USCALE

SCALE YOUR USER
SCALE YOUR BUSINESS

Product-Market Fit of Innovations

An agile test procedure for measuring customer acceptance of innovative products, services and business models.

Whitepaper

Innovations are the future.
But only if the market is
accepting them.

Economic tectonic plate shifts, such as digitalisation, the energy and mobility transition, are putting the business models of many companies and their jobs at risk. This is why companies have set up business development departments and innovation labs in recent years, or trained design thinking methods on a large scale. On the other hand, investors have large budgets and are looking for attractive ideas to invest in. In addition, there are state and EU subsidies.

Companies in all sectors are working on structures that systematically promote innovation. The aim is to create a culture of change and new beginnings among employees, companies, entire sectors and society as a whole. And it goes without saying that investments must lead to innovative products that are accepted on the market, generate revenue and create new jobs. It is surprising that nobody questions the basic assumption of venture capital investors that many investments do not fulfil expectations.

When fully developed products come onto the market and flop, it is almost always because innovators and product owners have not sufficiently understood the target customer. This is surprising, given that no keynote presentation is complete without a speech in praise of the importance of customer orientation. So where does the problem lie? Translated with DeepL.com (free version)

This white paper shows three important causes and proposes a way to determine the so-called product-market fit throughout the entire lifecycle and thus secure and significantly increase the market success of innovations.

Dr. Axel Sprenger
Managing Director USCALE GmbH

1
Customer-Orientation with Innovative Products and Services

2
A New Test Procedure for Evaluating Product-Market Fit

3
Product-Market Fit Testing in Practice

An Inconvenient Truth

Many innovative products, services and business models fail.
Why?

The most important factor for success is underestimated.

Investors take into account the fact that not every company makes the breakthrough and becomes successful. Nevertheless, every bankruptcy and every flop is painful for founders and investors.

At start-up events there is often talk about the importance of the right composition of start-up teams. In innovation hubs of large companies there is a lot of talk about IT talents who program the best algorithms. But rarely do the movers and shakers have any doubts, that there is a sufficiently large market for their product

Thus, the results of a post-mortem analysis by the High-Tech Gründerfonds (HTGF) in 2019, which investigated the reasons for failed investments of the HTGF, are surprising. The most common reason for failure was not the money, the team or the technology, but the lack of product-market fit.

A similar conclusion was reached in a study conducted by the US Tech Market Intelligence Platform CB Insights. In first place in the "TOP20 Reasons Why Start-ups Fail", the study also found "No Market Need", i.e. the wrong assessment of the market.

$\longrightarrow$ The most common reason for the failure of innovative business models and products is the lack of product-market fit.

74%	33%	8%
Product-Market Fit	Team	Technology Development
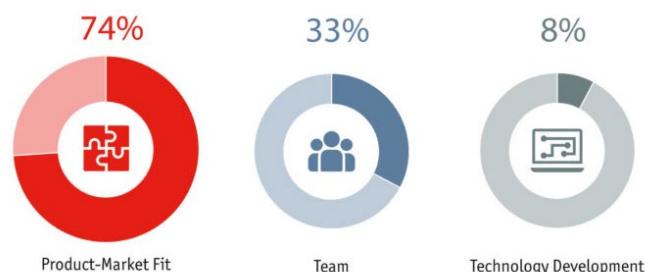
Reasons for the failure of HTGF investments when choosing between product-market fit, team and technology (Source: HighTech Gründerfonds)

No Use – No Revenue

Pay-per-use based business models are particularly affected by the lack of product-market fit.

## Utilization as a mandatory requirement for success.

Many analog products can be marketed more easily with advertising or special offers. For others, an espresso or a glass of Prosecco can be served in the store. If the customer is not sure at home whether the purchase was right, the way back is often connected with effort and costs. But the same applies to online purchases: once a shoe has been worn or the car ordered is registered in the garage, the retailer can be sure of his sales.

With digital, mostly pay-per-use based products, things are different. The risk and costs of a bad buy are almost zero if the user can only download an app and test its use without obligation. If the user does not like the offer, an app is simply deleted again or a subscription is cancelled during the test period.

Pay-per-use based offers must therefore generate a significantly higher tangible added value than products to be purchased in order to be successful and generate long-term revenues.

