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Methodology collection

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Content

Backcasting	4
Context Map	7
Progression Curves	9
Future User	11
Balanced Scorecard and Strategic Map	14
Ishikawa Diagram / Fishbone Diagram.....	19
Performance Prism.....	21
Pimento Map	24
Industry Analysis	29
SHAPE.....	32
NICE	36
Integrated Reporting.....	39
Stakeholder Mapping (Visualisation).....	41
Eco Systems Mapping.....	45
Futures	47
Future Search.....	49
BCG matrix.....	51
Business Model (BMG)	54
Critical Chain Project Management (CCPM)	59
Force Fields Analysis.....	64
PESTEL.....	67
Porter's Five Forces Model (PFF).....	72
SWOT	78
TOWS matrix	82



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

Affinity Diagram	86
SOAR	89
System Thinking	92
Lean Management	94
Whole Design System	97
BIM (construction sector only).....	98
NPV	107
Value Chain Analysis.....	112



Backcasting

Backcasting starts by defining a desired future (e.g. vision) and then looks back to assess what would be required to get there. It can enable stakeholders to introduce more imaginative new ideas — opening up the dialogue to a future we can create.

When to use it?

The method is used in situations where there is a normative objective and fundamentally uncertain future events that influence these objectives. The knowledge about the system conditions and the underlying social dynamics can also have a powerful impact on the environment, but are unpredictable.

Projecting a transformative societal change that challenges existing assumptions for problems of significant complexity with a long enough time horizon to allow for making determined choices is the key role of backcasting. It is used to identify signals of change and also to determine short-term planning and policy goals that might facilitate a long-term outcome. Furthermore, backcasting is used in cases when it is applicable and desired to actively dictate a future outcome rather than merely predicting or understanding it.

Backcasting can therefore make for a valuable tool when:

- Addressing complex problems, affecting many sectors and levels of society;
- Incremental change is not sufficient;
- Externalities play a key role and are not satisfactorily addressed by the market; and
- Dominant trends - often the cornerstones of forecasts — are part of the problem.

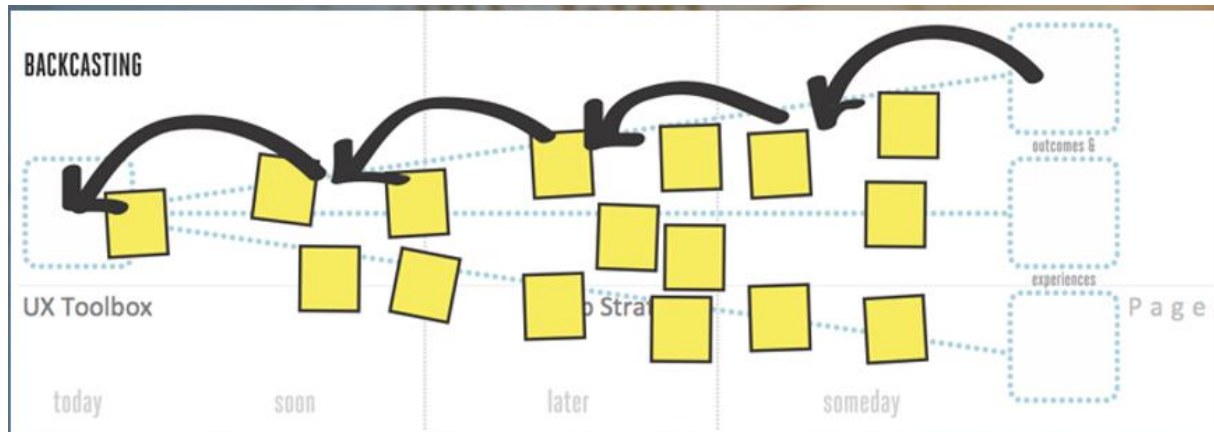
How it works?

The backcasting method is adaptive in its steps based the specific context under which it is being applied, the stakeholders involved and which complementary methods are being used within the broader foresight exercise. The result is a process that can be considered more as a set of guiding principles than as a strict process.

Domain and Demographics – First, the team needs to clarify the issues of the current state and identify which areas are to be targeted. This stage also involves the identification of all key and relevant stakeholders.

Future Vision – The team defines and describes a future in which the problems and issues identified have been solved. This involves creating future scenarios whereby the problem has been solved by meeting the stated objectives.

Session – The team develops possible steps on how to reach the future vision from the present, addressing the variety of dimensions (i.e., technological, cultural, social, institutional and organizational) that require consideration. This step also includes developing multiple options from which the best option can be assessed, as well as addressing the feasibility of the possible steps involved.



What can be achieved?

In backcasting, foresight participants propose a future event or situation and then work backward to construct a plausible causal chain leading from here to there. Backcasting is commonly used as a team-oriented brainstorming tool, often as part of a scenario-based foresight methodology. It is "the roadmap needed to arrive at our intended destination".

A positive aspect of the method is the ability to freely discuss problems with stakeholders who have conflicting interests (because of the long-term perspective). Also, content and process are integrated in a practical approach. The negative side to Backcasting is the somewhat long project time needed. This leads to the possibility that the representatives change, leading to delays. Also, the technological character can sometimes be too dominant, "scaring" representatives, and the budget needed is relatively high. A very important aspect is often forgotten, the follow up monitoring and evaluation of progress.

1. Participants draw a timeline on a white-board or flip-board with "now" at the left and the future date of the chosen scenario at the right.
2. In a discussion phase, participants are asked to contribute ideas about what events and decisions could lead from the present situation to a future in which the scenario is true. Events can be anything, up to and including meteor strikes and plagues. During this phase, facilitators must be careful not to let a single voice dominate the discussion. Significant disagreements are allowed. The discussion may converge on a common narrative, but it is important that the facilitator end this phase before the narrative has become too detailed.
3. Each participant is encouraged to write one or two key events or decisions on post-it notes. They are encouraged to make their own choices, and other group members are not allowed to veto responses. The events may contribute to a common narrative, or it may be that person's own opinion.
4. Each participant places his or her note somewhere on the timeline. There may or may not be a single narrative represented by the end of this phase.



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

5. A final discussion phase converges on common themes among the narrative strands represented by the notes. Discussion is encouraged about exactly where on the timeline an event or decision should occur.
6. Participants choose a small set of near-term and mid-term goals or decisions, or signals to watch for, based on the narratives that have emerged from the process. These are written up as the process deliverable.
7. Analysis – After developing options, rigor is used to assess the options and select the best option, with the goal of creating an actionable plan while mitigating foreseen threats to successful implementation.
8. Implementation – An action plan is established and put into motion addressing the responsibilities of all major stakeholders for implementation.

References and further readings

http://forlearn.jrc.ec.europa.eu/guide/4_methodology/meth_backcasting.htm

<http://designresearchtechniques.com/casestudies/backcasting/>

https://www.sustainablebrands.com/news_and_views/new_metrics/renilde_becque/backcasting_roadmap_transformational_change

Context Map

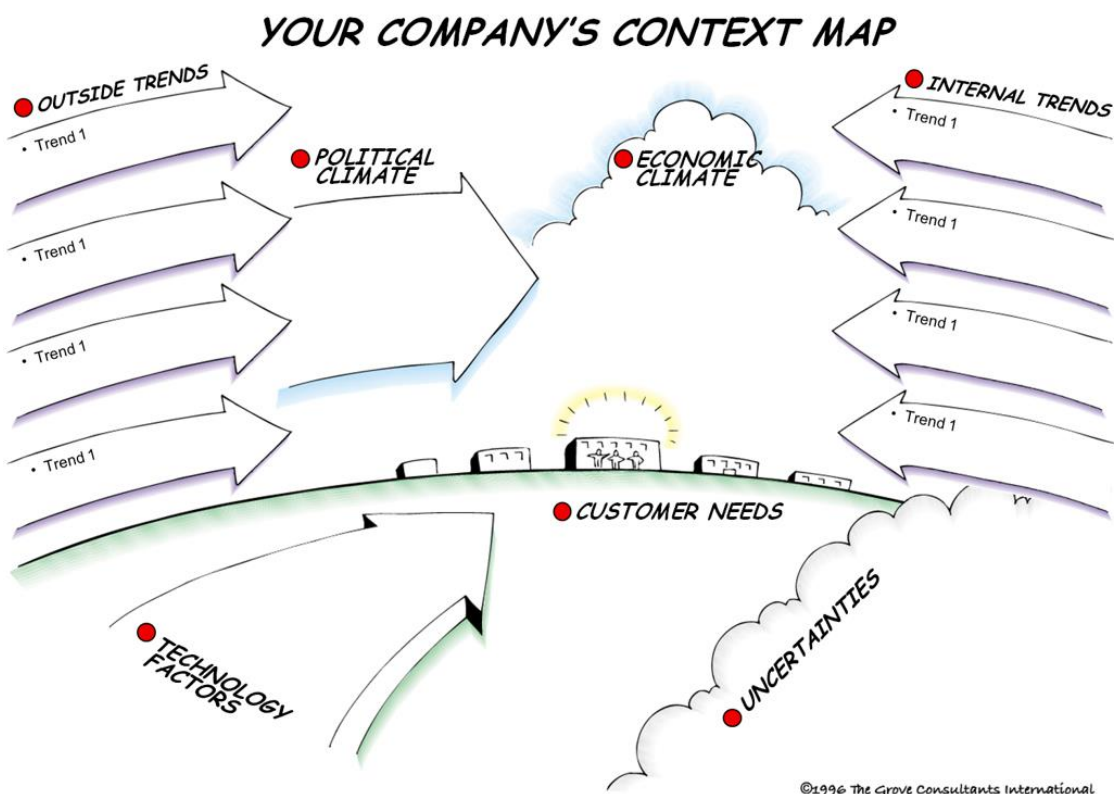
The Context Map is designed to show us the external factors, trends, and forces at work surrounding an organization. Because once we have a systemic view of the external environment we're in, we are better equipped to respond proactively to that landscape.

When to use it?

It helps us when we don't truly have a good grasp of a situation, to do so we must see it in a fuller context.

How it works?

It's up to the "players" (participants, employees) to paint a picture of the environment in which they sit, but the meeting leader can help them generate content by asking intelligent and thought-provoking questions. The idea is to portray a context that is as rich and accurate as possible so that the players gain insight into their environment and can subsequently move proactively rather than reactively.





What can be achieved?

The Context Map game should result in a holistic view of the external business landscape and show the group where they can focus their efforts to get strategic results. This activity is designed to generate a display of the external environment, not the internal one.

1. Hang six sheets of flip-chart paper on a wall in a two-row, three-column format.
2. On the top-middle sheet of flip-chart paper, draw a representation of the organization under discussion. It can be as simple as an image of your office building or an image of a globe to represent a global marketplace. Label the picture or scene.
3. On the same sheet of paper, above and to the left of the image, write the words "POLITICAL FACTORS". Above and to the right, write the words "ECONOMIC CLIMATE".
4. On the top-left sheet of flip-chart paper, draw several large arrows pointing to the right. Label this sheet "TRENDS". Include a blank before the word TRENDS so that you can add a qualifier later.
5. On the top-right sheet of flip-chart paper, draw several large arrows pointing to the left. Label this sheet "TRENDS". Again, include a blank before the word TRENDS so that you can add a qualifier later.
6. On the bottom-left sheet, draw large arrows pointing up and to the right. Label this sheet "TECHNOLOGY FACTORS".
7. On the bottom-middle sheet, draw an image representing your client(s) and label the sheet "CUSTOMER NEEDS".
8. On the bottom-right sheet, draw a thundercloud or a person with a question mark overhead and label this sheet "UNCERTAINTIES".
9. Introduce the context map to the group. Explain that the goal of populating the map is to get a sense of the big picture in which your organization operates. Ask the players which category on the map they'd like to discuss first, other than TRENDS. Open up the category they select for comments and discussion. Write the comments they verbalize in the space created for that category.
10. Based on an indication from the group or your own sense of direction, move to another category and ask the group to offer ideas for that category. Continue populating the map with content until every category but TRENDS is filled in.
11. The two TRENDS categories can be qualified by the group, so take a quick poll to determine what kinds of trends the players would like to discuss. These could be online trends, demographic trends, growth trends, and so forth. As you help the players find agreement on qualifiers for the trends (conduct a dot vote or have them raise their hands if you need to), write those qualifiers in the blanks next to TRENDS. Then continue the process of requesting content and writing it in the appropriate space.
12. Summarize the overall findings with the group and ask for observations, insights, "aha's," and concerns about the context map.

