaluators. The conclusion arrived at here is that on-going evaluation in the forms presented can be a motivating and constructive force, but that it can only do so much. Should a project (or, as in Triple Steelix' case, a process) elect to use this form of evaluation, it should review the assignment's focus and implementer after 6-7 years. While continuity is an asset in on-going evaluation, a time limit should be imposed, nonetheless. The on-going evaluator's knowledge and experience may be utilised by the project or process over a longer term, but then in other ways.

Triple Steelix' on-going evaluation reports most often concluded with the mention of a number of policy issues that emerged during its work. This is also true of the retrospect and summary of the on-going evaluation work presented in this report. These are as follows:

- The *organiser and principal* of an evaluation and monitoring of a project or process must carefully consider what form such assignments should take. Evaluation in the form of on-going evaluation is best suited to projects and processes tasked with doing something new and different in relation to the prevailing order and which, thereby, are forced to deal with major uncertainty and risk.
- The *project's or process' management* must seriously examine its willingness and preparedness to undertake the demanding process that is development-oriented learning.

Realistic expectations concerning the evaluation work to be performed are a prerequisite for both the evaluator and the evaluated.

- Finally, *the on-going evaluator* must examine their personal attitude towards the project's or process' explicit objectives and purposes. On-going evaluation as described in this report requires the evaluator to sympathise with these. Otherwise, the evaluator cannot with any credibility claim to be a 'critical friend to the process'.

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- 01 Third Evaluation of VINN Excellence Centres - AFC, BiMaC Innovation, BIOMATCELL, CESC, CHASE, ECO2, Faste, FUNMAT, GHz, HELIX, Hero-m, iPack, Mobile Life, ProNova, SAMOT, SuMo & WINGQUIST
- 02 Third Evaluation of Berzelii Centres - Exselent, UPSC & Uppsala Berzelii
- 03 NOVA - Verktyg och metoder för normkreativ innovation
- 04 Forskning och utveckling för ökad jämställdhet - Följeforskning om Vinnovas regeringsuppdrag avseende behovsmotiverad forskning för ökad jämställdhet 2013-2015
- 05 This is about Change - Ten years as an on-going evaluator of the Triple Steelix initiative (For Swedish version see VR 2015:05)

VR 2015:

- 01 Bumpy flying at high altitude? - International evaluation of Smart Textiles, The Biorefinery of the Future and Peak Innovation
- 02 From green forest to green commodity chemicals - Evaluating the potential for large-scale production in Sweden for three value chains
- 03 Innovationstävlingar i Sverige - insikter och lärdomar
- 04 Future Smart Industry - perspektiv på industriomvandling
- 05 Det handlar om förändring - Tio år som följeforskare i Triple Steelix (For English version see VR 2016:05)
- 06 Evaluation of the Programme Multidisciplinary BIO - The strategic Japanese-Swedish cooperation programme 2005 - 2014
- 07 Nätverksstyrning av transportinnovation
- 08 Ersättningsystem för innovation i vård och omsorg - En studie av åtta projekt som utvecklar nya ersättningsmodeller

VR 2014:

- 01 Vägar till välfärdsinnovation - Hur ersättningsmodeller och impact bonds kan stimulera nytänkande och innovation i offentlig verksamhet
- 02 Jämställdhet på köpet? - Marknadsfeminism, innovation och normkritik
- 03 Googlemodellen - Företagsledning för kontinuerlig innovation i en föränderlig värld
- 04 Öppna data 2014 - Nulägesanalys
- 05 Institute Excellence Centres - IEC - En utvärdering av programmet
- 06 The many Faces of Implementation
- 07 Slututvärdering Innovationslussar inom hälso- och sjukvården

VR 2013:

- 01 Från eldsjälssdrivna innovationer till innovativa organisationer - Hur utvecklar vi innovationskraften i offentlig verksamhet?
- 02 Second International Evaluation of the Berzelii Centra Programme
- 03 Uppfinningars betydelse för Sverige - Hur kan den svenska innovationskraften utvecklas och tas tillvara bättre?
- 04 Innovationslussar inom hälso- och sjukvården - Halvtidsutvärdering
- 05 Utvärdering av branschforskningsprogrammen för läkemedel, bioteknik och medicinteknik
- 06 Vad ska man ha ett land till? - Matchning av bosättning, arbete och produktion för tillväxt
- 07 Diffusion of Organisational Innovations - Learning from selected programmes
- 08 Second Evaluation of VINN Excellence Centres - BiMaC Innovation, BIOMATCELL, CESC, Chase, ECO2, Faste, FunMat, GigaHertz, HELIX, Hero-m, iPACK, Mobile Life, ProNova, SAMOT, SuMo & Wingquist
- 09 Förkommersiell upphandling - En handbok för att genomföra FoU-upphandlingar
- 10 Innovativa kommuner - Sammanfattning av lärdomar från åtta kommuner och relevant forskning
- 11 Design av offentliga tjänster - En förstudie av designbaserade ansatser
- 12 Erfarenheter av EU:s samarbetsprogram - JTI-IKT (ARTEMIS och ENIAC)



Vinnova - strengthening Sweden's innovativeness

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