→ Purchased products must shine in the store. Pay-per-use based offers must bring real benefits.
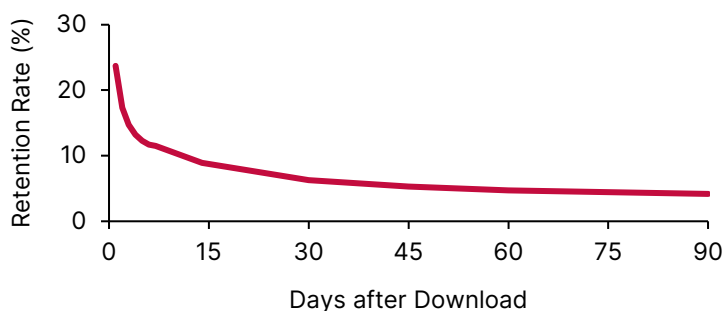
Holding period of apps
Source: Appboy.com (App Customer Retention Spring Report 2018)

Problem 1:
Missing Test Procedures

There are no test procedures,
which check the value added

Functional security and usability are necessary, but not sufficient.

We remember with horror the times when usability was still a foreign word and technical devices in our households or user interfaces in public spaces could not be operated without instructions. What began with Apple's first computer became a sine qua non with the triumph of smartphones and apps: If products cannot be operated intuitively, they can hardly be marketed successfully.

Customers are even more tolerant when it comes to the reliability of digital services. Apps and now even safety-relevant features of cars are given to customers as beta versions and are accepted at least by early customers.

For usability and function, service providers have now developed a variety of test procedures that reliably identify weaknesses before the launch. So far, no test procedure is known for the systematic evaluation and quantification of customer benefit. With the approach presented in this white paper, UScale introduces an agile and cross-industry applicable test procedure for the determination of customer value.

→ In addition to function and usability, founders and product owners of innovative products must test whether their product generates sufficient added value to be used.

Problem 2:
Missing Key Figures

Product usage can be easily measured. There are no indicators for the acceptance of future customers.

The reasons for non-use are more important for companies than the reasons for use.

In the digital world, there is a long list of proven metrics for usage, such as Daily or Monthly Active Users. For websites, Google Analytics reliably measures them in real time and generates clear and colorful dashboards.

Whoever brings an innovative product to market starts from scratch and has to laboriously acquire a user. Whatever the business model: The proportion of non-users is far greater than that of female users.

At the beginning of an innovative product it is central to win customers at all. For the diffusion success of a product, the reasons of the not-yet-users for not using it are more important than a dashboard with the usage behavior of the already won users. Even the much-noticed customer satisfaction only becomes relevant when there are enough customers on board to survive.

The test procedure presented in this white paper provides KPIs for product-market fit.

→ For companies, knowledge about the motives of non-users is more important than knowledge about the customers already acquired.

You can't manage, what you don't measure."

Peter Drucker

Problem 3:
Incorrect Customer Understanding

The Business Model Canvas is a proven model for founders.
Unfortunately, one crucial aspect is missing.

Why do people use a product?

Probably there is no team of founders, no innovation lab, whose employees have not attended long workshops in search of pain points that they can solve with an innovative offer. In the center of every innovation is the value proposition that should solve those Pain Points.

This view overlooks a decisive factor: The decision to use an innovative product is only 50% influenced by whether a product solves a pain point and creates added value.

Every product, every service, every app solves a pain point in the best case, but at the same time always creates new problems. This can be the effort of getting used to a new service, depositing a means of payment, embedding the new product into the existing IT ecosystem or adapting behavioral habits.

Whether people use a product does not primarily depend on the added value that a product creates, but on the ratio of added value, the GAIN, to these expenses, the NEW PAIN.

→ Every product creates GAIN, but always creates NEW PAIN. Suppliers must have both in view.

PAIN POINT **SOLUTION** **GAIN** **NEW PAIN**
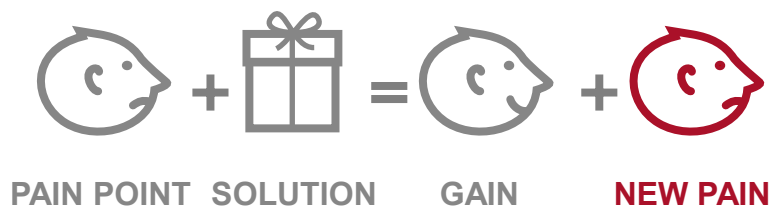
Ideally, an innovation solves a Pain Point, but always generates new Pain. The ratio of new PAINs to GAINs is crucial for market success.

