Introduction: original results based on collaborative research.

A methodology should be judged according to the result it produces. Hence we will first summarise the main results. On this basis it becomes possible to discuss the methodology.

Main result of the collaborative research with Sekurit Saint Gobain can be summarised as follows: this research provides a new perspective on corporate R&D management in the context of today's intensive innovation; in that perspective knowledge production in research lab is distinct from innovation processes; research management isn't innovation management. Based on our intervention research with Sekurit Saint Gobain Research lab, we give some properties of an “I” function which differ from research and from development (value evaluation, management processes, managerial objects, economic logic…).

This result leads to discuss main traditional views on R&D and on research lab:

− In economics, research is traditionally analysed as a production function the output of which is intellectual property rights (Aghion and Howitt 1992; Aghion and Howitt 1998; Jones 1995; Romer 1990), information, routines or absorption capacity (Cohen and Levinthal 1990; Kline and Rosenberg 1985; Nelson 1992; Rosenberg 1989)… it doesn’t take into account the organisation of learning for innovation. This is one aspect of an “innovation” function.

− In science and technology studies, research lab is seen as the place of an epistemic culture (KnorrCetina 1999; see also a first example of sociological approach of laboratory in Latour and Woolgar 1986); it is analysed how science is socially constructed… If it notices the fact that knowledge production is in close relationship with innovation, it never analyses the different kinds of management that “polarise” research (Aggeri, Fixari and Hatchuel 1998) and occasionally make it contribute to innovation. The “innovation” function is a way to activate and mobilise research.

− In managerial literature, research lab is seen as a classical structure where organisational performance could be improved through better communication or matrix organisations. In his research synthesis, Henry Mintzberg (Mintzberg 1981) refers to research as a support function and innovation is seen as an adhocratic process. The innovation function appears as a (new and) specific organisational function; its structure is not based on information sharing but rather on evolving and interacting concepts and knowledge.
In history, research labs have been studied since the 70s, with very few theories; it is rather based on facts gathering. Main trend is to prove that innovation wellspring wasn’t only in Research lab (Graham and Pruitt 1990; Hounshell and Smith 1988; LeRoux 1998; Reich 1985). Nevertheless it explains neither why it could be thought of research as an innovation centre nor how innovation processes were articulated on research. The innovation function enables to give a new interpretation of research labs in organisation: they are seen as means for exploiting dominant design that have been fresh established by innovation functions.

But academic results are just one part of the whole research result. Besides and closely related to these academic results, a new organisation form has emerged at Sekurit Saint Gobain. A new and original way of managing research and innovation contributes to the economic success of the firm. Academically speaking, this brand new creation of a type of collective action has been thoroughly analysed so that we know about its internal logic and the conditions of its genesis. More precisely we can describe the managerial logic and the design parameter that led to the creation of this “collective action”.

We won’t comment too much on those results that have already been presented in several papers and conferences (Hatchuel, LeMasson and Weil 2001; LeMasson 2001; LeMasson, Hatchuel and Weil 2000). They can of course be criticised and discussed. Our main point here is to show how these original results are also closely related to a collaborative research methodology. We use the term “intervention research” to describe more precisely this methodology. We claim that this methodology helped us to avoid to rely on the intellectual frameworks traditionally used for analysing R&D organisation. So we are able to see that some thing new is happening. We will first detail why we used a methodology which appears as academically risky, time consuming and labour intensive. We will then detail the process of acting in the firm while producing knowledge. We finally comment on the academic validity and the business relevance of the results.

I. How specific contexts appeal for specific methodology.

A. Issues around Growth through repeated Innovation

Our work with Sekurit Saint-Gobain began at the end of 1996 and became step by step more intense until the end at mid 2000. This research was born in a global context:

− In 1997 Vincent Chapel proposed a model for growth through repeated innovation to analyse a strong innovative firm. This firm was active in the highly competitive sector of electric domestic appliances and scored an uninterrupted 14% annual growth rate for the last 20 years (Chapel 1997).

− This first work opened new research field around the issue of growth through repeated innovation (Hatchuel et al. 1998; Hatchuel and LeMasson 1999): was this model reserved to some happy few which had developed some genetics character? Or could any big firm mute to a model of growth through innovation? This debate took a particular intensity with the emergence of the “new economy” buzzword and, more seriously, of a growing competition through innovation.