References and further readings

<http://gamestorming.com/context-map-2/>



Progression Curves

Progression Curves represent the evolution of changes in terms of technological, social and other filters.

When to use it?

The method is very useful if you want to understand the pattern of events for a particular topic and how these events have led to its current state. Progression Curves show what changes or when. They are a variant of the classic technology adoption lifecycle, which outlines the common stages of user adoption over time.

How it works?

Progression Curves show what changes or when. They are a variant of the classic technology adoption lifecycle, which outlines the common stages of user adoption over time.

As you plot multiple, even over-lapping curves, certain patterns may emerge.

If you plotted the development of payment innovations in order to understand personal banking, that you would learn that there have been only a few major breakthroughs in history such as, smart cards with microchips in the 1990s. Moreover, later stages build on earlier stages. In many cases, certain steps cannot be skipped within your industry or organization, so if you expect a similar pattern of events to continue in the future, you can anticipate which step will likely happen next. This is useful knowledge when planning ahead.

What can be achieved?

Progression Curves extends familiar timeline. This method puts event timelines, industry lifecycles, and other developments in historical context relevant to your topic. By identifying repeated patterns, you know what to expect in the future. The use of multiple layers of data helps you identify patterns that might have missed your attention previously.

1. Identify your starting topic. Your team could describe past developments for your idea, company, industry, society, technology area, etc. Some teams refer to their last Context Map, developing Progression Curve per dimension.
2. Draw long s-curve. You can always extend this curve or link other curves to it later. The height or length the curve largely symbolic.
3. Begin plotting key events that have influenced or changed in that space, estimating dates when necessary. The farthest left end point on the curve is set by you, going as back in time as you wish. The farthest right end point represents today because you are not looking to project the future.
4. Add more data points along the curve. You may mix a variety of data points, such as historical dates, major events, people, company milestones, and social movements
5. Draw more curves that intersect, extend, and even overlap with your first curve.



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

News, articles and company time-lines can provide helpful data, listing important milestones and dates. Older experts may find this exercise easier to do because they typically have more stories and life experiences to draw on than younger colleagues. Many project teams can trace their timelines back to Greek history or Shakespearean literature. This shouldn't be a surprise. Many aspects of humanity have their roots in these universal accounts. The curve height symbolic for change; some people like to draw taller elevations related to varying levels of adoption or growth. That is optional extra work.

References and further readings

<https://app.box.com/s/i1q85p829xm1ez0xl0r9mjp2ana2ov9r>

<https://isene.me/tag/learning-curve/>



Future User

Future User creates a profile of a user within a targeted demographic by comparing similar groups over time.

When to use it?

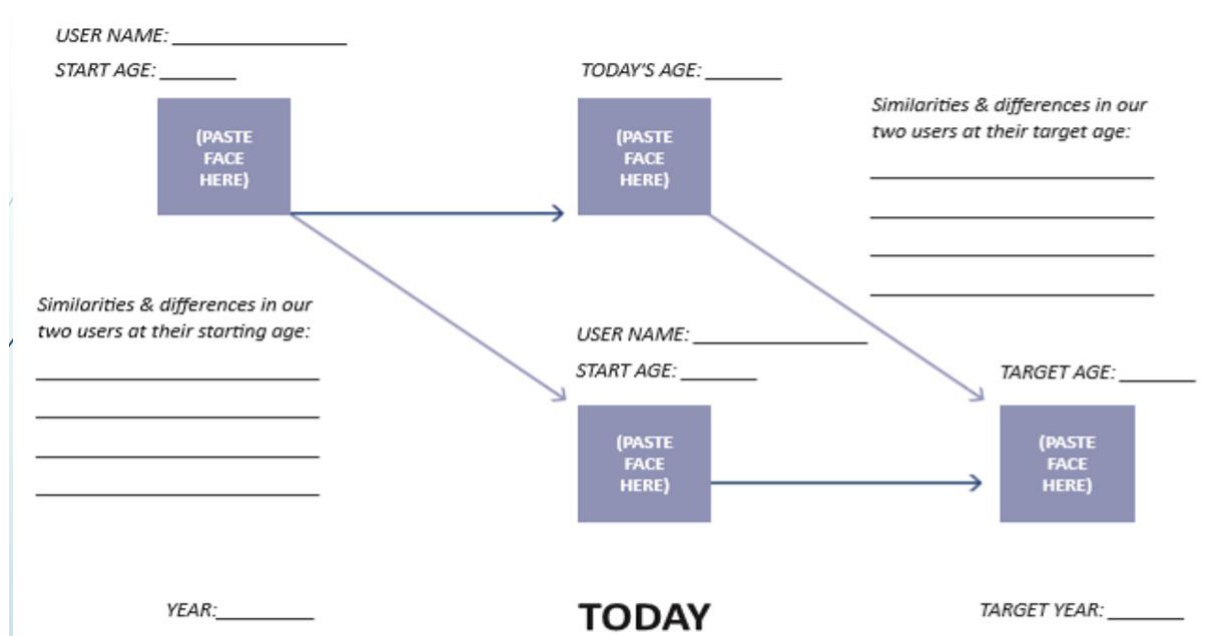
It can be used to expand a work of existing customer personas, to identify the user needs, of a specific market segment in the future, to identify similarities and differences in values, attitudes, and behaviours between two customer generations.

How it works?

Every user persona tells a story. The common practise is to develop personas for your market segments as you know them today. But what if you are designing for the customers in the future, who may not be the same group or whose needs may change from today's situation? How do you see into the future to capture the right customer attributes?

The Future User method extends the classic persona used in design marketing and sales. This method lets you develop smart profiles of your future users. By relying on current evidence and historical facts, you will develop a composite profile of your targeted user that is deeply grounded in reality.

By putting the persona of your future user or customer in the context, you will gain a clearly view of that user's buying habits, beliefs, motivations, lifestyle, and more at a future point. Often changes in one generation will be taken for granted in the next generation.





**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

What can be achieved?

Future user can be used to analyse consumers, business buyers, or any other user role. Some groups have adopted this method to even compare different products, business models, and international markets.

Ultimately, you will develop multiple profiles over time for two different customer segments, or users, looking at how they compare at similar points, as well as how they have changed over time.

1. Draw a box that represents your primary customer today. Name your customer and note his/her age today. You may find it helpful to develop a detailed profile (persona) using data from interviews, generational studies, surveys, market reports, etc.
2. Draw a second box to show this person back in time, and use an arrow to connect the two boxes. Note the customer's starting age. (How far you look back will depend on your group's R&D life cycle, launch plans and related strategy-if you don't know a good time frame, use 10 years.) Discuss this person's views, behaviours, and choices in the past, and how they have changed over time.
3. Under the first box, draw a third box that represents your future customer as he/she exists today. Name this future user, and his/her age will be the same starting age as your first customer. You may find it helpful to develop a detailed profile (persona) using data from interviews, generational studies, surveys, market reports, etc.
4. Draw an arrow forward from the third box that connects to a fourth box for your future user. His/her age will be the same as today's customers.
5. Compare the two people at their starting ages, and also at that targeted ages. You might find it helpful to develop a profile of the future user, which will include a mix of dominant generational values, similarities with today's customers, and new differences extending from the young future user today.

References and further readings

Playbook for Strategic Foresight and Innovation, p. 103-110.

<https://issuu.com/grupochimera/docs/playbook-for-strategic-foresight-an/4?ff>



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification



Balanced Scorecard and Strategic Map

The Balanced Scorecard

The Balanced Scorecard concept, popularised by Robert S Kaplan and David P Norton, is a performance management tool that encompasses the financial measures of an organisation and key non-financial measures relating to customers or clients, internal processes, and organisational learning and growth needs. Early implementations of the Balanced Scorecard tended to focus on including a balance of measures in the four domains or perspectives rather than on execution of strategy, but over time it has become a widely used strategic management tool.

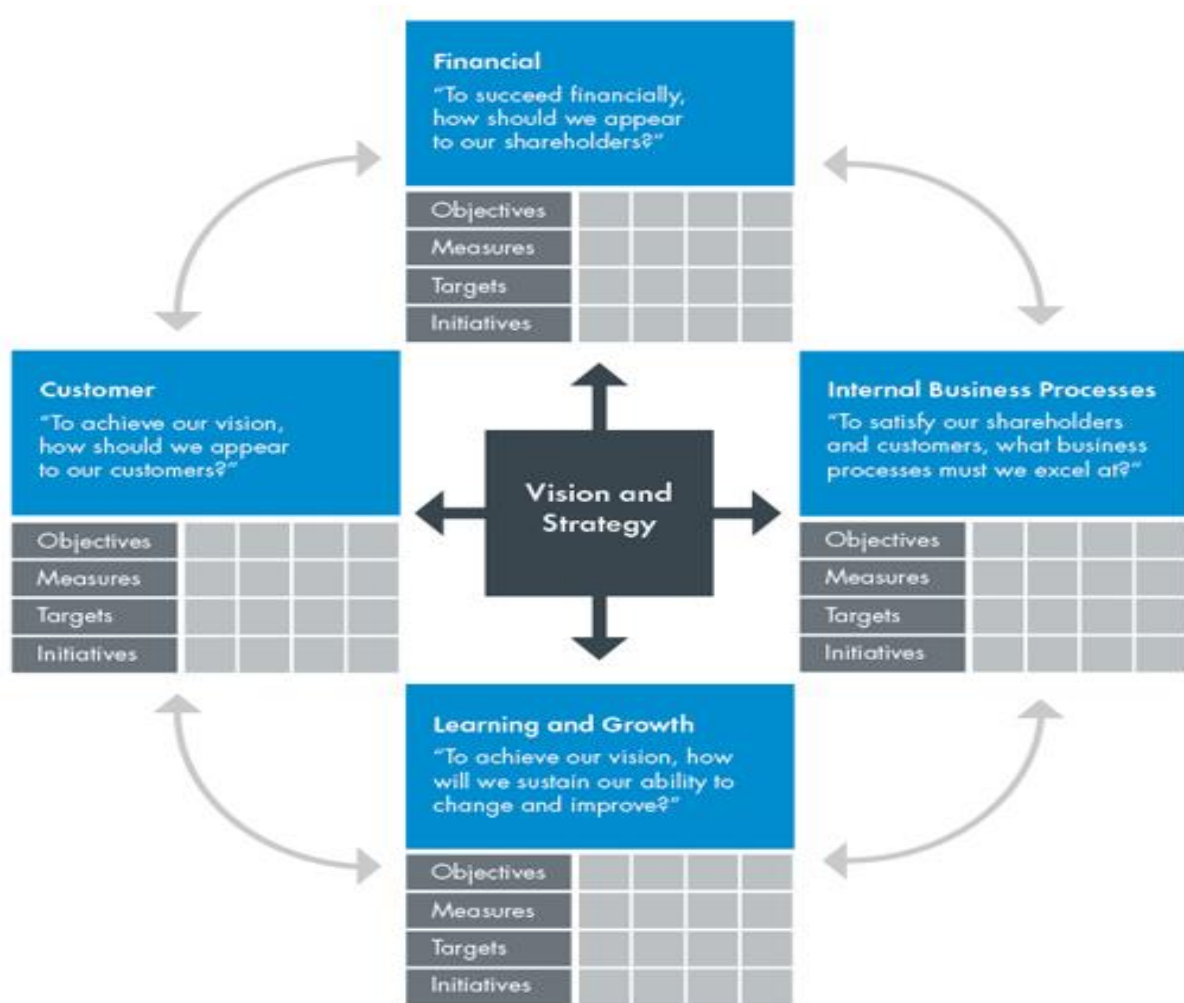
When to use it?