Habit Is a Strong Motive

New must shine much brighter than Old to be noticed.

NEW vs. OLD

Every product, every established service has its weaknesses. As a user you are often annoyed, but you have learned to make the dysfunctional bearable with a work-around and to live with the imperfect. A new offer may be better than the status quo if it delivers what it promises, but before the first test it is just a promise.

Many have internalized the recommendation "Never change a running system" for good reasons and know that the new and the better is never available for free. Without effort in connection with the changeover and the acceptance of new disadvantages, the new can never be had for free. On top of this comes a portion of uncertainty that the new product is new but not better.

GAINs and new PAINs can be of very different nature. Nevertheless, the target group addressed easily compares "apples with pears" at the moment of the usage decision, weighs up financial, time, comfort, image and other aspects and decides in a matter of seconds whether the new product has a chance or not.

→ Developers and marketers of innovations must understand how customers decide.

The new in the shadow of the old

(after John T. Gourville)

In order for the new to step out of the shadow of the old and familiar, it must offer a lot.
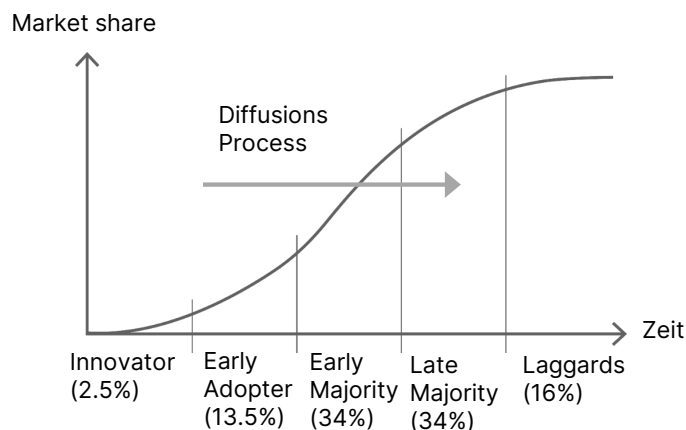
Individual Adoption Processes

Successful segmentation in the world of innovation.

Target group segmentation in the ramp-up of innovative products and services

For new products to be successful, it is not enough to inspire innovators. Only when the early adopters are followed by the early majority group can be convinced, is successful diffusion possible. The sociologist Everett Rogers, who divides user groups during market diffusion into innovators, early adopters, early and late majority and laggards, has done the relevant research.

Adoption research has found that each group takes the experience and recommendations of the previous segment as a reference and makes its own transition decision dependent on the vote of the previous segment. The individual reasons are different for each segment: While innovators are curious and also accept the beta version of a product, early adopters and their successor segments have higher expectations. They are less tolerant of technical errors and often pay more attention to monetary advantages.

→ Managers of innovative products and services must divide their target customers according to adopter segments and address them one after the other.

Market share

Diffusions Process

Zeit

Innovator (2.5%) Early Adopter (13.5%) Early Majority (34%) Late Majority (34%) Laggards (16%)

Customer segmentation for innovative products: Adopter segments according to Rogers

1

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2

A New Test Procedure for Evaluating Product-Market Fit

3

Product-Market Fit Testing in Practice

The PAIN-GAIN Test Procedure

A universal and agile acceptance test with a strong reference to economic success, which is understood even without studying psychology.

Cognition processes as the basis of the PAIN-GAIN test

Innovations create added value, but always new problems as well. Whether the target group will use an innovative product or service depends on the ratio of added value (GAIN) to the effort for individual adoption (new PAIN). Which GAINs and PAINs the target group perceives and how they are evaluated varies from person to person.