− At the same time Sekurit Saint-Gobain Research director asked us to work with him on a new trend in the automotive glazing industry. Outgoing from some weak signals in new product development, he felt that the industry was about to know a major shift:
competition had been based on a dominant design for 30 years but could shift to competition by innovation.

**B. From analytical or critical knowledge to actionable knowledge**

What could we do in front of this situation? On the one hand, we could have tried to describe and analyse this situation by using some already well-known theoretical frameworks: the automotive industry has long been a field for social studies; the Sekurit Saint-Gobain case could have fitted in with the analysis on co-development or on the birth of the first tier supplier integrator. But in this case we would have been twice followers: follower of industrial trends and follower of academic literature… without even knowing whether these theories and organisations really fit in with Sekurit situation. On the other hand we could have prophesied crisis that were about to come: the growing tension around innovation was already perceptible in other industrial sectors and even if no organisational solution was known it was possible to foresee coming difficulties. Hence we could have been either analytical or critical. But how to really help the research director? How was it possible to simultaneously analyse tensions and invent new ways of action? At stake were two issues:

- Invent new organisational forms with Sekurit Saint Gobain Research lab: if the research lab director intuition and our feelings industrial trends were right, then the existing organisation could be obsolete.

- Produce new managerial knowledge on the question of relationship between research and innovation. The Tefal model didn’t describe any structure with R&D department; if Sekurit Saint Gobain had to face innovation based competition, then it would probably invent a new way to combine R&D and innovation.

Both questions could be summarised in the issue of producing actionable knowledge, ie knowledge that could help to design action and to predict the consequence of action.

**C. Knowledge production on collective action**

How to produce this kind of knowledge?

Several methodologies have been traditionally used in science to produce knowledge (for management science see Adler and Shani 2000; Chalmers 1976; David 2001; Hatchuel 2000). First methodology is the “laboratory research”: phenomenon are confined in order to be repeated and analysed in controlled conditions. The main problem is the identification of the control variables since they are related to a predefined analysis framework. Indeed we didn’t dispose of this framework at the beginning of our work: there isn’t any robust framework for innovation management (see literature review in Hatchuel, LeMasson and Weil 2001). There are some examples of innovative firms but at stake here is the ability of a big firm to mute towards an innovation oriented organisation. This is a so-called rationalisation process (Hatchuel and Molet 1986; Hatchuel and Weil 1995): where innovation was traditionally seen as emerging and non manageable, a controlled and well driven process was now required. This specific “rationalisation” situation implied that the traditional organisational objects

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1 In this literature review Hatchuel et al. explain how literature on innovation is a rather critical one: innovation has often been used as a “tactical position” to criticise established theories that failed to take innovation into account (see economics of innovation vs orthodox economics, sociology of innovation vs innovation diffusion in social groups).
(managerial tools, evaluation criteria, labour division…) had actually simply to be defined. Consequently a “laboratory research methodology” that would have required a predefined analytical framework was not adapted and even possible.

In that particular case of analysing an emerging organisational “object”, we can rely on “field research”: we can do observation or participant observation. In this position you anyway rely on your own intellectual framework but the observation can lead you to revise your point of view (a nice example of the limits and problems of mere “description” is given in Bateson 1958; see also Gould 1985; Gould refers to Sulloway 1982a; Sulloway 1982b). All business history studies are based on this method (see for instance Cusumano and Yoffie 1998). In this case you observe industrial and economic champions and try to learn from them. This method is also widely used in the analysis of laboratories (for a synthesis see KnorrCetina 1995). Nevertheless it raises some difficulties. First you are supposed to observe the phenomenon without disturbing it. This obstacle is not insuperable, it just implies that the researcher must be as discrete as possible. In this case you are nevertheless confronted to a slight paradox regarding the way you articulate your knowledge with the action: either you assume that the produced knowledge doesn’t influence the course of action and consequently you can diffuse your result… without any consequence; or you don’t make this assumption and consequently you avoid any feed-back from your industrial partner, you can’t benefit from its judgement and can’t diffuse your result until the definitive end of your work². In both cases the relevance of the collaborative research is questionable. And this is the second obstacle: in a management science perspective you try to produce “actionable” knowledge, ie piece of knowledge that can be activated to design new kind of collective action. You are supposed to learn on the parameters that determine action. To test and validate how any parameter influences action implies to use this parameter. To learn about these emerging action design parameters means to operate the variables that people use to transform their collective way of acting. In this position you can’t anymore pretend that you will disturb the process as less as possible.

