

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity

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“Those people who develop the ability to continuously acquire new and better forms of knowledge that they can apply to their work and to their lives will be the movers and shakers in our society for the indefinite future.”

Brian Tracy
Speaker and author

The article introduces the Prime Mover Matrix as a conversation piece that will help management build strategic innovation capacity and gain desired influence on industrial standards and thus power. After all, just because a company calls itself innovative and invests in R&D does not mean it is actually innovative. To be strategically innovative means that a company deliberately builds its technical innovative capacity and business innovative capacity in relation to the influence of other actors' actions and innovations. By doing this, a company will be able to increase its influence on industrial standards and gain the necessary power to reach its objectives. It is a relative position towards a moving target, which is why companies must continuously change through learning. This means that management needs help to reflect on how their own company's innovative capacity compares to their competitors, and they must unceasingly steer their capacity towards the desired innovation position. Today, we lack intuitive and usable tools that will facilitate strategic conversations on how to best invest for desired innovation capacity. In order to fill this void, this article proposes the Prime Mover Matrix: a model that functions as a conversation piece for triggering an assessment of an industry's technical, business, and prime movers.

Introduction

The concept of innovation is gradually losing its strategic value as many organizations adapt it more or less as a synonym to product and service development, often emphasizing the technical aspects of innovation. Many, not to say most, companies today describe themselves as innovative. They might even be innovative in the common understanding of the term, utilizing their innovative capacity for developing new products and services. However, from a strategic perspective, this is not enough. The strategic value of a company's innovative capacity is instead how it deliberately tailors its capacity relative to other actors and, by doing so, creates a successful innovation strategy.

From this perspective, a successful innovation strategy is built around a profound understanding of what is driving the evolution of industry standards, by which I mean the established technical and business norms of

a specific industry. From this insight, a choice is made on how to engage in this evolution. A central question thus arises: In what aspects should you strive to gain influence over existing standards, thereby adopting a leader strategy, and in what aspects should you opt for a follower strategy, thereby reaping the returns from the possibly costly pioneering activities of other actors?

This question lies at the core of building a successful innovation strategy. In such a strategy, resources are cunningly deployed for steering the company's innovative capacity over time. But, how do we support these types of strategic decisions and conversation regarding the company's innovative capacity? That is the question that I aim to answer through this article by proposing the Prime Mover Matrix, which highlights the connection between technical and business aspects of innovative capacity. First, though, I venture into a short background on the use of popular models for strategy development.

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

Models for Strategic Conversations

There are already several popular analytical tools and models that help managers engage in strategic conversations, although not primarily aimed for innovation. Some of the most popular ones are SWOT, STEEP, VRIO, and Porter's Five Forces. They force management to take an outside perspective on their business and relate their company to both the surrounding environment and the competition. Scenario planning adds a dynamic dimension to the other models, opening up different contingencies, complexities, and relationships in "the future to be". It can be argued that the point with all these models is not so much about being right or being satisfied by having finished them, but rather the point is to make people talk about the same things and muster a collective force for changing what they do and how they do it. That is, the objective is for people to work together towards a business design that appears adequate in relation to the goals of the company in the situation they interpret (Normann, 2001; Van der Heijden, 2011).

This strategic conversation also needs to be continuously fuelled, not finished, as the world keeps on changing even though we would like it to be stable. Continuous change is what companies need to strive for, and it is where models for upholding a continuous strategic conversation will help. This goes for all aspects of the business, including innovation, where most models are a bit dangerous as they invite us to be satisfied when the result is an answer and a plan rather than ever-changing insights on change. Using the categorizations by Ahlstrand, Lampel, and Mintzberg (2001), one might say that we need to move from the planning and design school perspectives towards the learning school perspective on strategy where an interest in the world help the company better understand its competitive situation and move correspondingly.