The PAIN-GAIN-TEST quantifies GAINs and new PAINs, making them tangible. The ratio of both, the PAIN-GAIN-INDEX® (PGI®), is a strong indicator of acceptance, i.e. the actual use and thus the economic success of the product:

GAIN VS. **NEW PAIN**

→ The PAIN-GAIN-INDEX is a KPI for customer acceptance and thus the economic success of an innovative product or service.
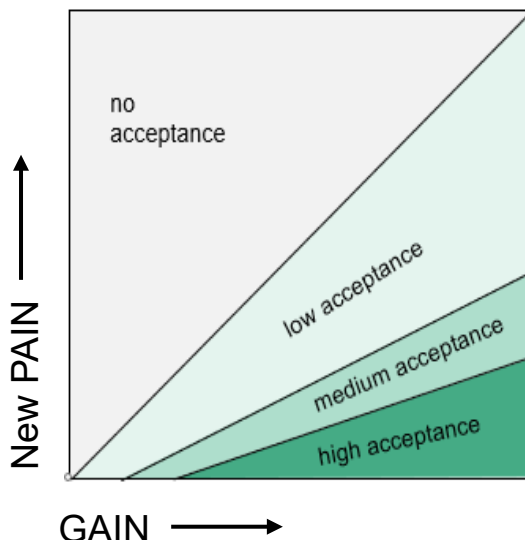

The central result of the PAIN-GAIN test, the PAIN-GAIN-INDEX® (PGI®), shows whether a product, a service, a business model will be accepted and used by the tested target group.

Results of the PAIN-GAIN-TEST

The test shows whether and to what extent a product will be successful with a specific target group and delivers prioritized to-do's.

Five steps to product-market fit.

1. The PAIN-GAIN-INDEX (PGI) shows whether an innovative product will be successful in the market. For the target group to accept an innovative product, the expected GAINs must be greater than the assumed PAIN. Science has determined a factor of 3 as the critical value that must be reached for the target group to change. Values around 2 will cause some to change, but will make many hesitant. If the ratio of GAIN to new PAIN is less than 2 or even 1, customers will not change voluntarily.

2. PAIN-GAIN-TESTs are often conducted with a heterogeneous target group. If the PGI is < 3, it is usually possible to identify sub-segments within the target group that can be successfully addressed and those that should only be addressed in the second step. In certain cases, it becomes clear that the development of two product alternatives makes sense.

3. If an innovative product with a PGI < 3 is to be pursued further with the target group, the PAIN and GAIN values show whether the value proposition needs to be increased, the usage barriers reduced or whether work needs to be done on both parameters.

4. If PAINs have to be reduced, the detailed usage barriers show where the next Euro has to be invested to achieve maximum benefit.

5. Before marketing, the prioritized usage drivers show how a product can be marketed most successfully to the target group. .
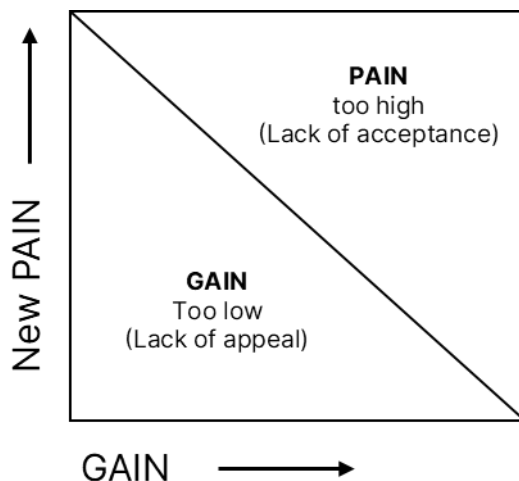
The PAIN-GAIN test shows the need for action for success and prioritizes the levers where the next invested euro will bring the highest success.

Examples 1/2

Exemplary PAIN-GAIN indices (PGI values) and their consequences for the product owner.

How the PAIN-GAIN test becomes action items.

Depending on the GAIN and the new PAIN, different actions are required by the product owner.

Four examples:

Example 1:

The added value of product A is low, the barriers to use are high. Product A cannot be successful on the market.

$$\text{PGI} = \frac{\text{GAIN}}{\text{New PAIN}} = \frac{4}{8} = 0,5$$

Example 2:

Future users see high added value in product B1, but unfortunately also high barriers to use.

Approach: Reduce barriers.

$$\text{PGI} = \frac{\text{GAIN}}{\text{New PAIN}} = \frac{8}{8} = 1,0 \quad \Rightarrow \text{PGI}_{new} = \frac{8}{2} = 4,0$$

The prospects of product B2 see only low barriers to utilisation, but also little added value.