In the specific case of business history, the authors don’t aim at helping the firm you study. Hence this is not a methodology we could directly use in our specific case. The authors just set “champions” as example and underline what appears as “good practices” explaining champion success. We could have looked for champion that could have helped Sekurit transformation. Nevertheless this methodology is less adapted to cases where the issues are not completely clear and hence champions are difficult to identify. It might even be possible that there isn’t any champion at all! For Sekurit, we had already in mind  “champions for repeated innovation”: we previously mentioned Tefal. Moreover Tefal was more than a “case study” since Vincent Chapel worked out a real “model”. But this work could only be a first trial that still needed further modelling, abstraction and elaboration to give useful results for Sekurit. Actually Tefal could have been used as a “target” for Sekurit but it didn’t specify in any way how to get this target. Consequently business history is a limited methodology when the rationalisation process is still emerging and champions are still unidentified and unknown.

That’s why we rely on a third methodology for collaborative research: we consider that the shaping of a new collective action relies on knowledge production and learning processes and we try to maintain a coherence between this theoretical object (collective design of new forms of collective action) and our research methodology; we consciously rely on an intervention methodology that take carefully into account how a researcher influence the field where he

² By the way you also lose a source of validation.
intervenes and consequently doesn’t look for minimising this intervention effect but rather
maximising and controlling it. This methodology has been used for more than thirty years
and has given original and fruitful results (see for instance Moisdon and Weil 1994; Weil
1999). It has been largely discussed and theoretically grounded (David 2001; Hatchuel and
Molet 1986; Moisdon 1984).

Conclusion, since we study a rationalisation and a collective learning process for creating a
new organisation we rely on an intervention research methodology. At that point we can
comment briefly on the kind of result we will unavoidably get out of this study: we will self-
consciously produce at the same time a new organisational object and the knowledge on this
object. The knowledge will be all the more so right that the organisation stands! Hence there
are for instance two good tests for a successful collaborative research: first, making the
history of an organisation you can’t ignore a previous collaborative research; second, your
collaborative partners can see a positive effect on their carrier in the firm!³

II. Intervention research process as a collective learning process.

Intervention research with Sekurit Saint Gobain research lab lasted about four years. How did
we go together from the idea that innovation was about to be rationalised to the new
organisational forms based on RID?

A. Building a research program with Sekurit Saint Gobain.

Collaborative research deals with the strong leverages of action: decision processes, action
structures, learning processes… Since we were not familiar with the world of research we
first had the opportunity to dive deeply in the laboratory life as an active research engineer
and project leader. This first phase opened several different research perspectives:

➢ Was it finally a “traditional” problem of introducing project management in a research
lab?
➢ Was it a new way of dealing with the car manufacturers?
➢ Should we focus on leadership?
➢ Was it a cultural management problem in a multinational company? (Saint-Gobain is a
French firm, the research lab is localised in Germany)
➢ Should we help to introduce project portfolio management tools?
➢ Or technology management tools?

Moreover it didn’t appear any obvious crisis that a predefined receipt would have solved. The
research question still needed further elaboration. This participant observation period was
enriched by working parallel on the Tefal case, reflecting upon innovation and economic
growth. It helped to enounce a research program: at stake was the emergence of new
organisational forms linked to the mutation towards innovation rationalisation. Outgoing
from that program appeared :

− A research process: we should follow how organisations and product concepts were
jointly evolving. How the innovation imperative could lead to the invention of new
organisational forms and conversely how new organisations could open new product
innovation fields? To be clear: at this moment we didn’t have any answer to our

³ Of course these tests are not enough to validate a result! Collaborative research doesn’t aim only at boosting
carrier and provoking historical changes in the firm!
questions! It just helped us to focus on some specific questions and investigations. We dived into collective processes of product and technology design rather than immediately began with coaching methods or managerial tools.