The characteristic of the Balanced Scorecard places strategy at the core of management. When implemented properly, it can be used to align measures, actions and rewards to create a proper focus on the execution of strategic initiatives and achievement of strategic objectives, rather than a sole focus on the annual budget. The widespread adoption of the Balanced Scorecard is due in part to its flexibility. The Balanced Scorecard has also been successfully adapted for use by not-for-profit and public sector organisations. While the top line financial objectives of for-profit organisations are replaced by mission-related objectives, the process of identifying relevant stakeholder, internal process and resource measures serves much the same purpose.

How it works?

The Balance Scorecard provides a means to clarify, articulate and communicate strategy. It is a shorthand way of putting all key measures into a 'dashboard' that can be used to monitor results. By including non-financial measures, it can be used to show how the non-financial aspects of performance, such as customer satisfaction, drive financial performance. The Balanced Scorecard is a useful tool for motivating employees and focusing their attention on factors that are deemed to be critical to long-term performance rather than simply short-term financial results.

1.: The Balanced Scorecard Framework



What can be achieved?

Understanding the contributing factors or causes of a system failure can help develop actions that sustain the correction. It helps us track down and eliminate the conditions, which cause the problem.

The Balanced Scorecard is a useful tool for motivating employees and focusing their attention on factors that are deemed to be critical to long-term performance rather than simply short-term financial results.



The Strategy Map

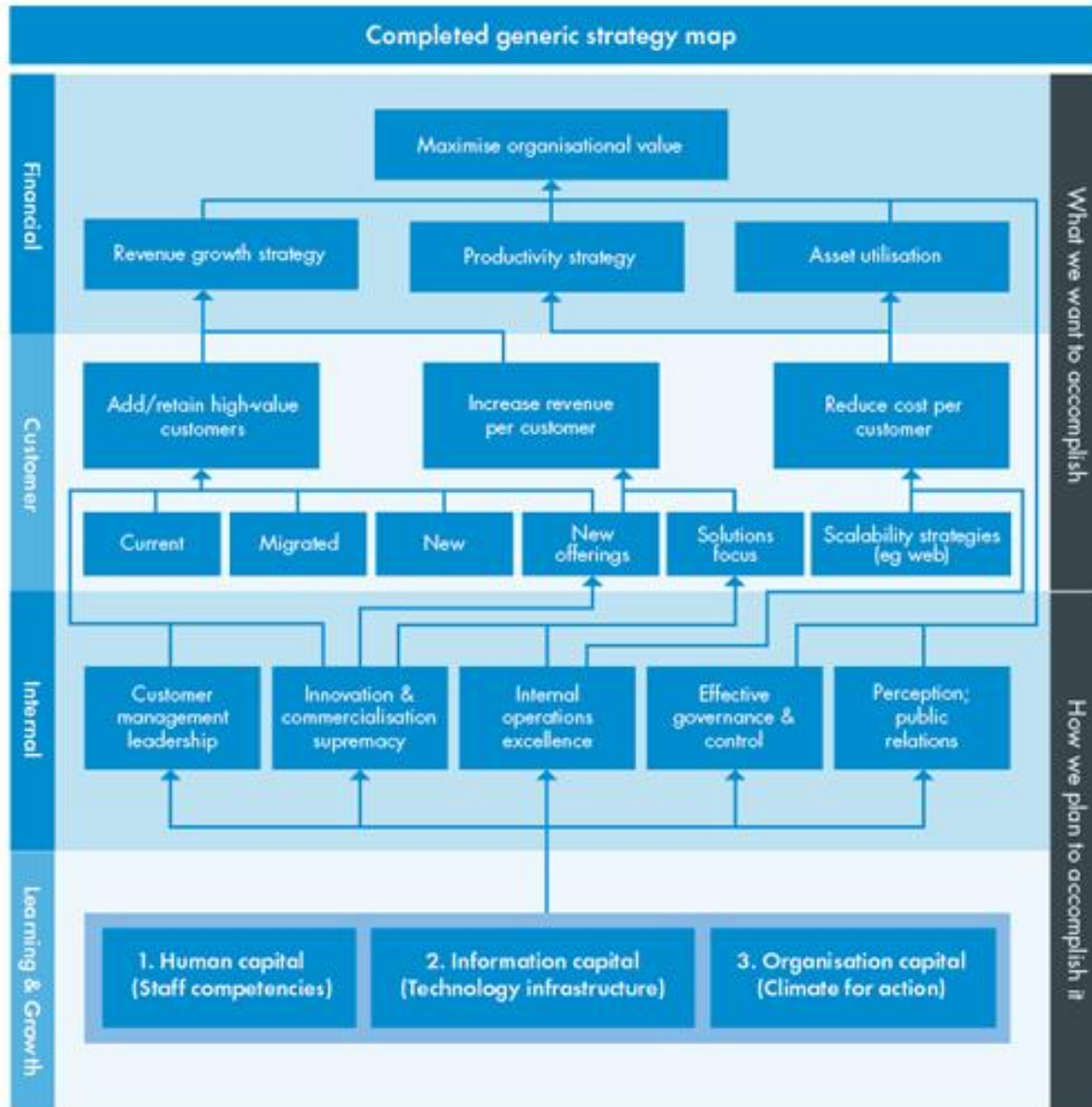
Strategy mapping is a tool created by Balanced Scorecard (BSC) pioneers Robert S Kaplan and David P Norton. It allows organisations to describe and communicate their strategies. Strategy maps also serve as an appropriate basis for the development of financial and non-financial Balanced Scorecard (BSC) measures that can be used to monitor strategy executions and performances.

When to use it?

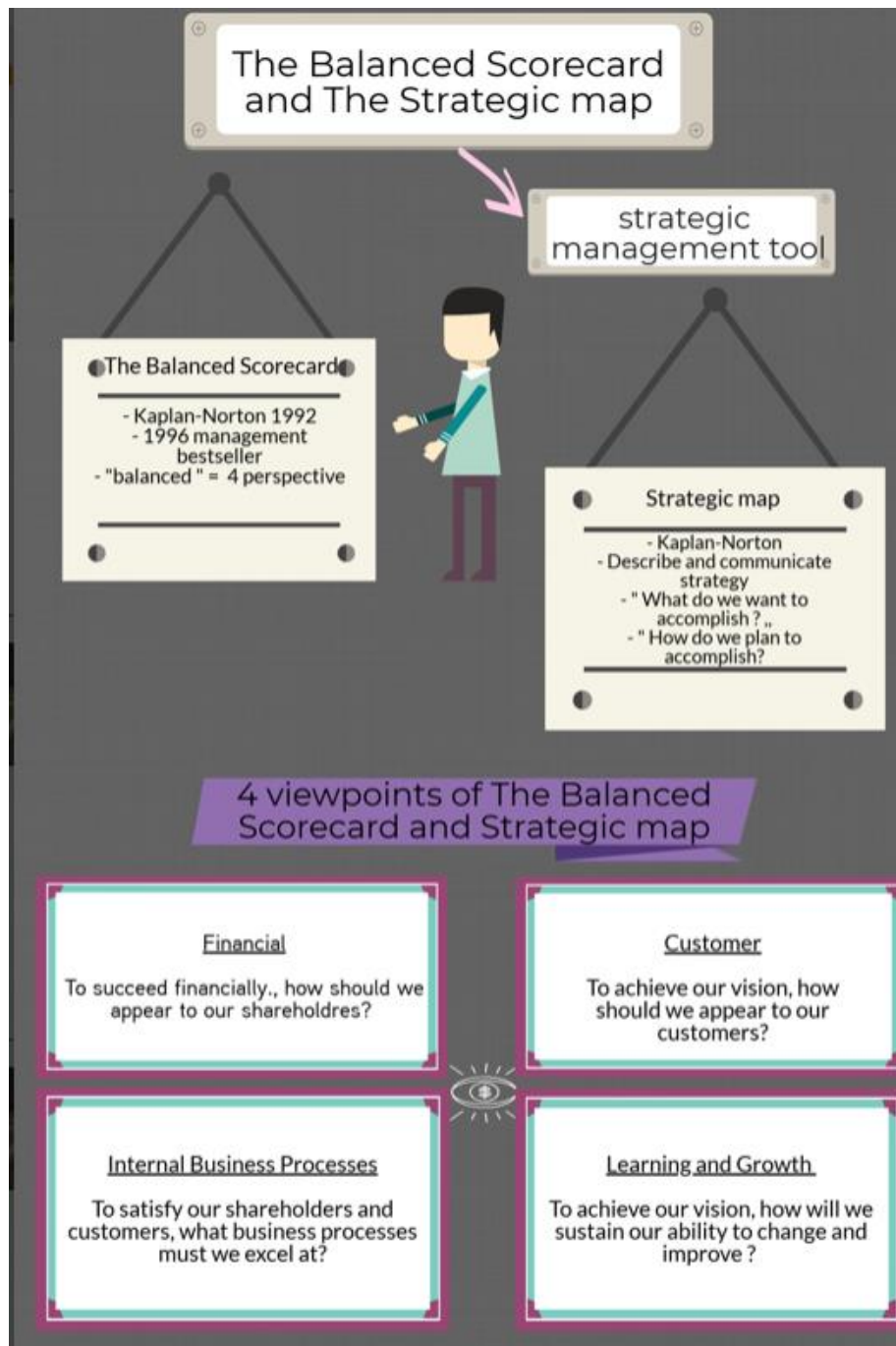
Strategy maps can be used as a standalone tool to depict an organisation's strategy. However, their real value is when they are used as part of a systematic strategic management process that aligns organisational and individual targets and initiatives with a defined mission and desired strategic outcomes. Strategy maps can be created for not-for-profit and public service entities, as well as for-profit enterprises.

How it works?

The original formulation of the strategy map is based on the 'four perspectives' of the BSC: financial, customer, internal and learning and growth. The financial and customer perspectives – the outcome perspectives – are developed in response to the basic question 'What do we want to accomplish?' The internal and learning and growth perspectives – the input perspectives – depict 'How do we plan to accomplish it?'



Strategy maps force organisations to place the onus first on the strategy, then on measuring implementation, thus removing the problem of numerous, unfocused measures. They form the appropriate basis for balanced scorecard performance measures, links to appropriate management and validation techniques, and allocating resources to initiatives and strategies that support an organisation’s value propositions and overriding objectives.



References and further readings

<https://www.cgma.org/resources/tools/essential-tools/balanced-scorecard.html>

<https://www.cgma.org/resources/tools/essential-tools/strategy-mapping.html>

Ishikawa Diagram / Fishbone Diagram

“Cause and Effect”-diagram, also known as fishbone diagram or Ishikawa diagram is a technique which can be utilized to support an RCA (Root Cause Analysis). It was developed by the Japanese professor Kaoru Ishikawa in the 1960s. It is known as a fishbone diagram because of its shape, similar to the side view of a fish skeleton.

When to use it?

The method is very useful in identifying the underlying factors or causes of an adverse event or near-miss.