The models mentioned above are well known and are also part of the curriculum at most business schools. They have in recent years been complemented by an increasing interest in different canvas models that visualize the interconnectivity of different important business aspects that need to be addressed for achieving success (Joyce & Paquin, 2016). These new models are also more geared towards understanding changing business conditions from a network perspective, which give us an indication of what conversations and insights are seen as important today. What is lacking, however, are models that are able to fuel a strategic conversation encompassing innovation, business mod-

els, and futurizing: the "how" component of being innovative and competitively successful at the same time.

What I propagate is not a conversation about innovation and competitors in general, for instance, their strength and weaknesses. No, what is needed is an insightful strategic conversation about how a company's innovative capacity compares to their main competitors and other important actors – one that sets the standards of an industry, and thus ultimately defines it. One might object that the "innovation funnel" (the model where one starts with ideas and successively reduce them as they pass different stage gates) to some extent would do this (Wang, 2017). I would disagree though, as the innovation funnel mainly concerns product development priorities. The stage-gate process will successively limit the discussion to developmental issues of already existing ideas. The model will thus not help the company *build* its innovative capacity for future possibilities of steering its industrial influence.

Scrutinizing the other models mentioned, none of them builds on an innovation perspective. Instead, they usually are constructed from a market perspective. Despite its flaws, the SWOT analysis is used in all parts of society because it brings out important questions that trigger a general strategic conversation, but not specifically on innovation. The same goes for STEEP and VRIO, which aim to link societal and competitive development to a desired market or industry position. The same goes for more developed concepts such as Michael Porters Five Forces (2008), and you might also consider Kim and Mouborgnes' (2004) Blue Ocean Strategy, to name a few. However, when it comes to innovation, there is a lack of a model that stands out. There have been attempts, such as the conceptual framework for *prime movers* developed by Normann (2001) (focusing on a quite complex process for company reorganization) as well as networking ideas connected to Henry Chesbrough's open innovation (2006), but they are more concerned with *how* to become more innovative than deciding *what* should we be innovative about.

Open innovation is interesting, as it suggests how the innovative capacity of a company can increase by deliberately inviting other actors to participate in innovation processes, but it is more a strategy in itself than a model for creating strategy. Open innovation might be one of several answers, but what we need to do in order to develop an innovation strategy is to pursue the question: In what innovative aspects do we want to gain industrial influence and how should we go about doing it? What

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

we need is a usable model that both helps us pose that question and engages in a strategic conversation about how to achieve the evasive answers we agree upon and move with the flow.

Usability of Models

What are the requisites for a good, usable model? To start, there is no real need for it to be exact in depicting reality, as this is impossible to achieve when one can never summon up all aspects of reality nor make all those concerned agree on what aspects to cover. Instead, usability lies in a certain level of abstraction of reality in relation to the questions the model triggers. The questions are central in all models, as they will fuel a strategic conversation around what aspects are most important to consider for business success, as argued above. Working with the model, agreeing and disagreeing, rewriting, rethinking, and by that reflecting together to build insights and knowledge, is the point, just like Cummings argues that the drawing of strategy can be more important than the finished models (McPhee & Cummings, 2015).

It does not stop there. In order to be used, any tool also needs to be quite intuitive and easy to understand. It is also what characterizes the models mentioned above. They are all inviting as you do not have to be well read in business to use them. Instead, their main advantage, I would argue, is that they do not provide answers but that they state important questions that need to be answered before any mutual decisions or actions can be taken. In between the questions and the answers is, however, a most important process where people come together in order to explore a mutual topic. And, they do this by using the same concepts and images inherent in the used model, aligning their thinking and ideas that in turn will make it possible for them to act as one. Using models thus create processes for mustering common efforts so that a company will be able to forcefully commit to an agreed strategy. That is what good usable models do.

The model itself is thus less important than the discussion it triggers, as one of my informants to my thesis (Hoppe, 2009) put it. Since then I have started to view models as *conversation pieces* that draw attention to something worth discussing. The more interesting discussion, the better the model; interesting in the sense of evoking a feeling that past understanding is inadequate (Weick, 1989). To Weick, finding something inadequate means that the person opens up for reflection and learning. New information and synthesis is needed

in order to create new mental structures (understandings) that satisfy and can be interpreted as adequate in the situation the person encounters. In a business setting, learning means that you understand your own business in relation to others in novel ways that make more sense, where this new understanding will be a reference point for further thinking and action. Another way of viewing it is that using models is not so much about filling in blanks in a pre-ordered way, but raising questions that are important for those concerned (Van der Heijden, 2011), forcing them to reflect on the current state of their business in novel ways. But, how do we then best raise strategic questions about building innovative capacity in a deliberate way?