Approach: Increase value proposition.

$$\text{PGI} = \frac{\text{GAIN}}{\text{New PAIN}} = \frac{3}{3} = 1,0 \quad \Rightarrow \text{PGI}_{new} = \frac{9}{3} = 3,0$$

Example 3:

The added value of product C is significantly higher than the barriers to utilisation. Nevertheless, the product will struggle in the market.
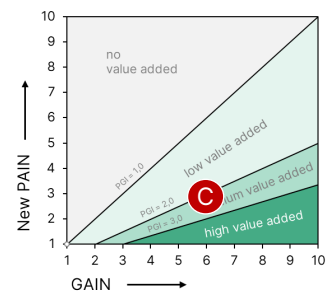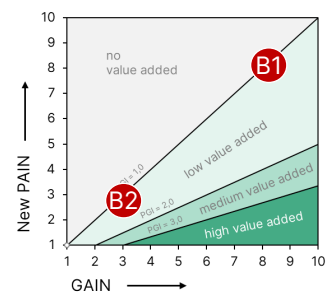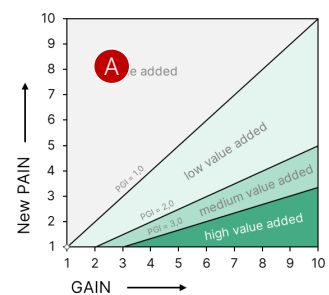
Approach 1: Increase value proposition.

$$\text{PGI} = \frac{\text{GAIN}}{\text{New PAIN}} = \frac{6}{3} = 2,0 \quad \Rightarrow \text{PGI}_{new} = \frac{9}{3} = 3,0$$

Approach 2: Reduce barriers.

$$\text{PGI} = \frac{\text{GAIN}}{\text{New PAIN}} = \frac{6}{3} = 2,0 \quad \Rightarrow \text{PGI}_{new} = \frac{6}{2} = 3,0$$

The details of the analysis show which levers can best be used to increase the value proposition or reduce the barriers.

Examples 2/2

Comparison of ideas and markets.

## How to control your innovation with the PAIN-GAIN test.

Product managers, business developers and start-ups often have not just one, but several ideas. With the PAIN-GAIN test, ideas can be quickly and easily assessed against product-market fit, i.e. compared in terms of their chances of success.

Three examples:

Example 4:

Three product ideas are tested against each other before the products are released.

Product D3 has the highest PAIN-GAIN-INDEX and is therefore the most promising. Product D2 promises the highest GAIN but is not convincing overall due to the high barriers to use.
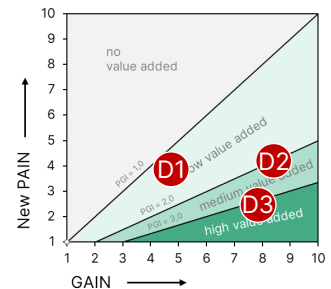

Example 5:

Market conditions and customer requirements can differ significantly for the same product. In the example, a company wants to know in which market a product should be launched first. The analysis shows that market M2 has the highest product-market fit and that a launch in this market is the most promising.

Instead of markets, different target groups within a market can also be tested against each other.
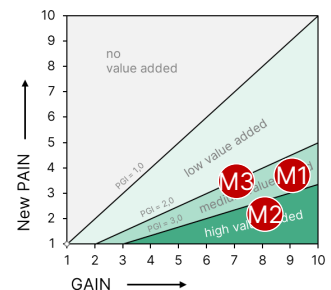
Example 6:

In our projects, we not only work with the PAIN-GAIN index as a mean value, but also determine how high the proportion of the target group that can be reached is and what characterises it.
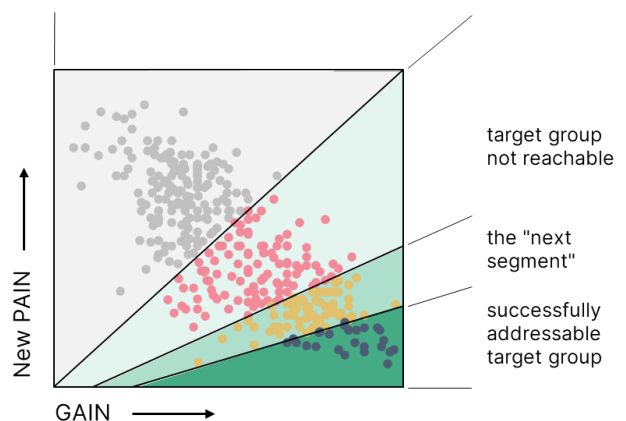
target group not reachable

the "next segment"

successfully addressable target group

1

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2

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3

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Customer KPIs for the innovation lifecycle:
Early Phases