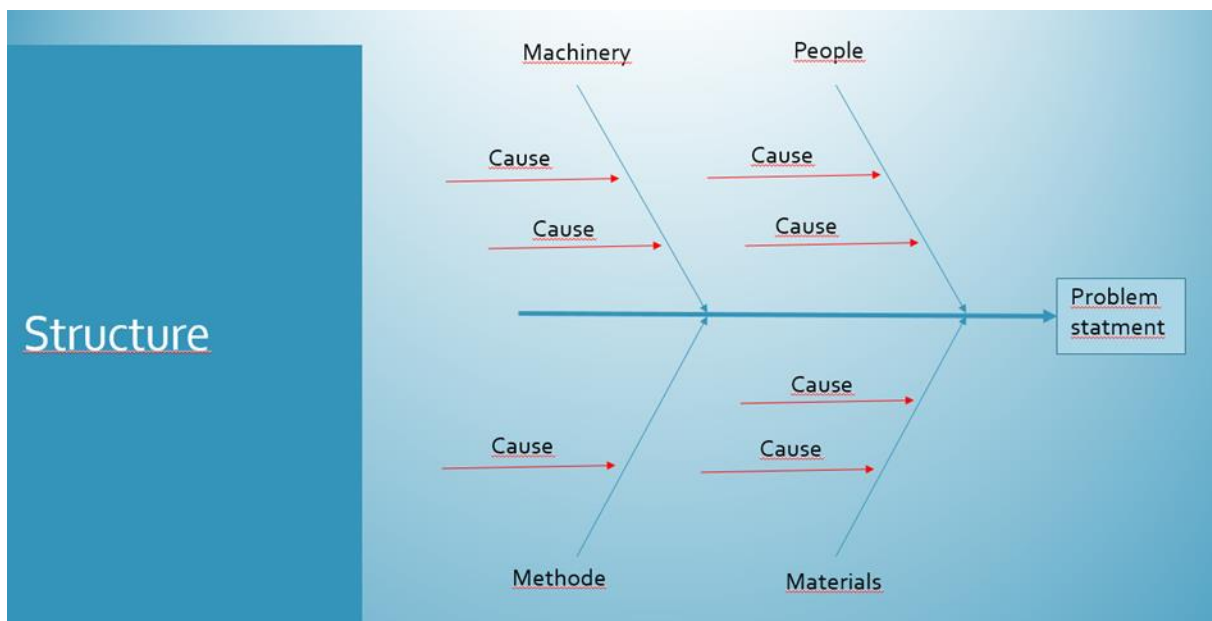
How it works?

The process of creating a fishbone diagram starts with writing down the problem in a box on a sheet of paper. The box with the defined problem is usually placed to the right side on the sheet. The location of the box with the problem is irrelevant, as it does not affect the method. Some prefer to place it on the left side. From the box a horizontal line is drawn. This is the “backbone” of the fishbone-diagram.

From the backbone, diagonal lines are drawn which represent different factors that can influence the problem. These factors can vary depending on the defined problem. The factors are further brainstormed for causes which can relate to the problem.

These potential causes are added to the diagonal lines under their respective factor. It is considered important to get many potential causes, as the causes that prove to be the “correct” ones are not necessarily the most apparent causes.

Therefore it is important to add as many potential causes as can be identified. When all possible causes are added, one can start investigating the causes that are considered to be the most likely.





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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

What can be achieved?

Understanding the contributing factors or causes of a system failure can help develop actions that sustain the correction. It helps us track down and eliminate the conditions, which cause the problem.

For effective use, have a narrowly defined problem or effect to start. Causes on the diagram must be verified with data to confirm that they are real causes. Do not use this tool as an alternative form of outlining. Do not use this tool to list potential solutions.

References and further readings

[Gerardus Blokdyk](#) - Ishikawa Diagram the Ultimate Step-By-Step Guide

<https://www.cms.gov/medicare/provider-enrollment-and-certification/qapi/downloads/fishbonerevised.pdf>

<http://web.t-online.hu/siriusbt/ishikawa-diagram.pdf>



Performance Prism

The Performance Prism (PP) is referred to by its Cranfield University developers as a „second generation” scorecard and management framework. The distinguishing characteristic of the Performance Prism is that it uses as its starting point all of an organisation’s stakeholders, including investors, customers and intermediaries, employees, suppliers, regulators and communities, rather than strategy.

When to use it?

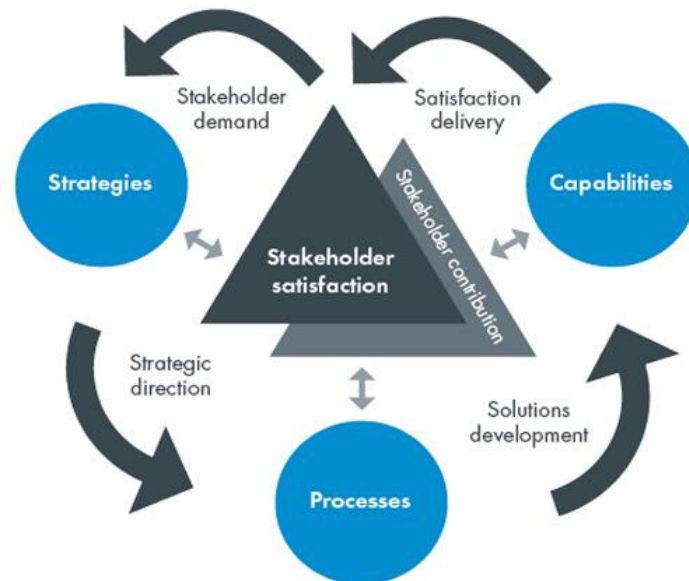
The Prism is designed to be a flexible tool – it can be used for commercial or non-profit organisations, big and small. When light is shined into a prism, it is refracted, thus the Prism shows the hidden complexity of white light. According to Neely and Adams, the Performance Prism illustrates the true complexity of performance measurement and management.

How it works?

According to PP proponents, the strategy should follow from stakeholder analysis. The PP framework also focuses on the reciprocal relationship between the organisation and its stakeholders, as opposed to just stakeholder needs. It takes stakeholder requirements as the start point for the development of performance measures rather than the strategy of the organisation. It recognises the need to work with stakeholders to ensure that their needs are met.

There are five „facet” to the Performance Prism which lead to key questions for strategy formulation and measurement design:

1. Stakeholder Satisfaction: Who are our stakeholders and what do they want and need?
2. Strategies: What strategies do we need to satisfy these wants and needs?
3. Processes: What processes do we need to execute these strategies?
4. Capabilities: What capabilities do we need to operate our processes more effectively and efficiently?
5. Stakeholder Contribution: What do we want and need from our stakeholders if we are to develop and maintain these capabilities?



What can be achieved?

The Performance Prism allows organisations to develop strategies, business processes and measures geared to the specific needs of all important stakeholder groups. By taking a broad stakeholder perspective that includes regulators and business communities, the PP enables an organisation to more directly address the risks and opportunities in its business environment. Using the PP to develop measures for each relevant stakeholder facilitates the communication and implementation of strategy.

Questions to consider when Implementing the Performance Prism

- Does the complexity of our organisation and our stakeholder groups warrant the use of the Performance Prism?
- Which important stakeholders do we need to consider that might be overlooked by another performance management system, such as the Balanced Scorecard?
- How well do we understand our business model and our relationship with our important stakeholder groups?

Conclusion

The Performance Prism is a rigorous framework for assisting companies to manage their performance. Unlike older frameworks, it requires an analysis of stakeholders and their needs before considering strategy. It also considers what processes and capabilities are required to support the strategy before identifying appropriate performance measures. This should lead to performance at all levels of the organisation that is consistent with the strategy of the organisation, and help it to meet the needs of a wider group of stakeholders.

References and further readings



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

<https://www.accaglobal.com/vn/en/student/exam-support-resources/professional-exams-study-resources/p5/technical-articles/performance-prism.html>

Pimento Map

Pimento Map is a methodology used to evaluate the maturity of business plans. Created by the Virtuology Academy team, based on in-depth research on hundreds of businesses, this online tool is a fast, easy and accurate way to evaluate the chances of success of a business model.

When to use it?

It gives the opportunity to entrepreneurs, business angels or venture capital firms to build an objective opinion on a new business idea. Pimento Map allows project developers to compare a business model to endogenous and exogenous factors that influence the development of a business: customers, competition, recurring revenue, etc. It also points out in detail where the model can be improved.

How it works?

The Pimento Map methodology evaluates the strengths and weaknesses of a certain project through 18 questions. These are articulated around four angles of analysis: market, sector, financial aspects, and team. For each of these elements, there are three questions to which the project developer responds by attributing a colour – green, yellow, orange, or red – according to the level of strength or weakness of the aspect in question.





**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

These are the 18 questions and their possible answers used in the method:

1. Customers – Have you defined your company's target customers?
 - Your customers are perfectly segmented according to type, purchase profile and geographical origin.
 - Your customers are fairly well defined, but you do not yet know the extent of the market they represent.
 - You think you know who you want to sell your product or service to, but grey areas remain.
 - You still do not know who you are going to sell your product or services to.
2. Value Proposition – Have you defined the value proposition of your company?
 - You have clearly defined the added value you bring to your customers and prospects.
 - Your offer is fairly well defined, but you will adapt it case by case if needed.
 - You have a good idea of what you want to offer and hope that customers will be receptive.
 - You have not clearly defined what you want to sell.
3. Channels – What are the distribution and marketing channels you will use?
 - You have perfectly defined your channels and your marketing plan.
 - You know what channels will be useful, but you have not yet defined the exact scope of each.
 - You have an idea of channels to use, but you have not yet decided on any of them.
 - You still have no idea how you will distribute your product and how you will communicate.
4. Image – Have you defined the image of your business?
 - You know exactly how you want your customers to see you.
 - You have an idea of the how your customers see you, but you do not fully control your image.
 - You do not have a clear brand positioning for your products or services.
 - You have not thought about the identity you want to give your products.
5. Revenue Structure – What is your revenue model?
 - You have set your pricing policy with great accuracy and you have been able to test it on customers.
 - You have a good idea of the prices you are going to set and you have made your initial revenue projections.
 - You have not yet precisely defined your pricing policy and you have not made projections.
 - You are unable to clearly identify your sources of income.
6. Cost Structure – What will your cost model be?
 - You have clearly identified the fixed costs, variable costs, investments and cash flow requirements.
 - You have identified the main cost items but you have not yet determined the investments and cash requirements.
 - You have a range of costs but you have not clearly itemized them yet.
 - Haven't you studied your costs yet?



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2017-1-HU01-KA202-035953
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7. Customer Pains – Are consumers in need of your product or service?
 - Different customer segments expressed a clear need for the product or service you will offer.
 - When you present your product or service prospects quickly show an interest.
 - Having argued and defended your products you managed to convince the prospect.
 - After the presentation, the majority of prospects believe that what you will offer them is not useful.
8. Competitive Advantage – Do you have a unique and sustainable competitive advantage?
 - You have a monopoly or a legal protection that will shelter you from your competitors for several years.
 - You have a technological or commercial advantage that puts you in a comfortable position for a few months.
 - Your products or services are similar to other offerings on the market.
 - You suffer from a competitive disadvantage compared to other offerings on the market.
9. Funding – Do you have the necessary financial means?
 - You have enough capital to cover your initial investments and achieve balance.
 - You have sufficient funds if you keep rigorously to your financial plan.
 - You have enough money to start but not to reach your cruising speed.
 - You do not have the funds to launch your idea.
10. Competences – Does your team have the skills for the project?
 - Your team includes all the skills and experience needed and is used to working together.
 - Your team has most of the skills but still needs to learn to work together.
 - You lack people with the critical skills to strengthen your team.
 - Your team has not yet been established.
11. Power Balance – Are you in an offer or demand market?
 - Market demand by far outstrips supply, you can impose your conditions.
 - There is a healthy balance between supply and demand on the market.
 - Supply exceeds demand, customers dictate the terms of trade.
 - There really is no demand, your service is not really valued.
12. Intense Competition – Are you in a highly competitive market?
 - You are a monopoly or oligopoly, and you master the market.
 - The market is divided between a limited numbers of competitors and there is a healthy competition between you and them.
 - The market is very competitive, some do not hesitate to practice "dumping"
 - The market is saturated and prices are extraordinarily low.
13. Profitability and recurrence – Do you have a profitable and recurring business model?
 - The margins are high and incomes are guaranteed for very long periods.
 - Margins are comfortable but marketing costs impact on the overall profitability of the project.
 - Margins are under pressure and customers do not want to engage in the long term.
 - The margins are almost zero and not enough to finance marketing costs.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

14. Partnerships – Do you have strategic partnerships?
 - Partnerships you have signed offer you a competitive advantage.
 - Your partnerships supplement your offer without giving you a real competitive advantage.
 - You have no partnerships that enhances your product.
 - The main potential partners have already signed agreements with your competitors.
15. Growth & Scalability – Does your business have potential for significant and rapid growth?
 - Your offer can spread rapidly abroad without the need for adaptation to local markets.
 - Your project has a potential for international growth but requires investments for each new market.
 - Your project is deeply rooted locally and new markets will be long to conquer.
 - Your product or service can not be exported in its current form.
16. Business Focus – Are you focused on a single core business?
 - Your company is located in a niche and all your resources are focused on this scope.
 - You enjoy a clear positioning and your offer is quite narrow.
 - Your company has a wide range of products that requires you to juggle with skills.
 - Your company offers a wide range of services and you adapt to the demands of all types of customers.
17. Cash flow Requirements – Do you need important investments to achieve your growth?
 - Your growth requires no investments and no need for cash.
 - Your growth requires little funding, they will be covered by return on equity.
 - Your development requires significant funds, it can only be done by seeking external capital.
 - Your growth will depend on your ability to find external investors.
18. Network – Do you have a large network in the target market?
 - You are very well known and respected in the industry and your network trust you.
 - You have a quiet good network and you have a good reputation.
 - You will work in a sector that is new for you.