The Prime Mover Matrix

My suggestion for a model that fulfils the specifications above is the Prime Mover Matrix, which is used to assess a company's ability to absorb, develop, and deploy new technology and new business ideas and turn these into innovations, changing technologies deployed, and business models used. The matrix takes an industry perspective and differentiates between those companies that lead innovation and those who follow; and it is defined along two dimensions: technical innovative capacity and business innovative capacity, as described below. Put simply, in this context, innovation capacity means usable knowledge for interpreting and developing ideas into innovations along these two dimensions.

Describing it theoretically, innovative capacity depends on the company's ability to align its dynamic capabilities in order to meet the innovation challenges it faces (Birkinshaw et al., 2016; Teece et al., 1997). Specifically, of interest for innovation is the absorptive capacity, meaning a company's capacity for organizational learning in absorbing new innovation ideas. Using Weick (1989), a company that can stimulate interesting reflective processes in key issues will have a better absorptive capacity. My contribution with respect to innovation capacity is my call for a division between technical innovative capacity and business innovative capacity. They are related in that they both need to be addressed and attuned in order to make the best of any innovation attempt, but they rest on different knowledge bases – and that is why it is important to treat them differently. Technical innovation capacity rests on technical knowledge, whereas business innovative capacity rests on business knowledge. These knowledge bases are usually also found in different places within an organization. Taking a popular example, we might consider Apple, where Steve Wozniak was the main

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

technological mind, whereas Steve Jobs was the main business mind. Both products and business were developed through their ability to combine their specific strengths. The success of Apple’s innovations came through the combination in certain products and services (although not all new ideas and products succeeded). Having the capacity means that you will be able to innovate better, but it does not mean that you will succeed in achieving your goals.

If we use this insight for creating a model with two axes we will arrive in an embryonic model just by recognizing that a company’s technical innovation capacity and business innovation capacity can be both low and high. Adding that you might be a leader, a follower, or a lagger, invites us to find other dimensions in the model, where we can also add, with respect of innovation, “mover”. As a mover, you do not just lead an industry in an aspect, you actually move it, changing how it functions. A mover is an actor that changes existing standards with respect to what technologies are used and how, as well as what business models are used and then how business is conducted (Normann, 2001). Some companies can do both at the same time, giving them a very advantageous position as they will be able to redefine the existing borders of an industry. And, through this mental exercise, we have arrived at the Prime Mover Matrix (Figure 1).

Being innovative, in the respect to the model, is relative to other actors, where an appropriate innovation strategy can be derived from the dependencies within industrial structures. A company scoring high in one dimension will be able to change the industry structure, move boundaries, set new standards, and thus adopt a leader strategy in a specific technology or business field. A company scoring low must instead adopt a follower strategy, where they structure themselves after other companies’ innovations. A company scoring high in both dimensions, on the other hand, will be able to totally redefine an industry in both dimensions at the same time, giving it a position as prime mover.

Both a *technical mover* and a *business mover* will have a potentially large industrial impact, but not as much as a *prime mover*. In contrast, a company scoring low on both technical innovation capacity and business innovation capacity will be lagging behind others and have low industrial impact. Their positions are, and will be, a product of how they have invested in innovative capacity. Aiming for a more influential position means you have to invest now in order for a later potential harvest as a mover.