- **Relevance test**: we checked regularly to confirm our main hypotheses: was there really an emergence of competition through innovation in automotive glass making, ie did the product deeply change in that period? Did Sekurit research lab really aim at structuring for business growth through innovation?

**B. A learning-based, concept-driven process.**

During the four years with the research lab the organisational forms and innovative products deeply changed. We identified four main steps:

- **“Scattered research based on research project”**: a dominant design configures the industrial competition towards larger and more complex glass shapes. Research is loosely connected to development, from time to time intervenes to help to solve production problems and investigate academic questions.

- **“Oriented research based on NPD project management”**: some car makers require new functions on the glazing units (infra red filter). Research is asked to investigate new technologies (thin coating) and is closely involved in NPD projects. The product is considered as a dominant design to which the customer wants to add strange requirements. Strategy consists in resisting innovation based competition: a windshield is still defined by its 3D shape to which one original specification is added.

- **“Repeated innovation based on lineage management”**: NPD projects number increases and these projects produce always more knowledge than it is needed to just design the end-product (excess knowledge). It is noticed that some synergies (learning processes to reuse excess knowledge) can be organised from projects to projects so that project management no longer appears as the most relevant managerial level. To organise excess knowledge reuse (Hatchuel, LeMasson and Weil 2001) the research director manages design lineages in which product concepts and expertise jointly evolve. The lab is organised to meet car makers demand for innovative multifunctional products. The product is now considered as being multifunctional: a windshield is considered as a compromise between several interacting functions.

- **“Intense innovation based on innovation field management”**: since innovation raises growing interest inside the firm, it appears strategically relevant not only to adapt to customer requirements for innovation but also to explore new business opportunities. At stake is the creation of new lineages. This creation is organised as the exploration of innovation fields. In this last model the so-called “research lab” is definitely become an “innovation centre” with its own managerial objects (“innovation field”, “lineages”, learning rents”, “excess knowledge reuse”…). A windshield is now considered as a value-rich product generally defined as an isolating-communicating membrane.

This description of the organisational evolutions is done ex post. But how did the changes occur?

First this process is not a strategy driven change: all the steps weren’t known at the beginning. Managerial notions like lineages, innovation field,… had to be invented. The strategy itself was unclear from the very beginning: Sekurit Saint-Gobain hardly considered itself as an
innovator but rather as a good follower; it was unclear whether the first innovation requirements coming from the customer were just an ephemeral whim or could be weak signals for a coming innovation wave.

Second it is neither a trial and error process where some organisational forms would be tried, selected or rejected. There is on the contrary a strong logic from one step to the other: it is a learning process. At each step something new was learned, it appeared new point of view on the product, new strategic opportunities and new difficulties. Each step (see figure below) is driven by a rationalisation principle (let’s call it a rational myth making reference to Hatchuel and Molet 1986):

4. resist innovation by meeting new and surprising customer requirements; anticipate customer needs by designing multifunctional products; build growth through repeated innovation by exploring new product value dimensions. Each step is a rationalisation in itself: outgoing from each of these successive rational myths appear new organisational forms. And this new forms help to address new issues and suggest to revise the rational myth: mastering the meeting of innovative requirements by project management, one is able to think about multifunctional products; to master multifunctional product design enables the exploration of brand new functions and product value spaces.

This process is consequently learning-based and concept-driven: this is an iterative cumulative process and the driving force is the ability to simultaneously conceive of new product and managerial concepts. It was mainly led by the research director who stepwise involved new people (lineage managers, collective design of innovation field…), but researchers played also a crucial role in it.

C. Researchers are enablers for learning and concept setting.

What was the role of researchers in that process? They not only “observed” this change process but were actually full actors in it. They took part to the overall rationalisation process:

- They help to find out new opportunities and to describe each emerging model: at each step the emerging structures, actors, products concepts and organisational tools were not self...

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4 A rational myth has a dual dimension: it rationalises action (and helps to the understanding of action) and it mobilises for action.
evident. Outgoing from past experiences, from in-depth studies inside the firm and from interaction with different actors, they characterise main features of the changes so as to make a model appear clearly. This was regularly discussed with the research director (one big meeting per month).

- They support the embodiment of the model by providing the organisation with some new tools or tooling principles. This was done in contact with different managers (project leaders, department leaders, lineage leaders,…).