You have had some bad experiences in the industry that affected your reputation

What can be achieved?

By means of a specific algorithm, based on the answers to the above-mentioned 18 questions, the Pimento Map method generates a personalized, 18-page report with a significant amount of insight and advice on how the business model can be improved.

The results also produce a map with extremely clear and easily filled-in graphics that provides a visual overview of the business model as well as an overall score that allows project developers to obtain a first impression of whether they should go ahead with the idea or change the orientation. It also highlights the business model's strong and weak points, analyzes market timing and emphasizes the short-, mid- and long-term opportunities.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

References and further readings

<http://pimentomap.com>

<https://www.slideshare.net/pimentomap/pimento-map-evaluate-the-strength-of-your-business-plan-36061860>

<http://www.babson.edu/executive-education/thought-leadership/education/Pages/pimento-maps.aspx>



Industry Analysis

Industry analysis is an approach used by businesses and analysts to understand the dynamics of an industry. It helps them to get a sense of what is happening in an industry by for example, identifying the scale and scope of markets, degree of competition, future prospects and the influence of external factors on the industry.

When to use it?

Industry analysis can be used by early stage or established businesses to help them to understand their position relative to other participants in the industry. It can help them to identify both current and future threats and opportunities and give business leaders and other stakeholders a strong idea of the present and future development of the industry. A key to business survival in an increasingly dynamic and complex business environment is to understand the differences between the business and the competition and to use this intelligence to inform business strategy, development and performance improvements.

How it works?

A range of methods are available to conduct industry analysis including SWOT, PEST and variations on Porter's 'Five Forces Model' (Porter, 2008).

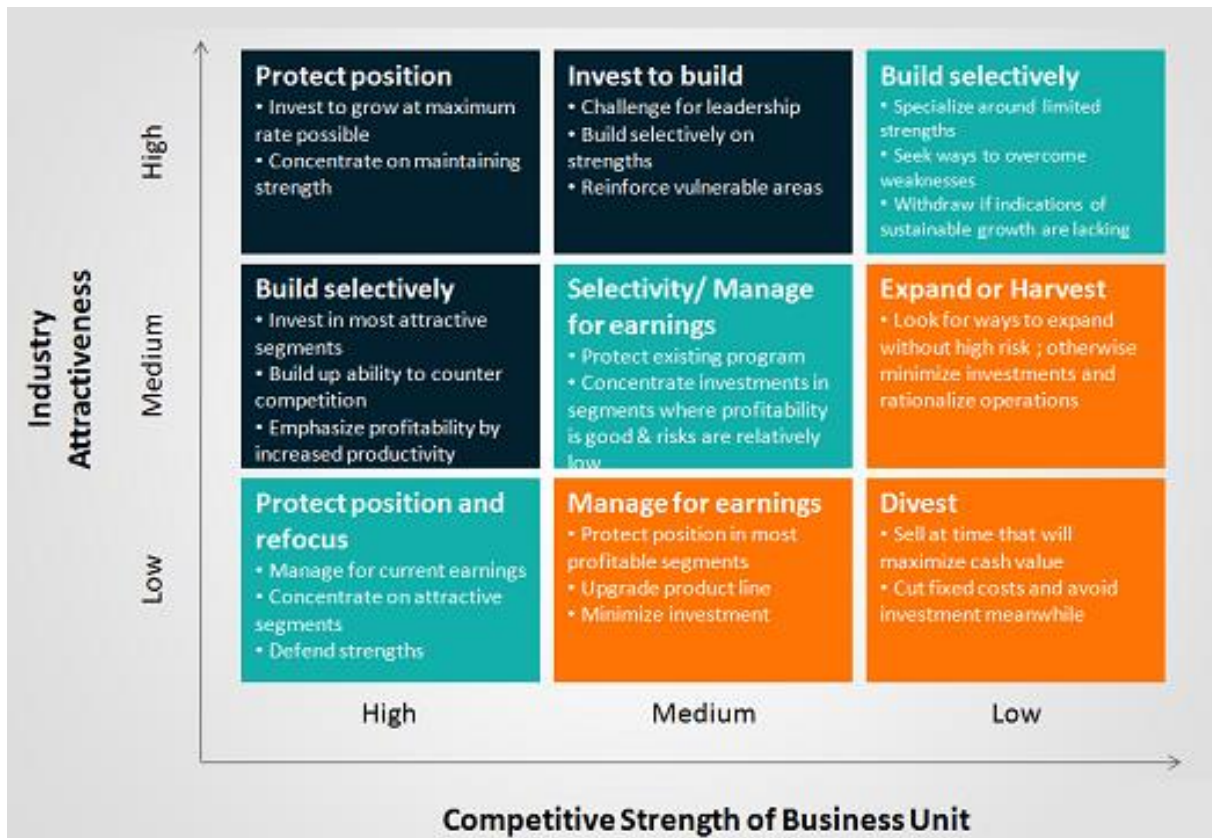
Industry analysis plays a key role in portfolio approaches to strategy to consider where investment decisions are influenced by the attractiveness of an industry and the business unit's competitive strength within that industry. There are a number of models, several of which can be traced back to the GE-McKinsey nine-box matrix developed in the 1970s (McKinsey, Undated).

The portfolio approach suggests processes to assess:

- Current profitability in the sector
- Long term growth rate of the sector
- Use of the structured-conduct-performance model (a variation of Porter's Five Forces)
- External shocks

An example of the application of the technique is illustrated in Figure 1 below:

Figure 1: An example of the role of industry attractiveness in a portfolio approach to strategy



Source: <http://ideagenius.com/ge-mckinsey-matrix-apply-business/>

When written as a section of a company's business plan, an industry analysis can be presented as a five-step process (Discover Business, Undated).

- Step 1: Give a brief overview of the industry. Define the industry in terms of historical background, the geographic area it services and the products it offers.
- Step 2: Review trends and growth patterns that have existed within the industry.
- Step 3: Identify factors that influence the industry. These might include government regulatory policies and competitive practices of other businesses.
- Step 4: Using data gathered through research, forecast anticipated growth of the industry. The predictions should be both long- and short-term.
- Step 5: Describe how your company will position itself within the industry. Focus on how your company can take advantage opportunities identified within the industry.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

What can be achieved?

Industry analysis, as a form of market assessment helps a business understand market conditions. It helps them forecast demand and supply and consequently, financial returns from the business. It indicates the competitiveness of the industry and costs associated with entering and exiting the industry. Analysis helps to identify which stage an industry is currently in, whether it is still growing and there is scope to reap benefits, or if it has reached its saturation point.

With a very detailed study of the industry, entrepreneurs can get a deep understanding of the operations of an industry and may discover untapped opportunities. It can achieve many things including identification of business opportunities to:

- Develop new products and markets
- Improve operational efficiency
- Understand relative cost position
- Focus on capabilities that are critical to building strategic advantage
- Bring new ideas into the business and facilitate sharing of intelligence

References and further resources

Bain & Company - a global management consultancy [Bain & Company Business Insights: Benchmarking](#) and [Harvard Business Review blog: Beyond Benchmarking: Why Copy the Competition?](#)

Corporate Finance Institute is a leading global provider of online financial modelling and valuation courses.

<https://corporatefinanceinstitute.com/resources/knowledge/strategy/>

Discover Business – Educational Consultants

<https://www.discoverbusiness.us/resources/business-plans/#10>

McKinsey - a global management consultancy <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-ge-and-mckinsey-nine-box-matrix>

Porter, M. (2008) [Five Competitive Forces That Shape Strategy: A video interview with Michael E. Porter.](#)

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Standard and Poor – Financial Services Company providing market intelligence
<https://www.spglobal.com/marketintelligence/en/news-insights/blog/index>



SHAPE

Shape enables an assessment of the current state of a small business in terms of its attitudes, behaviours and both the sources and the nature of the value it creates. It helps small business owners to consider what they might do to add value to the business and develop it. It also helps to identify where the business is at risk due to the attitudes and behaviours of its employees.

When to use it?

It is a useful process at almost any stage of the business's life cycle. It is particularly relevant when you are starting out in order to help you prioritise the SHAPE of your business early on and make adjustments.

How it works?

The process is very simple and does not require many material resources. The person or group of people who do the analysis within the business need to observe people and listen to what they are saying very carefully. The behaviours and language used give strong indicators as to where the business is in its life cycle.

SHAPE stands for:

- Service/Sales
- Human Resources
- Administration
- Production
- Entrepreneurial Flair

The key question is "What shape is your business in?"

Service/sales

This refers to either the orientation within the business of people towards service or sales. For example, people may talk in the following ways if there is a strong service/sales orientation:

"Providing good service is crucial to our organisation."

"Sales are the lifeblood of the business"

"We try to meet customers' needs."

"The customer is King/Queen."

"Service is our prime function."

"Customer service and customer care is crucial."



Human resources

This refers to the attitudes in the business towards other colleagues. For example, people may talk in the following ways if there is a strong 'people' orientation:

"We train and develop our staff to high standards."

"Teamwork must be encouraged."

"People are important."

"Career path is important."

"We pay well."

"We compete through our people."

Administration

This refers to the attitudes in the business towards administrative procedures. For example, people may talk in the following ways if there is a strong handle on administrative processes and that they are valued:

"Systems of control are essential."

"We know what we are doing day by day."

"We have carefully monitored plans."

"Cost and credit controls are crucial."

"Effective systems are the key to success."

Production

This refers to the attitudes in the business towards production and productivity. For example, people may talk in the following ways if there is a strong 'production' focus:

"We get the goods out of the door."

"We invest in up-to-date technology."

"Our production methods are crucial."

"Production has a high profile."

Entrepreneurial flair

This refers to the attitudes in the business towards innovation and entrepreneurial behaviour. For example, people may talk in the following ways if there is entrepreneurial flair in the business:

"New ideas are important."

"Go for it."

"Creative thinking encouraged."

"Good feedback on ideas."

"R & D important."

"Energy and enthusiasm."