One might object that it is impossible to fill in the model, as there is no clear description of how to do the assessment. This objection is missing the point. The

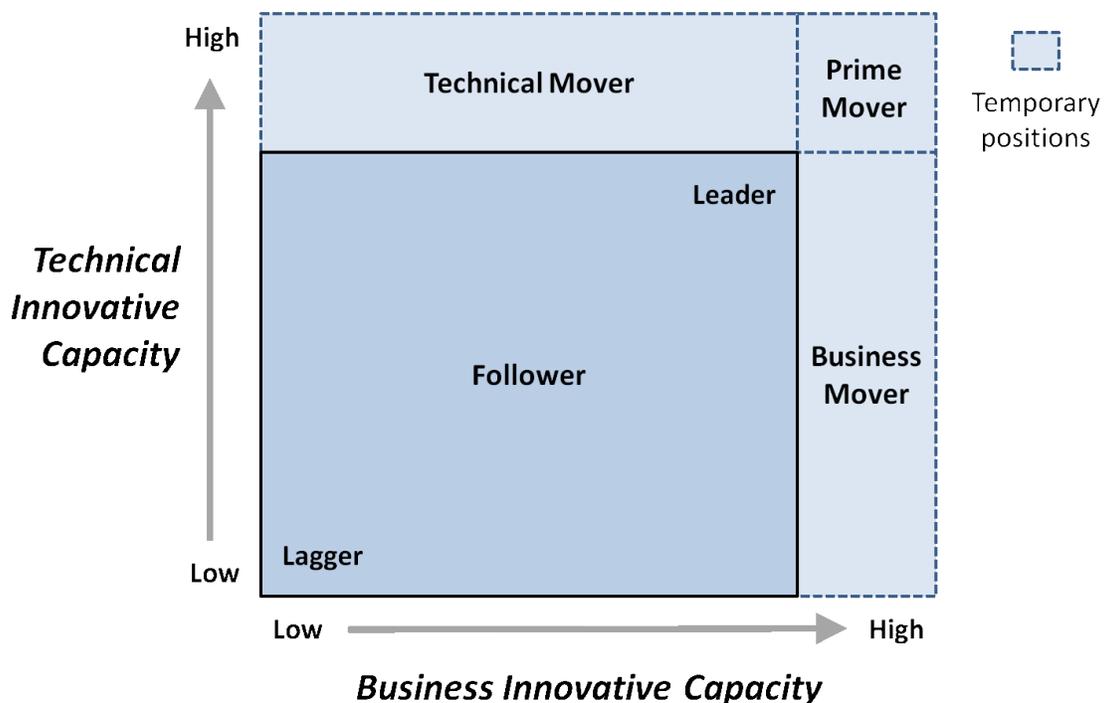


Figure 1. The Prime Mover Matrix

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

model is created in order to raise questions, not answers. What it will do is to provide you with a visual arena for conversation, where those who engage in the discussion can do their own personal assessments on the same page, draw lines and arrows and put forward their arguments (cf. McPhee & Cummings, 2015). If the model provokes a lively discussion and helps those engage in building common understanding of how innovation is made, by whom, and in what patterns, then knowledge is created that will support a well-grounded innovation strategy for a desired industrial impact.

Industrial Impact

Industrial impact, with the respect to the model, connects to Schumpeter's ideas of how society evolves through innovation, with the important understanding that all industrial and societal changes are temporary. Once the standards of technology and business have been moved, other changes will follow, continuously moving standards and industrial borders. When a company introduces new technology or business practices that are adopted by the market, industry, and society, it acts entrepreneurially by treading new ground. But, as Schumpeter (1934) points out, this is just a temporary state. When the novelty has been introduced and accepted (accordingly setting new standards), entrepreneurial action has to give way to more traditional management, in order to protect what has been gained.

On the one hand, the major challenge for a company that aims to stay as a leader in one or both dimensions is consequently to remain in change, building and attaining innovative capacity that will make that possible. On the other hand, they might also settle for a more defensive innovation strategy, protecting their gains, but then slowly moving away from a leading position opening up for others. Building innovative capacity that facilitates choices like this equals having an innovation strategy.

Hence, product and service development is not enough for a company that wants to label itself as innovative. Instead, it must uphold capacities for deliberate change where it continuously assesses how the industry is evolving and, from these insights, adapt their technical innovation capacity and business innovation capacity in accordance with the objectives of the firm. A discussion emanating from the model should support insightful decisions and actions on this topic.