- Speeding up the characterisation and emergence of the models they favoured collective learning processes: they make the organisation become questionable; they help to draw conclusion: what are the new issues (product, strategic, organisational,…) that each organisation make visible? What are the limits of this organisations regarding these issues?

- They help to reframe and let emerge new models in front of these new issues: what could be the new design parameters for the next organisation? How could the product-concepts be described in a new phase? What could be the organisational principles?

The researchers appear as enablers for concept-setting and learning. They improve the overall process of concept-driven learning based change.

By the way they produce relevant knowledge for the firm and its leaders. But they also produce academic managerial knowledge since they step by step elaborate new conceptual models for organisational design of innovation management. The effort consists in precising the contingent dimensions. How general are the different models? Are they just closely contingent to an industrial sector? And saying that how would one characterise this particular sector? Main work consisted in defining a new contingent framework. It appeared that the models and the mutation process were particularly adapted to situation where research and knowledge production processes were strong and required heavy means (first contingent dimension: knowledge production through strong research labs) and situation where the development processes also require powerful organisation to meet customer demand for speed, reliability, low-cost and quality in design (second contingent variable: development as a well-structured and carefully controlled design step). This work of “decontextualisation” helped actually to enrich the models: on the one hand, it specifies their potential “application field”; on the other hand contingency variables are themselves new and consequently help to define a new interpretation framework for firm analysis.

III. Intervention results: when relevance and validity reinforce each other.

A. Relevance and validity

We can now come back to the results. We get two interrelated results:

- First: Sekurit Saint-Gobain research organisation has deeply changed. At the end of our work the research director became director of industrial investment and research. This promotion not only reflected his personal success, it also underlined a strong shift in the industrial strategy. The Sekurit turnover increased yearly of more than 10% in the last years, although it is in the highly competitive car industry. Considering a glazing unit as a “isolating communicating membrane” became more and more popular.
Second: we describe a brand new model of innovative research. We coined it the RID model. We propose actually:

- an original model on how this organisation is managed: we have identified the fairly original managerial notions on which the organisation is grounded (lineages, innovation fields, learning rents, product conceptual model, …)
- an original model on how this organisation was designed: a stepwise process, based on organisational learning and driven by concepts.

The first result rather advocates for the relevance of the research: the collaborative research produced useful results. The second for its validity: one can discuss several aspects of the research results like the internal logic of the model, its explicit premises, its contingent parameters, the new managerial objects and their properties,…

But conversely on the one hand the success of the firm also advocates for the validity of our analysis, since it suggests that the managerial notions, tools and organisation design parameters we proposed were predictive. On the other hand the RID model is strongly relevant since it helps other firms to orient their emerging processes of innovation rationalisation.

That’s why we claim that in case of intervention research relevance and validity reinforce each other. This reinforcement is actually due to the strong link between the methodology and the research object: intervention collaborative research produces predictive actionable knowledge on collective action and for collective action, hence successful action based on the produced knowledge reinforces knowledge validity and validated knowledge (action models) enables new kind of collective actions.

**B. Discussion of the results**

This new representation of research and innovation activities strongly challenge the traditional views. This can be attributed to methodology differences. We will now discuss those points.

1- Laboratory studies: detailed description

Sociology favour detailed description as a “revealing” process. Laboratory studies rely on a “method of observing the real-time mechanisms at work in knowledge production. If these mechanisms are considered in sufficient detail, some form of constructionism ensues, whether one wishes for it or not” (KnorrCetina 1995, p.148). From this point of view it would be argued that the results aren’t sufficiently detailed, that verbatim, careful interview records and tectic analysis are missing. This would explain why in our intervention research perspective “networks”, “translation” and social constructionism doesn’t appear as main features anymore but are rather consequences of action principles we have already mentioned. This sociologist argument is nevertheless twice biased:

1- Do verbatim and detailed descriptions really enhance research validity? This point is highly questionable. There is always a risk that citation rather betrays reality since it gives the impression of reality without giving the overall action context: in a perspective of producing