The product-market fit as a criterion for investment and prioritization of ideas

1. Portfolio management: Prioritizing innovations

Many companies have spun off their innovation departments into independent companies. These companies systematically coordinate innovation ideas and manage development and marketing. Prioritization is problematic: Usually, there are more ideas than can be implemented with resources.

With the PAIN-GAIN test, a wide variety of ideas can be tested comparatively according to a uniform standard for expected market success. This results in a prioritization of ideas from the user's perspective.

What our customers get out of it:

– Resources are directed to the ideas with the greatest potential on the basis of data.
– The prioritization is carried out with a scientifically proven method.

2. Investment of investors: Due Diligence from the customer's point of view

Investors are permanently looking for promising business models and start-up teams with promising ideas. The assessment of whether an investment will be successful or not is usually based only on the experience of investment managers. In addition, there is sometimes feedback from a few pilot clients, which, however, cannot be transferred to the mainstream customer.

The effort and costs of an agile PAIN-GAIN test as part of the due diligence process are small in relation to the added value of securing the decision with reliable data.

What our customers get out of it:

– The revenue side of investment decisions is secured.
– The flop rate is significantly reduced.
– Investors can their Investees with Control customer data.
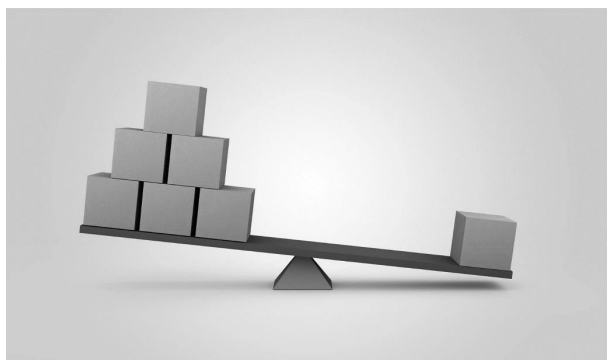
Customer KPIs for the innovation lifecycle:
Development and Launch

The product-market fit for requirements definition of products and the optimal target customer approach.

3. Development and IT: Requirements definition for the creation of specifications

Technical development and UX design is more than ensuring technical functionality and usability. The "how" of implementation has a significant influence on the success of a product.

The PAIN-GAIN test provides the development team with the necessary details required for a successful implementation. This allows the development team to focus on the features with the greatest potential and to omit less important ones altogether if necessary. This also helps the backlog of an already finished product: Which additional features should be developed first? Which ones should be put on hold?

What our customers get out of it:
– Save time by avoiding unnecessary grinding.
– Reduce costs by focusing on the features that are really relevant to the customer.

4. Marketing: Determination of the relevant USPs

Especially companies that have been working for a long time on the development of an innovative product have a strong focus on the technical superiority of a system or an algorithm. The perspective of the future users easily gets out of sight.

The PAIN-GAIN test shows which messages can be used most successfully to address the target group. The USPs from the PAIN-GAIN test form a high-quality list of requirements for the marketing agencies' briefing.

What our customers get out of it:
– Cost reduction in sales and marketing through a tailored target group approach.
– Higher turnover through successful targeting.
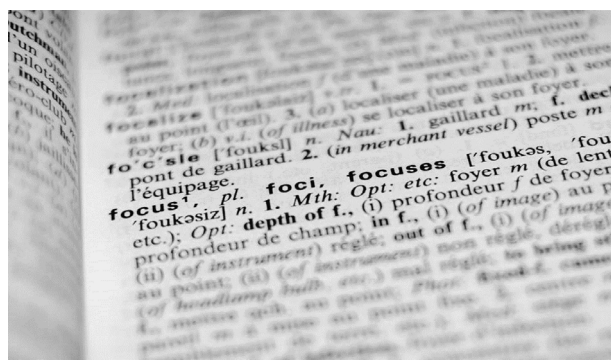
Customer KPIs for the innovation lifecycle:
Diffusion and Conversion

Shorten the marathon: A KPI for successful diffusion and more conversion in the field.