A Need for Knowledge

In these discussions, centred around a conversation piece such as the Prime Mover Matrix, management will be in constant need of updated information about industry developments. Just trusting existing company knowledge, also with the risk of relying on existing preconceptions and dogmas, will not suffice. This need for structured knowledge building about an industry creates a close connection between innovative capacity and *organized intelligence work*, or *competitive intelligence* (Gilad & Hoppe, 2016; Hoppe, 2009, 2013).

In order to interpret and gain from new knowledge, by absorbing it into the company's innovation processes, a company must have relevant prior knowledge (that is an absorptive capacity). It is the implementation of a long-term strategy for deliberately building the absorptive capacity, the company's knowledge base, that will define the technical innovation capacities and business innovation capacities of a company. For example, by adapting an open innovation strategy, a company will access a broader knowledge base and, by that, increase what kind of innovations it can embrace. An alternative move would be to hire specific competences, engage in partnerships, buy startups, etc. As the resources of a company are limited, it will need to choose where to increase the knowledge base and how, and those are the strategic decisions that ultimately will define a company's innovative capacity, both in technical innovation capacity and business innovation capacity.

Before we leave the more theoretical reasoning about models and innovative capacity and turn to a few general examples of what kind of conversations a model such as the Prime Mover Matrix can trigger, a few closing points are to be made. As with any model, the Prime Mover Matrix is simplifying reality without any aspiration of portraying something as complex as innovation in a correct way. Instead, I hope the matrix will be understood quite intuitively and will therefore do the job of raising important questions about industrial relations, rather than giving clear answers. It can possibly be used on different analytical levels, where I, for communicative reasons, limit myself to a quite general level. Still, on this level, it can provoke interesting reflections and insights on how industries evolve and what strategies to deploy. I would like to emphasize that the model has not been developed in order to rely on exact numbers or measurements. It is possible that both technical innovation capacity and business innovation capacity can be measured in some aspects, but the numbers are of lesser importance than the shared

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

understanding of relationships between different industrial actors as well as the relationship between technical innovation capacity and business innovation capacity for each studied actor. If the model and the strategic conversation can unravel how innovation develops inside an industry and within companies, important insights can be reached that will help the company move towards a desired innovative position within the industry.

Prime Movers of Our Time

Apple's 2007 introduction of the iPhone (showing high technical innovation capacity) with a new business model for capitalization on applications (showing high business innovation capacity) might be one of the most obvious examples of a prime mover. The impact of the iPhone/smartphone on society is massive, and it is hard to imagine how society would have looked like without it. The iPhone/smartphone case shows us that being a prime mover gives you a chance to not only influence industry structures but totally redefine them with a huge impact on society. Hence, we can also label this as a product and service *innovation* in comparison to more normal product and service *development*, where the important aspect in respect of the Prime Mover Matrix is that Apple acted as prime mover and other companies had to follow and adapt their innovation strategies in order to keep up with the industrial and societal change.

Interestingly, Google was quite quick on the uptake, deliberately building and utilizing technical innovation capacity. With the acquisition and development of the Android software, they did not just follow Apple but could also become a *technical mover*, setting a new technical standard for a part of the industry that Apple could not claim. With Android, a breach between hardware and software development for phones was also created, with large side effects on the business side of the industry, why it is possible to also call Google a *prime mover* at that time.

Both Apple and Google/Android still hold positions as industry leaders. Whether we should label them as *prime movers* or not today is not so much up to me but to other actors in the industry and, of course, it also depends on what part of the industry they are involved in. Depending on how they define their industry and its players, Apple and Google might be movers, but just as well, they might not. The label is less interesting than how we understand the relationships within the in-

dustry and how different actors interact and influence each other through their technical and business innovations.

In retrospect, any analysis is quite simple, just like this one. We already know the answer. That Apple, since the introduction of the iPhone, has become the number one company in the world when it comes to market capitalization comes as no surprise. Apple still has great impact on many industries, but it has not been able to uphold the same position as unchallenged prime mover. As a company, it still has great impact, but maybe mostly due to its size and ability for continuous technical innovation. I am not sure though that their business innovative capacity is as high as their technical innovative capacity, which might be interesting to reflect upon.