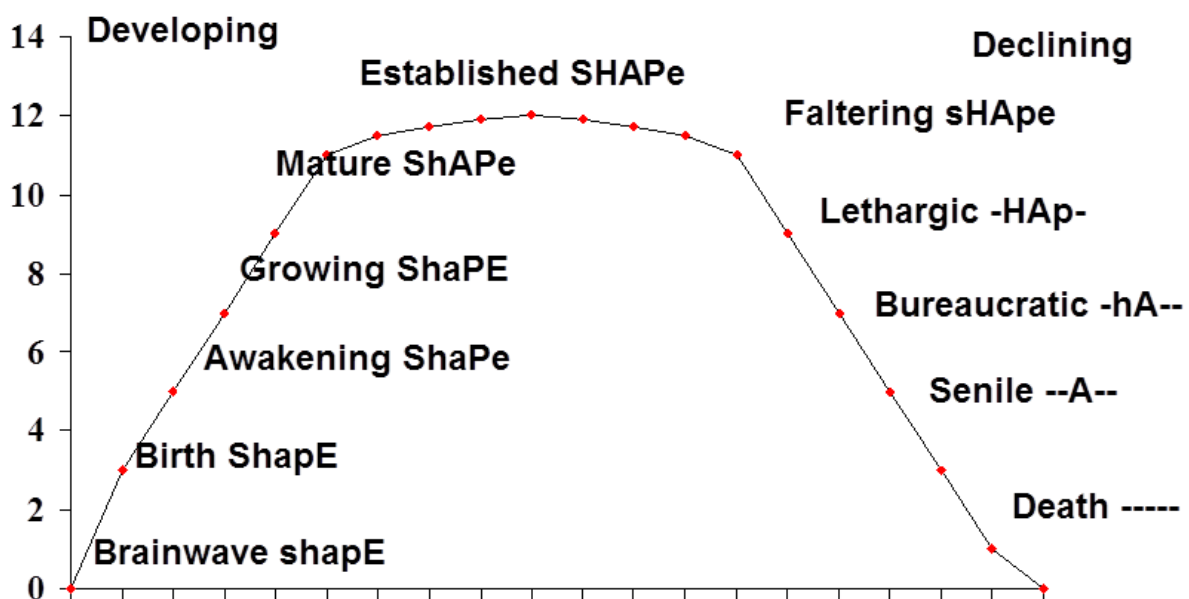
It is important to remember that:

- Service/Sales are needed for the short-term and are results driven
- Administration is also necessary for the short-term and is results driven
- Production is important in the short-term and is results driven
- Human Resources are necessary for long term sustainability and growth of the business
- Entrepreneurial flair is necessary for the long term growth and sustainability of the business.

And that:

For staff Service/Sales, Production and Administration can be delivered through training but Human Resources and Entrepreneurial flair are developed over time by the enterprise culture, management style, coaching and mentoring.

The SHAPE framework looks like this in life cycle form.



What can be achieved?

To avoid this life cycle working through to completion, the start-up owners or managers need to be constantly aware of the balance of SHAPE in the business and recognise that Entrepreneurial Flair and the innovation that comes with it is crucial to the sustainability of the business. Language and behaviours give clues as to where the business is in terms of its cycle. Constant reinvention is needed to add value to the business so that it can sustain and grow within its own terms.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

References and further readings

- The Small Business Life Cycle: 5 Stages of Small Business
<https://www.morebusiness.com/small-business-life-cycle/>
- An overview of the small business lifecycle <https://www.productiveflourishing.com/the-small-business-lifecycle-an-overview/>
- The Five Stages of Small Business Growth <https://hbr.org/1983/05/the-five-stages-of-small-business-growth>



NICE

Academics in the United States used grounded theory to propose a model of value creation in e-business. The term value refers to the total value created in e-business transactions regardless of whether it is the firm, customer or any other participant in the transaction who appropriates the value.

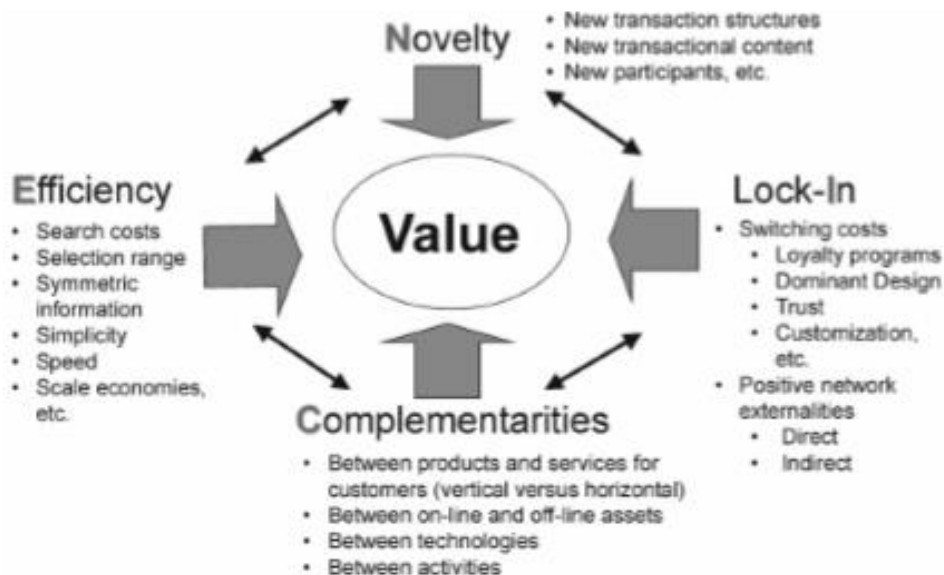
When to use it

The framework can be used at any time of the business cycle to explore and understand how an organisation conducts business and delivers value to its stakeholders. Whilst a focus may be placed on its' use in established businesses it is equally applicable to innovators of entirely new business models and to business leaders who need to adapt their business model incrementally with the objective of achieving innovation new to their organisation.

How it works

A focus on activities is a natural perspective for entrepreneurs and managers who must decide on business model design. According to Amin and Zott (2001) the four sources of value creation in e-business are: Novelty, lock-In, Complementarities and Efficiency) are illustrated in Figure 1.

Figure 1: Sources of value creation in e-business



The four sources are summarised in the acronym NICE and introduced below:

- Novelty – the adoption of new activities (content) and or new ways of linking the activities (structure) and/or new ways of governing the activities.



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- Lock-In – the power to keep third parties attracted as business model participants. Lock-in can be apparent in switching costs or as network externalities that derive from the structure, content or governance adopted.
- Complementarities – are present whenever bundling activities within a system provides more value than running activities separately
- Efficiency – refers to how businesses achieve greater efficiency through reducing transaction costs use

Application of the framework can help business leaders and other stakeholders identify opportunities to add value. For example it can help business leaders frame key questions in terms of:

- What activities should be performed?
- How should they be linked and sequenced?
- Who should perform them and where?

Zott and Amit (2010) suggest that using the framework can support systemic and holistic thinking instead of concentrating on isolated, individual choices (such as 'make or buy') decisions about particular products or outsourcing particular activity. It requires high levels of stakeholder engagement and clear conceptual thinking. Identifying technologically or strategically distinct activities can be conceptually challenging, because the number of potential activities is often quite large. Many seemingly inseparable activities can be broken down even further, especially given ongoing advances in information and communications technologies. This represents not only a conceptual challenge but also an opportunity for innovative managers to redesign their organisations in novel ways.

When responding to a crisis, operating in tough economic times or taking advantage of a new opportunity, rethinking an entire business model may not always be the first thing on a business leaders mind. This is particularly true when the level of resistance to change is predicted to be high. As a result, choices on business model design often go unchallenged for a long time.

What can be achieved

The NICE framework can help businesses to focus on key design themes. For example

- Novelty – Adopt innovative content, structure or governance
- Lock-In – build elements to retain business model stakeholders
- Complementarities – Bundle activities to reduce transaction costs
- Efficiency – reorganise activities to reduce transaction costs

References and further resources

Amit, R. and Zott, C. (2001) Value Creation in E-Business. *Strategic Management Journal*, 22, pp 493-520.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification

'Top 10 lessons on Strategy' <http://marketing.mitsmr.com/PDF/STR0715-Top-10-Strategy.pdf#page=38>

Zaborek, P., Doligalski, T., Sysko-Romańczuk, S. (2013) *Value Creation in E-Business and Financial Performance: Researching Polish Online Companies with Amit and Zott's Model*, paper presented at the 4th EMAC Regional Conference in St. Petersburg, Russia, September 25-27, 2013. <http://www.doligalski.net/value-creation-in-e-business/>

Zott, C. and Amit, R. (2010) Business Model Design. An Activity Systems Perspective. *Long Range Planning*, 43, 216 – 226

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Integrated Reporting

Integrated Reporting (IR) is often described as a way of articulating how an organisation creates value. It encompasses not only the financial aspects of an organisation's performance but also the social and environmental aspects and explains how the organisation impacts, uses and depends upon a broader set of capitals in the short, medium and long term.

When to use it?

Integrated reporting has been created for any organization that wants to embrace integrated thinking and develop their corporate reporting to reflect how an organisation creates value and contributes to society.

How it works?

The International Integrated Reporting Council (IIRC) has developed a framework to guide the development of integrated thinking and IR. The IIRC is a global coalition of regulators, investors, companies, standard setters, the accounting profession and Non-Governmental Organisations. The primary purpose of the Framework is to provide guidance on the practicalities of producing an integrated report and to explain the concepts behind IR, namely strategic focus and future orientation, stakeholder and materiality focus, conciseness, connectivity and reliability of information, and consistency and comparability. Any communication claiming to be an integrated report should apply the following principles.

- Strategic focus and future orientation: An integrated report should provide insight into the organization's strategy, and how it relates to the organization's ability to create value in the short, medium and long term, and to its use of and effects on the capitals
- Connectivity of information: An integrated report should show a holistic picture of the combination, interrelatedness and dependencies between the factors that affect the organization's ability to create value over time
- Stakeholder relationships: An integrated report should provide insight into the nature and quality of the organization's relationships with its key stakeholders, including how and to what extent the organization understands, takes into account and responds to their legitimate needs and interests
- Materiality: An integrated report should disclose information about matters that substantively affect the organization's ability to create value over the short, medium and long term
- Conciseness: An integrated report should be concise
- Reliability and completeness: An integrated report should include all material matters, both positive and negative, in a balanced way and without material error
- Consistency and comparability: The information in an integrated report should be presented: (a) on a basis that is consistent over time; and (b) in a way that enables comparison with other organizations to the extent it is material to the organization's own ability to create value over time.



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

There are also a number of content elements that must be included. These are fundamentally linked to each other and are not mutually exclusive.

- Organizational overview and external environment: What does the organization do and what are the circumstances under which it operates?
- Governance: How does the organization's governance structure support its ability to create value in the short, medium and long term?
- Business model: What is the organization's business model?
- Risks and opportunities: What are the specific risks and opportunities that affect the organization's ability to create value over the short, medium and long term, and how is the organization dealing with them?
- Strategy and resource allocation: Where does the organization want to go and how does it intend to get there?
- Performance: To what extent has the organization achieved its strategic objectives for the period and what are its outcomes in terms of effects on the capitals?
- Outlook: What challenges and uncertainties is the organization likely to encounter in pursuing its strategy, and what are the potential implications for its business model and future performance?
- Basis of presentation: How does the organization determine what matters to include in the integrated report and how are such matters quantified or evaluated?

What can be achieved?

As set out in the International IR Framework, an integrated report is a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, leading to the creation of value in the short, medium and long term. The Framework enables a business to bring these elements together through the concept of 'connectivity of information', to best tell an organization's value creation story.

References and further resources

ACCA https://www.youtube.com/watch?v=fJHP6QU_AyU

IIRC (2013) The IR Reporting Framework. International Integrated Reporting Council. <http://integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf>

The Integrated Reporting Council - <https://integratedreporting.org/>

Integrated Reporting as applied to cities <https://www.youtube.com/watch?v=ALO1mnbMRNY>

Integrated Reporting Council Annual Report 2017 video

<https://www.youtube.com/watch?v=sgE5OiO-eCY>



Stakeholder Mapping (Visualisation)

Stakeholder mapping visualization draws on instrumental stakeholder theory to help business leaders understand the nature, quality and characteristics of stakeholder interactions (Donaldson and Preston, 1995). It can be used to identify the power and influence of stakeholders so that their potential impact on the business can be better understood. Appropriate strategies can then be formulated and enacted to optimise positive impact and minimise potential negative impact on the business.