5. Market share: Acceleration of market diffusion

The segmentation according to Rogers makes it clear that the users who successively adopt a product have very different reasons and barriers to use. The successful start with the innovators cannot automatically be transferred to the early adopters. If the early adopters are then on board, this does not mean that the next segment, the early majority, can also be won. This means that many start-ups get "stuck" after initial successes, without the reasons being clear.

The PAIN-GAIN test shows the drivers and barriers for each target segment and thus allows the targeted and successive addressing of the segments as a prerequisite for successful diffusion.

What our customers get out of it:
- Cost reduction by reducing distribution costs.
- Higher sales through accelerated diffusion.

6. Growth: Development and conversion

After the launch is before the launch. Especially for digital products, work is already underway on the next release before the launch. The list of ideas for further features is usually long.

This is where the circle closes: as described under point 1 above, the PAIN-GAIN test reliably shows which product features and features will make the greatest contribution to further economic success as the company continues to grow and where investments are needed.

What our customers get out of it:
- Accelerated growth through "real" customer orientation.
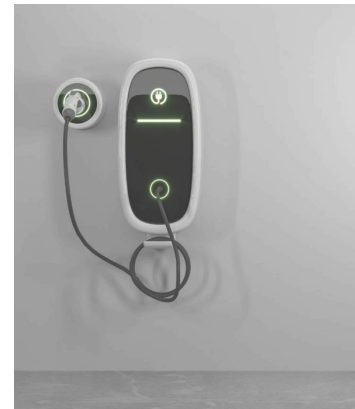- Increase in sales and revenues through growth.

Case Study 1

Go- / no-go decision before development starts.

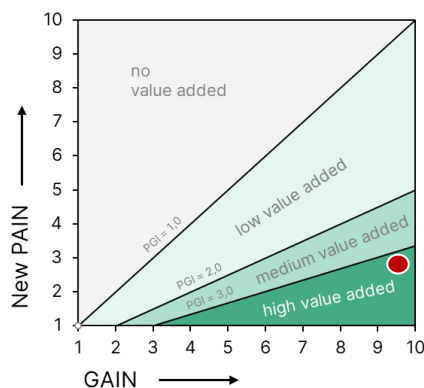|	
Customer	envia Central German Energy AG (enviaM)
Initial situation	The energy industry agrees that, all in all, there is sufficient electricity available for the transition to e-mobility. However, the temporal distribution of demand is problematic. In order to reduce peak loads in the power grid, a tariff for grid charging is to be developed.
Goal	The aim of the study was to determine whether and under what conditions female eAuto drivers are willing to switch to tariffs with network-related charging despite the disadvantages. On the basis of the analysis it is to be decided whether and with which characteristics a product is to be developed at this time.
Approach	In the survey, 150 eAuto drivers were presented with a tariff model for network charging with its advantages and disadvantages.
Results	The current female eAuto drivers belong to the group of innovators and are strongly convinced of the ecological advantages of eMobility. The willingness to use a tariff for network charging is correspondingly high: The PAIN-GAIN-INDEX (PGI) shows values well above 3. Despite the high intrinsic motivation, users expect the changeover to "pay for itself" in monetary terms as well and name one savings expectation that places high demands on product developers. The details of the analysis show further levers for successful implementation for different target groups.

High acceptance values of grid-friendly charging among the target group.

Further steps	The acceptance evaluation provided enviaM with the necessary basis for the strategic decision to develop an offer for a network store.

"Developing products in a customer-centered and manageable way is our top priority. With the help of the Pain-Gain-Index we have learned what moves our customers. UScale has thus provided us with a perfect basis for the further development of the product!"

Anke Tallig
Product developer
envia Central German
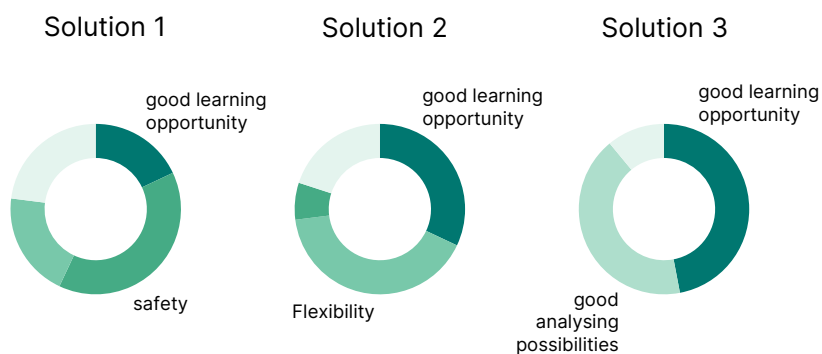Energy AG

Case Study 2

Prioritization of solution approaches in the early phase of product development.