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5 For instance all “networks” are not equal: Aggeri et al. (Aggeri, Fixari and Hatchuel 1998) underline that innovation is as segregative in its network building processes, instead of research which is rather a federation of communities.
models for action, a model based on verbatim or even on “facts recording” would obviously forget several dimensions. In our specific case the RID model and principles were never explained by the managers: the words themselves didn’t exist at Sekurit and weren’t utilised. Actually they were useful at a “decontextualised” level, i.e. for modelling, helping reflexivity and learning. From a methodological point of view, the problem is not only that a verbatim doesn’t necessarily correspond to reality (intervention research itself doesn’t claim to fully correspond to reality) but rather that any description is based on an often implicit intellectual framework. Researchers referring to detailed description may get out of rigorously presenting this framework. In laboratory studies claiming that there are “no initial, undissimulatable “facts”, [neither] scientific objectivity, nor reality itself” (KnorrCetina 1995, p.148), one can for instance ask question on the logical status of “nature” and “natural objects” that are used as basics for the description (KnorrCetina 1995, p.145).

2- Nevertheless, even if one considers description in a “modelling” perspective, all models are not equally useful for action. One can ask whether a more detailed description would have enhanced the model itself. We claim for having a model that predict the consequences of some collective actions. And we claim that we “test” it since we have applied this collective way of acting and we got the predicted results. Actually one would legitimately argue that a more detailed description would have shown that other factors enabled to get the expected results: being radical, one could argue that those others ignored factors could be the main explanation of the result. Maybe growth and new innovative products of Sekurit Saint-Gobain could be better explained by others factors. This argument is perfectly right: a model never claims for completely describing reality. But how would precise description enable to formulate an enhanced or event alternative model? Very practically, how does one go and “describe” Sekurit in order to find these others factors? First we have already explained how this description will unavoidably be based on a model (see point 1 above). The simple fact that one considers growth and innovation as an issue is already based on a very basic model. Second there are numerous causal models that could explain a new way of acting. To look for actionable knowledge is only an orientation in this quest for model. It is a perspective that supports collaborative research, partial validation, revision and improvement while implementing. But going this way one comes back to intervention collaborative research.

Conclusion, collaborative intervention research is a model based process and the modelling is driven by action and learning with the organisation. In this perspective RID is not a “description” but a model for rationalising collective innovative design.

2- Economics model of research: natural models and new forms of action

Economics favour a modelling methodology, where calculus are reproducible and well controlled. From this point of view it would be argued that this collaborative research is only based on a single specific and contingent case and the contingent variables are incompletely known. Worse: researchers themselves are part of the contingent variables! Consequently the RID model appear as a single case that doesn’t fit in with an economics modelling. This point of view is methodologically twice biased.

1- “A singular case is not a model”. Actually the collaborative research implied to strongly refine concepts and models. Intervention research led to reflect on models of growth through repeated innovation. Consequently the RID organisational model was translated into a more general model of firm: firm is no more seen as a production function but as a design function. Firm growth is based on learning rents and value redesign (Hatchuel and LeMasson 1999; LeMasson 2001). We won’t discuss here this model but we can underline how intervention
research led to a powerful model: confronted to the contingency difficulty and to an unclassified firm type, researchers have to be more precise on the notions they use. Consequently they not only add parameter to “what is a firm” (a production function with routines, specific assets,...), they also rediscuss the main characteristics of a firm in light of emerging organisational forms. Consequently from a methodological point of view, it means that intervention research helps to discuss models that are considered as universal: *it sheds light on the contingent aspects of would-be “universal” models*. In this particular case the “production” aspect of the firm may have been a dominant feature of the firm (and still never the unique one!). With an emerging innovation capitalism one (re)discovers another feature, the “design” function, that becomes more and more important.

2- “This model can not be generalised”. The model is considered as a single point and one usually wonders whether other firms fit in with the model, ie whether the model could also describes other existing firms. But this perspective implies that one considers firms as “fixed” and “natural” entities. Indeed in an action perspective one can also consider that firms are likely to change and to conduct their own change. Outgoing from this strong hypothesis on the research object (Hatchuel 2001), one opens a completely new perspective. Consequently the new model could be itself a weak signal for emerging transformations. But it can be even stronger than just a early analysis of transformations: since collaborative research invents a new way of coping with industrial issues, it can reinforce latent possibilities. In our case, there’s no historical necessity that leads to “intensive innovation capitalism”; but the invention of relevant organisational forms (like RID) enables the emergence of this new form of capitalism. Consequently, from a methodological point of view, the issue is not the level of generality of the model; it is its leveraging power, its ability to enable the transformation of firms.