Prime Movers of the Past

Occasionally, we might find prime movers in any industry, but we should always recognize that this position is temporary. A good example is Kodak. Once a very innovative company, Kodak went bankrupt in 2013 after not being able to align their innovation strategies for technical innovation capacity and business innovation capacity with how the industry was evolving due to the digitalization of photography. This is quite ironic given that it was Kodak who started it all.

By discussing how Kodak has moved through the Prime Mover Matrix, we can gain insights into how the company since the introduction of digital photography in 1975, scored high on technical innovation capacity but with no real business innovation capacity to accompany it. Even though we might label Kodak a technical mover, at that time, it did not do the company much good. The company mainly capitalized on analogue photography technology and was not able to create new sustainable business models that did not threaten their core businesses. Eventually, Kodak moved to an extreme position to the left: a position where they became vulnerable to other companies with a stronger business innovation capacity. In the end, Kodak's technical innovation capacity decreased and the company became a lagger, just waiting for liquidation.

It was not just one innovation or industrial actor that sealed Kodak's doom. Instead, it was the continuous change in an industry that earlier tended to follow a well-established structure. Then, standards started to change. Previous industrial borders and logics were

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

destabilized through innovation, and Kodak could not adapt quickly enough. Digitalization paved the way for a merger between cameras and phones, where the movers of the camera industry increasingly came from other industries such as computers and phones. Through the change of standards, an industrial border seized to exist, opening up societal changes where photography was used in new communicative ways, and money was made through new business models.

Upholding a leader position at one time does not mean that you will stay there, especially in today's complex and rapidly changing business environment. Industrial boundaries are becoming less stable, where innovations in adjacent industries always constitute potential threats, especially for more narrow-minded managers who think their business is protected due to what used to be true. This innovation threat does not come as substitutes though, as described in Michel Porter's (2008) Five Forces model, for example, but as the change of standards and by that the reconfiguration of industrial boundaries.

Prime Movers of the Future

Turning to the future, it is impossible to state which companies will be successful and which will not. An innovation strategy does not guarantee success, but it will increase the company's ability to move with the development of an industry, sometimes becoming a mover and having influence on the standards of industries. True innovation means that industries and society will change with effects that go beyond what can be foreseen. In order to emphasize this, I have come to use a more philosophical definition of innovation as follows:

"Innovation is a value-enforcing change that goes beyond adaptation; it is a self-reinforcing movement that continuously gains wider effects on its context."

With this definition, I would like to enforce the need for a continuous change perspective as well as the need for increasing a company's learning ability. If these perspectives are enforced within the structures of a company, the likelihood that it will be able to prosper increases as it will be able to make the best of the opportunities that arise in the wake of new innovations in technology and business.

Nonetheless, there are several interesting innovative companies that set new standards today, moving industrial borders and driving change. Although my lack of

expert knowledge of any industry prevents me from making any predictions, I can at least mention that I am intrigued by the group of companies now forming around Elon Musk. What makes them especially interesting is Elon Musk's visions about electricity and transport and that he has stated that his main goal is to be a prime mover in society. By that, he has stated that his vision predominantly is about innovation, which contrasts with more limited visions of a specific industry position, maximum profitability, or shareholder yield. Of course, companies guided by visions like Musk's will have an innovation advantage relative other companies with more limited ideas of what they want to achieve. If they will be more profitable though, we do not know and should not even expect that. The vision is about change, not money, where innovation has another purpose.

If you are looking for someone who is setting new standards and moving industrial boundaries you need to look no further than Musk. A glimpse at the Prime Mover Matrix also tells us that, for most companies affected, it is appropriate to at least in some aspects adopt a follower strategy in order to move with the industry. Obviously, there are other options such as building niche strategies through high capacity in either technical innovation capacity or business innovation capacity, but to ignore the present and possible future impact of this particular actor would be hazardous for many companies related to electricity and transport. Many car manufacturers are now following the Tesla lead but are also challenging the leading position. They do that for good reasons, since the position as *lagger* at the bottom-left corner of the matrix (Figure 1) is not so compelling. Nobody wants to be the next Kodak.