Customer   SDP Digital Products GmbH

Initial situation   The use case "sawing under voltage" is a very dangerous and demanding task for emergency services, e.g. after storms. SDP has developed three new digital training approaches.

Goal   The test should clarify which of the three ideas will have the greatest success with the target group and which characteristics should be paid particular attention to during development.

Approach   Three solutions for evaluation were presented to emergency services and heads of operations of professional and voluntary fire departments, THW and forest workers.

Results   With PAIN-GAIN-INDICES between 2.2 and 2.9 there are big differences between the solutions. The advantages of the three solutions as perceived by users differ greatly. While the testers appreciate the security aspect in the learning environment with solution 1, the flexible application is the most important marketing aspect of solution 2. Solution 3 is certified to have very good analysis possibilities, but disadvantages in practical handling (not shown here). Analogous to the usage drivers, the usage barriers show the limits of the individual solutions. These can still be taken up in the implementation.

Solution 1
good learning opportunity

safety

Solution 2
good learning opportunity

Flexibility

Solution 3
good learning opportunity

good analysing possibilities

Further steps   Based on the results, SDP has decided to stop the previously favored solution. Instead, the two other approaches will be pursued further. The details show where the technology still needs to be sharpened and concerns addressed, and provide guidance for marketing to easily reachable target groups.

"For us, the Pain-Gain-Index is a valuable building block in the evaluation of ideas and business models and is now a fixed component of our toolbox!"

Kai Blisch
Director Products & Operations
SDP Digital Products GmbH

Case Study 3

Pushing the diffusion after a successful market launch.

Customer	LASERHUB GmbH
Initial situation	LASERHUB operates a b2b platform, with which processing orders for sheet metal processing are calculated and processed via external producers. Six months after market launch, the company was looking for an investor and wanted to grow.
Goal	There were many ideas for further growth, but it was not clear where to invest. Which measure will have the greatest impact on sales? And how can passive users be activated?
Approach	The PAIN-GAIN test identified the usage drivers and barriers of regular and passive customers.
Results	The LASERHUB platform offers with high GAIN ratings of its regular customers a very high value proposition. Despite low PAIN values, there is potential: better operation and greater transparency in the workflow can further reduce PAIN values. The feedback from passive customers shows how this customer group can be activated, i.e. led to sales.
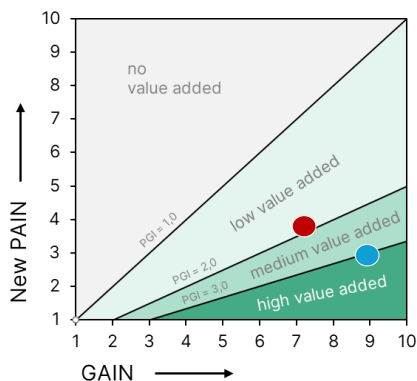
High acceptance among regular customers, great potential among passive customers.

● active customers
● passive customers

"UScale's approach has shown us our strengths and the barriers to higher conversion. Now we have robust information to optimize our offering for our customers".

Christoph Rößner
Managing Director
LASER HUB GmbH

Further steps	The results provided levers for further increasing the sales of active customers. By making small changes to the product range, customer loyalty can also be further increased before new competitors enter the market.

Surprisingly, many passive customers saw the platform's USP in a different place than their regular customers. This resulted in an additional business model. |

USCALE

SCALE YOUR USER
SCALE YOUR BUSINESS

USCALE is a consulting firm specializing in the product-market fit of innovative products and services. The main focus is the New Mobility.

We develop customer KPI systems and strategies for the successful development and marketing of innovative products and services.

Our customers are innovation hubs of large and medium-sized companies, investors, start-ups, car manufacturers and energy suppliers, IT companies and service providers.

Impressum

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