When to use it?

Stakeholder mapping can be used at any time to identify and better understand stakeholder views and interactions with the business (or parts of it). Stakeholder strategies are essential from the earliest stages of business formation to the most mature enterprises.

How it works?

Cleland (1999) offers a five phase process for managing stakeholders:

- Identifying appropriate stakeholders
- Specifying the nature of the stakeholders interest
- Measuring the stakeholder interest
- Predicting future stakeholder behaviour
- Evaluating the impact of stakeholder behaviour

The first phase involves the identification of key stakeholders which can result in a (very) long list. Researchers at Harvard University suggest that the following questions can be used to provide a focus for the development of strategy (Kenny, 2014).

- Does the stakeholder have a fundamental impact on your organization's performance? (Required response: yes.)
- Can you clearly identify what you want from the stakeholder? (Required response: yes.)
- Is the relationship dynamic — that is, do you want it to grow? (Required response: yes.)
- Can you exist without or easily replace the stakeholder? (Required response: no.)
- Has the stakeholder already been identified through another relationship? (Required response: no.)

Cleland (1999) offers a simple way of visualising stakeholders and their likely interest using a simple table (see below). The approach lists stakeholders along one axis of the table and the potential impact level on aspects of business strategy on the other axis.



Table 1: Stakeholder Interest

Interest type	Stakeholder					
	1	2	3	4	5	.....
Cost-minimisation	v	i	..	..	..
Value adding	i	v	..	..	..
Social value	ii	iv	..	..	..
Environmental impact	ii	v	..	..	..
.....						

Interest levels (i) Very low, (ii) low, (iii) Neutral, (iv) high, (v) very high

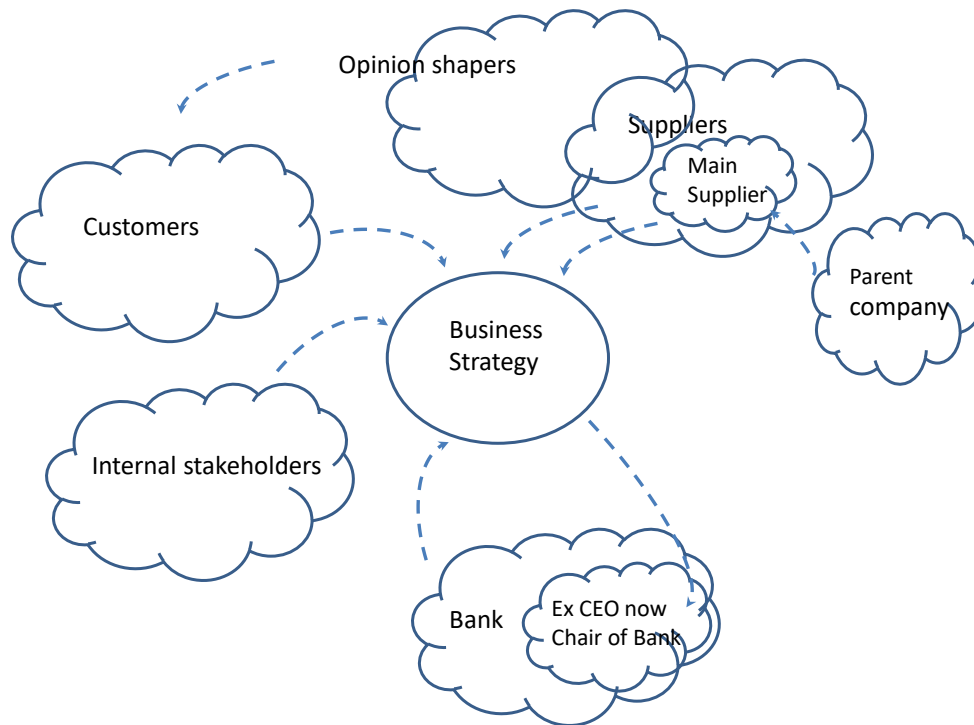
The approach can be expanded to include compound measures of interest and impact. The notion of impact is often associated with power which can be described in many ways. Several forms of power are illustrated in table 2 (Bourne and Walker, 2005).

Table 2: Forms of power

Position Power e.g. derived from statutory or organisational authority	Coercive – based on fear Reward – based on ability to provide rewards Connection – with influential people
Personal power e.g. derived from traits	Referent – based on personality traits Expert – based on expertise
Political power e.g. derived from control over decision processes	Legitimate – based on organisational or hierarchical position
	Information – based on possession of valuable information
Source: Yuki 1998	Source Greene and Elfrers (1999)

Visualisation can be used to provide a more nuanced view of individual power and interest that remain hidden in some forms of representation (e.g. organisational charts). Some groups or individuals within them may exert deep (extensive) or shallow (limited) influence in terms of their network of others that may be proxies for their interest. For example an individual with weak influence on the business may have a deep or strong influence on another individual or group that may have a strong influence on the business. These types of influences are difficult to visualise in a table whereas a picture or map can be a useful tool (Figure 1)

Figure 1 An example of Social Network Mapping



The way to track the relationships and influences would normally be through qualitative research techniques such as interviewing people to find out who knows who in what context and the strength of the influence they exert.

What can be achieved?

These techniques help business leaders develop a greater understanding of the relationships between actors and this intelligence can be used to inform strategy. To successfully lead organisations requires a capability to be able to identify the key stakeholders and their spheres of influence and power. It can be used to inform a range of business strategies in diverse fields including supply chain management, communications and talent management for example. Business success is increasingly built on cooperation and collaboration and the development of communities of practice (Wenger et al, 2002) to solve complex problems, share knowledge and develop trust that is often a key element in ensuring the sustainability of a business.



**ERASMUS+ KA2 Strategic Partnership
2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

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Yuki (1998) *Leadership in Organisations*. Sydney. Prentice Hall



Eco Systems Mapping

A business ecosystem is a network of organisations interacting with the enterprise. This ecosystem may include suppliers, distributors, customers, competitor or government agencies, local authorities, big businesses and other business networks. This network is involved in the delivery of a product or service through both competition and cooperation. Each element in the ecosystem affects and, in turn, is affected by the others. This creates a constantly evolving relationship in which each entity must be flexible and adaptable in order to survive, sustain and grow – we are not alone in business!

Traditionally, people have seen companies as rivals. Today, things are more complex than that. Competition and cooperation can coincide in this new order of business ecosystems.

“Ecosystems are dynamic and co-evolving communities of diverse actors who create and capture new value through both collaboration and competition.” (DU Press, 2015)

Some of the goals of a business ecosystem include:

- driving new collaborations to address rising social and environmental challenges
- harnessing creativity and innovation to lower the cost of production or allow members to reach new customers
- accelerating the learning process to effectively collaborate and share insights, skills, expertise and knowledge
- creating new ways to address fundamental human needs and desires

When to use it?

The simple answer is “all the time!” It is vital for the owner(s) leaders or founders of a new business to be aware of their networks within their eco-system and to cultivate them for the benefit of the business.

How it works?

The process of thinking about your business’ ecosystem starts with the founder or starting entrepreneur. Similar to the other training materials you may have encountered, there is no standard answer and no right or wrong way to go about it. It is a process, driven by questions. The response you have to the questions will help you to determine the best way forward for your business. BUT, it is important to remember that your eco system is dynamic and changeable and once you start on this route, you will have to keep on reviewing, adapting and changing.



Mapping your ecosystem

1. Identify roles – list up to 12 roles in your business' ecosystem (even if you are most of them!). For example, suppliers, distributors, customers, government etc....
2. Get specific – Write down some examples of each role. For example, Jones as distributor, Smiths as customer etc....
3. Draw – draw one circle for each role (not the specifics but the general roles) on a large sheet of paper making sure you leave enough space between them. Also try to think about placing those with more interactions between them closer together.
4. Tell the story – Tell the story of how these roles interact starting with the customer. Who does your customer go to for service? What do they request? Then what happens? How are the requests handled? Who's involved? As you tell the story draw arrows between the entities to show the flow of transactions through the ecosystem. Label the lines with their deliverables. The first line should travel from the customer to an entity.
5. Analyse your ecosystem – How much reciprocity is there between the roles? Are some roles doing more than others? Are some doing less? Do the specific roles provide resources, work or sustain others in the network? How dependent is your business on these? How stable are these businesses? What part does your business play in the ecosystem? Does it provide something that could be easily replaced by someone else? Does it compete for resources from another business in the ecosystem? Does it set the pace for others in the system?
6. Using the system – It could be used to help you think strategically or to help you monitor change in the system. It could be used to demonstrate value or as an orientation for your new people.

Source based on: Partnering Resources (undated)

What can be achieved?

Being aware of, identifying and cultivating your eco system is the 'life-blood' of your business. This knowledge and the skills you have to act upon it will enable your business to grow, survive and sustain. Precise understanding of a business ecosystem helps start-up entrepreneurs and incumbent businesses compete and collaborate more effectively.

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Futures

Futures Studies (often referred to as futures) is the formal and systematic study of possible, probable, and preferable futures, and of methods of foresight development for individuals, groups, and human society. Futures seeks to gain a holistic or systemic view based on insights from a range of disciplines and is used to emphasize that a wide variety of futures may occur. Futures is designed to support the development plans and strategies with longer time horizons than the three to five year horizons typically associated with strategic planning in most organisational and institutional contexts.

When to use it?

The anticipation of the future plays an important role at any stage in the development of businesses. Futures can be used to inform long term investment strategies, product-market development and to build resilience and capability to cope with future shocks.

How it works?

There is no one way to undertake Futures and there are a variety of methods and techniques like scenario planning, Delphi surveys and Future Search that have been used to inform strategic planning. Six pillars provide a logical sequencing of concepts and a framework to implement Futures oriented interventions (Inavatullah, 2007). The process will often involve multiple stakeholders with a range of interests coming together in a workshop or series of workshops. The six pillars that can be used to guide implementation are:

1. Mapping futures where participants become clearer on where they have come from and where they are going. A shared history can be constructed in a workshop where the main trends and events that have led up to the present are shared and recorded.
2. Anticipating futures where emerging issues and drivers of change such as socio- demographic changes, consumers of the future, environmental pressures or the challenges and opportunities associated with technological change can be discussed and analysed.
3. Timing futures where the search for patterns of history and the identification of opportunities for change emerge. This phase provides an opportunity to reflect on the nature of future change – is it a planned rational activity created by choice and risk analysis or a more serendipitous occurrence? It is open and a place where anything is possible or a place where the gains of the past can disappear in an instant?
4. Deepening the future – where the discussion seeks to move beyond solutions to short-term problems through a greater understanding of the drivers of change (e.g. social, economic, political, environmental, technological) and towards understanding the culture or worldview that influences change and implications for the behaviour of people, organisations and institutions.
5. Creating alternative futures – where scenarios can open up the present, contour the range of uncertainty, offer alternatives and better predict the future. The different scenarios can then help organisations explore different ways of doing what it does and to challenge existing strategies and structures. In this way a preferred scenario emerges.



6. Transforming futures – where the future is narrowed toward the preferred scenario and what this means for individuals, organisations and institutions. The preferred future can be seen as a process of creative visualisation where individuals can begin to see what steps are necessary to achieve the preferred future can be enacted. A similar process can be used to avoid the worst case scenario here the steps can be identifies and strategies to avoid them can be developed.

What can be achieved?