Conclusion, collective intervention research is not just modelling singular cases. It helps to underline contingent aspects of would-be universal models and hence to establish new models. As a model for action, its evaluation is not based on its level of generality but rather according to its ability to leverage existing organisations.

### IV. Conclusion. Risks and costs of intervention research: “repeated innovation” in management research and plurality of methodologies

We described an example of collective intervention research. We described how this methodology leads to invent a new form of action in firm and its theorisation in terms of “RID”. We described how both results (for the firm and for the academy) are both original, strong and reinforcing each others.

We hope that this method raises interest by the reader. But we also can figure out some worries: this example appears also as quite risky and costly. It is costly since it requires several years of in-depth studies on a single research field. What about others research methodologies to produce actionable knowledge? It is also risky in the sense that there is apparently no guarantee for results, neither in the firm nor for the academy. We described research process as a kind of “design for breakthrough innovation”… with all risks implied by

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6 It does not mean that the « model » is a one best way that every firm are supposed to go: it’s rather an intellectual support that can contribute to collective action transformation. In the course of these transformation the model can be changed and refined.
this process: one doctoral student could be lost on an hostile and sterile field, without any hope for academic return. Both remarks appeal for nuances.

A. Intervention research as a tool for a specific momentum in rationalisation processes

Generally speaking our example of collaborative intervention research illustrates the strong coherence between knowledge production and collective action. But this coherence needs to be specified: there actually a real isomorphism between intervention research and rationalisation processes (Weil 1999), i.e. situation where action and knowledge are still unknown and when new ones are needed.

Our work by Sekurit presents a strong specificity compared to other classical intervention research: it is not in the middle of a rationalisation process but rather at the very beginning. Traditionally the researcher work consists rather in helping to define contextualised solution for a known rational myth. “Total quality” or “skills rebuilding for low-skilled workers” (Moisdon 1997; Moisdon and Weil 1998) implied rather to find organisational tools and processes to embody these “buzzwords”. In our case the issue was also to find the buzzwords. Hence the core of our study was a conceptual work on products, strategy and organisation evolution; tools development and field research was only seen as a means to nurture this conceptual discussions. It already shows that several intervention methodologies exist, depending on the phase in the “rationalisation wave”.

As soon as interpretative models, organisational principles and tools are more or less defined, then other methodologies are also possible. For instance intervention research on innovative design suggested to look at statistics on designer population or on the measurement of learning. Both figures actually didn’t really exist. Our research also helped us to define new conceptual framework for business history. The notion of repeated innovation led us to reinterpret Edison history (Hatchuel and LeMasson 2001) and come back to research labs and engineering department genesis. Several years before, works on re-engineering and new production systems led to re-discuss Taylor (Hatchuel 1994; Hatchuel 1996). A good conceptual framework also paves the way for identification, observation and description of “business champions”.

Consequently intervention research is not the only possible methodology to produce knowledge on action. It is only perfectly adapted to those particular case of action when rationalisation are emerging and developing and when new knowledge on these new ways of acting is still missing. Otherwise less costly and less risky methodologies are also legitimate.

B. “repeated innovation” in a management science research lab

The “one shot innovation” is known as a risky random process in organisation. In our industrial case we rather propose a model of repeated innovation. It is the same perspective for intervention research. Here we described one success. But actually it can’t be separate from a broader research context. First we should insist on the fact that this research took place in an overall research program on innovation management and growth through repeated innovation. There was already knowledge, concepts and research hypothesis on the issue. There was also several people involved in the process. This research program helps to identify and recognises research opportunities: without this background, who could have identified Saint-Gobain, one of the oldest lady of the French industry, as an opportunity for
studying innovation? The research program also nurtured the research process by improving models and formulating managerial notions.

Second it also means that a research lab has to build a strategy for building and rebuilding research program in relation with the industry. That’s why one major result of such an intervention research is the ability to define a new research program. It is based on knowledge and notions acquired on “RID” at Sekurit Saint Gobain and aims at improving contingent variables and intellectual frameworks.