No wonder, then, that we see many different conceptual electric cars from a variety of makers. By building them, the development teams encounter new problems that need to be solved, and in this process their technical innovation capacity increases, moving up the matrix. This is a common innovation strategy in the car industry. Problem solving not only solves problems; more importantly, it builds knowledge and thus absorptive capacity, and by that, it increases the possibility of attaining a more influential position. When it comes to business innovation capacity, we do not see the same obvious investments in knowledge through structured problem solving. Instead, as outside observers, we sometimes read about preproduction models that are tested in different environments and towards different customer groups. Whether this will be able to increase the business innovation capacity of the companies, I do

The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

not know, but I find it interesting to reflect upon if we, through different models and processes, could increase a company's business innovation capacity in similar ways as we use tools like conceptual cars to increase their technical innovation capacity. What the Prime Mover Matrix does is to at least pose the question if this might be a good move to increase a company's business innovation capacity. How it is to be done is then a question for the strategic conversation the matrix triggers.

Conclusion

The article has introduced the Prime Mover Matrix as a conversation piece that will help management build strategic innovation capacity and gain desired influence on industrial standards and thus power.

There are several other models and tools for supporting strategic conversations, but these do not particularly focus on innovation as a strategic choice to guide how a company should build their innovative capacity in relation to industrial standards. Of course, you do not need the Prime Mover Matrix (or any other model) to have this conversation. It is, however, my firm belief that a common terminology along with a common visual model will help focus any conversation. Those who use the Prime Mover Matrix have to discuss and plot their company's movement in comparison to other influential industrial actors and from this understanding develop strategies for how to best develop their technical innovation capacity or business innovation capacity. Building these capacities deliberately means you have a plan for navigating the power structures that will determine your future, but also a chance for increasing your own power and leverage.

It should also be stressed that becoming a technical, business, or prime mover has no value in itself and no company will automatically prosper from it. Instead, what these positions offer is influence over industries and society, where it is not the position but how you deal with it that will decide what you gain.

The Prime Mover Matrix is based on the insight that continuous change is something natural in society, and

companies need to find ways to continuously redesign themselves for best fit. All positions are temporary, and we should pay more attention to movements than ideas that bind us to view industrial standards, borders, or anything else as fixed. True innovations change industries and society, and we need to reclaim the profound impact of this understanding. Hence, having a good innovation strategy actually means that you have the desire to not just follow the stream as a dead fish, but to be part of the complex that drive change.

Even if you invest in product and service development, it does not automatically mean you will change anything in industry or society. Neither does hollow proclamations that a company is innovative. What will change industries and society is innovation, which in turn is dependent on the innovation capacity of your company. Low capacity then means low innovation potential and low influence, whereas high capacity means that you will have the potential of being able to change the world; just like the high technical innovation capacity or business innovation capacity of Tesla (and related companies) now is changing the billion-dollar industry of car manufacturing. In this way, the Prime Mover Matrix is also a contribution in differentiating innovation as something extraordinary and as something very important for companies and the world. A good innovation strategy is dependent on good reflections, which in turn are dependent on good questions. What the Prime Mover Matrix does is to offer visual help towards posing interesting questions, driving reflections, and reaching insights into how to build innovative capacities that will help you reach the influence you desire.

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The Prime Mover Matrix: A Conversation Piece for Building Strategic Innovative Capacity *Magnus Hoppe*

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Technology Innovation Management (TIM; timprogram.ca) is an international master's level program at Carleton University in Ottawa, Canada. It leads to a Master of Applied Science (M.A.Sc.) degree, a Master of Engineering (M.Eng.) degree, or a Master of Entrepreneurship (M.Ent.) degree. The objective of this program is to train aspiring entrepreneurs on creating wealth at the early stages of company or opportunity lifecycles.

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