Futures provide an opportunity to look a long way forward and to prepare people, organisations and institutions for change. The development of a shared history can help develop establish a historical timeline to the present and surface continuities and discontinuities in the trajectory of development which helps to develop a framework from which to move to the future. Anticipating the future can help stakeholders envision possibilities and consider threats and opportunities and to build a 'big picture' of the drivers of change and deepening the future can help to understand implications for behaviour of individuals, organisations and institutions. Creating alternative scenarios create a number of possible futures that are credible yet uncertain. They can act as a preventative mechanism, identifying problems before they occur and they can encourage collaboration and collective responses to dealing with wicked problems. The construction of possible future scenarios so that stakeholders are more aware of the issues impacting on them and potential responses also aids the management of risk and can secure optimal allocation of resources.

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Future Search

Future Search is a task focussed group process. It is about the stakeholders in a business coming together to discover a common way forward to resolve the business challenges of the future. It is about developing commitment to innovation and change that lasts. Future Search is an interactive planning process enabling diverse stakeholder groups, each with their own agenda, to achieve shared goals through collaborative action.

When to use it?

When starting out, after 1 year of trading, when change is needed or when innovation is needed – in fact almost anytime is a good time! Future Search is about developing a vision for the future and action plans to achieve the vision.

How it works?

The key principles are:

- Getting the “whole system” in the room—a cross section of all stakeholders.
- Exploring the whole issue together before seeking to fix any part.
- Putting common ground and future focus on the action agenda, and treating problems and conflict as information, not action items.
- Encouraging self-management and responsibility

In Future search everybody works on the same tasks at the same time. Conflicts and problems are surfaced and acknowledged, but resolution is not sought. Key dialogues and conclusions take place among the entire group. Thus, every person achieves perspectives on the whole that no one person had before the Future Search started.

Uncertainty, anxiety and confusion are inevitable but then so are fun, energy, creativity, and achievement. Future search relies on a counterpoint between hope and despair. The Future Search process lives with differences, it doesn't try to reconcile them. Future Search believes that people are capable of dealing with difference if they agree to keep working together.

- Stage 1. Establish ground rules – these may include: confidentiality; right to be heard and right to speak; agreements on use of time; respect for each other's views etc.....
- Stage 2. Review the past from several different perspectives. Look not only at the focal issue itself but also at the participants' personal experiences in the context.
- Stage 3. Map the present. What is it like at the moment for the stakeholders?
- Stage 4. Create a range of future scenarios. What could the future look like?
- Stage 5. Identify the common ground from the future scenarios. This tends to be shared values and intentions that every person in the room has examined and agreed to. People often express astonishment at how much they all want the same things, a discovery they could not make if they replayed old conflicts or sought to solve short-term problems.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

- Stage 6. Develop action plans. This last step is the moment of truth. Priorities in future search are not items voted on in the abstract. They are projects people are ready, willing and able to take on. In this way the entire group becomes aware of what is really possible in this time and place. They differentiate wishful thinking from effective action by voting with their feet.

What can be achieved?

Future Search can generate much energy for action and change

- It is a creative process
- It recognises and respects the skills, knowledge and contributions of all stakeholders in the activity

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BCG matrix

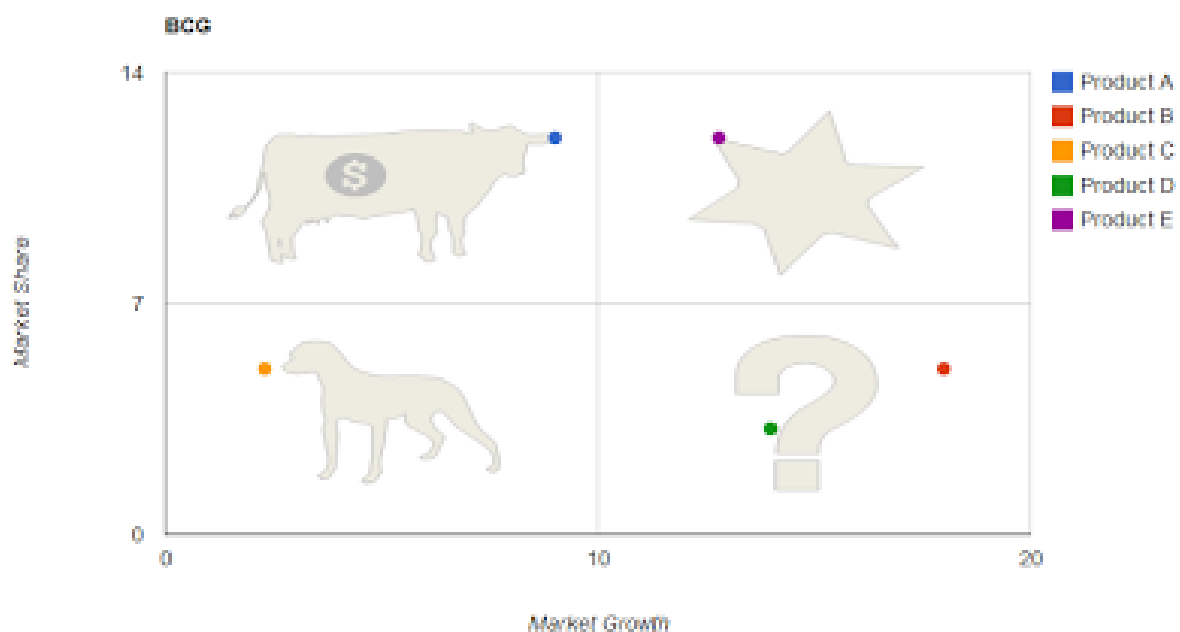
The BCG matrix (also known as growth–share matrix, Boston Box, BCG-matrix, Boston matrix, Boston Consulting Group analysis, portfolio diagram) is a chart that was created by Bruce D. Henderson for the Boston Consulting Group in 1970 to help corporations to analyse their business units, that is, their product lines. This helps the company allocate resources and is used as an analytical tool in brand marketing, product management, strategic management, and portfolio analysis.

When to use it?

The general purpose of the analysis is to help understand, which brands the firm should invest in and which ones should be divested. These two dimensions reveal likely profitability of the business portfolio in terms of cash needed to support that unit and cash generated by it.

How it works?

To use the BCG matrix, plot a scatter graph to rank the products or SBU (strategic business unit) based on their relative market shares and growth rates. To do so, you should classify your business portfolio into four categories based on industry attractiveness (growth rate of that industry) and competitive position (relative market share). BCG matrix categories are “Dogs”, “Cash cows”, “Stars” and “Question marks”. In each category, there are different strategic choices you should consider for your products or SBU.





What can be achieved?

With the BCG matrix you get a description of the company's brand portfolio or strategic business units (SBU) on a quadrant along relative market share axis (horizontal axis) and speed of market growth (vertical axis) axis. It uses relative market share and industry growth rate factors to evaluate the potential of business brand portfolio and suggest further investment strategies.

You can use this tool by following these five steps:

Step 1 - Choose the unit

BCG matrix can be used to analyse SBUs, separate brands, products or a firm as a unit itself. Which unit will be chosen will have an impact on the whole analysis. Therefore, it is essential to define the unit for which you'll do the analysis.

Step 2 - Define the market

Defining the market is one of the most important things to do in this analysis. This is because incorrectly defined market may lead to poor classification. For example, if we would do the analysis for the Daimler's Mercedes-Benz car brand in the passenger vehicle market it would end up as a dog (it holds less than 20% relative market share), but it would be a cash cow in the luxury car market. It is important to clearly define the market to better understand firm's portfolio position

Step 3 - Calculate relative market share

Relative market share can be calculated in terms of revenues or market share. It is calculated by dividing your own brand's market share (revenues) by the market share (or revenues) of your largest competitor in that industry. For example, if your competitor's market share in refrigerator's industry was 25% and your firm's brand market share was 10% in the same year, your relative market share would be only 0.4.

$$\text{Relative Market Share} = \frac{\text{Your firm's market share (or revenues)}}{\text{Largest competitor's market share (or revenues)}}$$

Step 4 - Find out market growth rate

The industry growth rate can be found in industry reports, which are usually available online for free. It can also be calculated by looking at average revenue growth of the leading industry firms. Market growth rate is measured in percentage terms. The midpoint of the y-axis is usually set at 10% growth rate, but this can vary. Some industries grow for years but at average rate of 1 or 2% per year. Therefore, when doing the analysis, you should find out what growth rate is seen as significant (midpoint) to separate cash cows from stars and question marks from dogs.

Step 5 - Draw the circles on a matrix



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

After calculating all the measures, you should be able to plot your brands on the matrix. You should do this by drawing a circle for each brand. The size of the circle should correspond to the proportion of business revenue generated by that brand

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Business Model (BMG)

Business Model is a strategic management and lean start-up template for developing new or documenting existing business models. It is visual chart (canvas) with elements that describe a business and how its components work together. The term “business model” has grown rapidly in importance in recent years, particularly in the venture and innovation communities. Today, executives, entrepreneurs and investors all recognize the importance of having a good business model. They understand that without a good business model, new technologies and products remain good ideas that never translate into value – for their inventors, investors or society at large.

Alexander Osterwalder and Yves Pigneur are the authors that developed the approach entitled “Business Model Generation” (BMG). They define a business model as something that “describes the rationale of how an organization creates, delivers, and captures value” within a framework comprising nine business components.

When to use it?

This tool is recommended if you want to develop a focused and good business model. It is a very powerful tool to present to investors, allowing to understand and decide whether to invest, or to stakeholders, demonstrating whether goals are being achieved or not. BMG gives a clear definition to understand how business is working and bracing, therefore helping everyone involved in creating and commercializing products, but demonstrating the key elements that are needed to attain a successful business.

How it works?

The framework BMG comprises nine business components (“blocks”) that are correlated BMG blocks: 1. Customer segments; 2. Channels; 3. Customer relationships; 4. Value propositions; 5. Revenue streams; 6. Key activities; 7. Key resources; 8. Partners; 9. Cost structure. BMG can be printed out on a large surface, so groups of people can jointly start sketching and discussing business model elements with post-it note notes or board markers. It is a hands-on tool that fosters understanding, discussion, creativity, and analysis. It is distributed under a Creative Commons license from Strategyzer AG and can be used without any restrictions for modelling businesses.

What can be achieved?

By using BMG you will have a comprehensive and visual management tool that is applied for any business, from an early-stage (e.g., start-up) to an already existing business model (mature company). You will use a visual chart (canvas) with elements that describe a business and how its components work together. It can be used with post-it notes or board markers (e.g., sketching) therefore facilitating brainstorming, analysis and focusing into the most strategic issues and challenges.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

In first place if you are an entrepreneur, there are some introductory questions - related to your project and yourself - that you need to answer: what is your vision, mission, values and goals. These main topics are very important because they might brace or block your attitude during the brainstorm, analysis or implementing stages.

Then, to start implementing the BMG you should answer the questions that are related to the MBG's nine blocks (business components). Sketch those answers in a canvas with the help of post-its or write them down. Here are some major questions to consider:

1. Customer Segments
 - a. For whom are we creating value?
 - b. Who are our most important customers?
2. Value Proposition
 - a. What value do we deliver to our customer?
 - b. Among the problems of our customers, which are the ones we are helping to solve?
 - c. Which customer needs are we satisfying?
 - d. What bundles of products and services are we offering to each segment/customer type?
3. Channels
 - a. Through which Channels do our Customer Segments want to be reached?
 - b. How are our Channels integrated?
 - c. Which ones work best?
 - d. Which ones are most cost-efficient?
 - e. How are we integrating them with customer routines?
4. Customer Relationships
 - a. What type of relationship does each of our Customer Segments expect us to establish and maintain with them?
 - b. Which ones have we established?
 - c. How costly are they?
 - d. How are they integrating with the rest of our Business Model?
5. Revenue Streams
 - a. For what values are our customers really willing to pay?
 - b. For what do they currently pay?
 - c. How are they currently paying?
 - d. How would they prefer to pay?
 - e. How much does each Revenue Stream contribute to overall revenues?
6. Key Resources
 - a. What Key Resources do our Value Propositions require?
 - b. Which Distribution Channels?
 - c. Which Customer Relationships?
 - d. Which Revenue Streams?

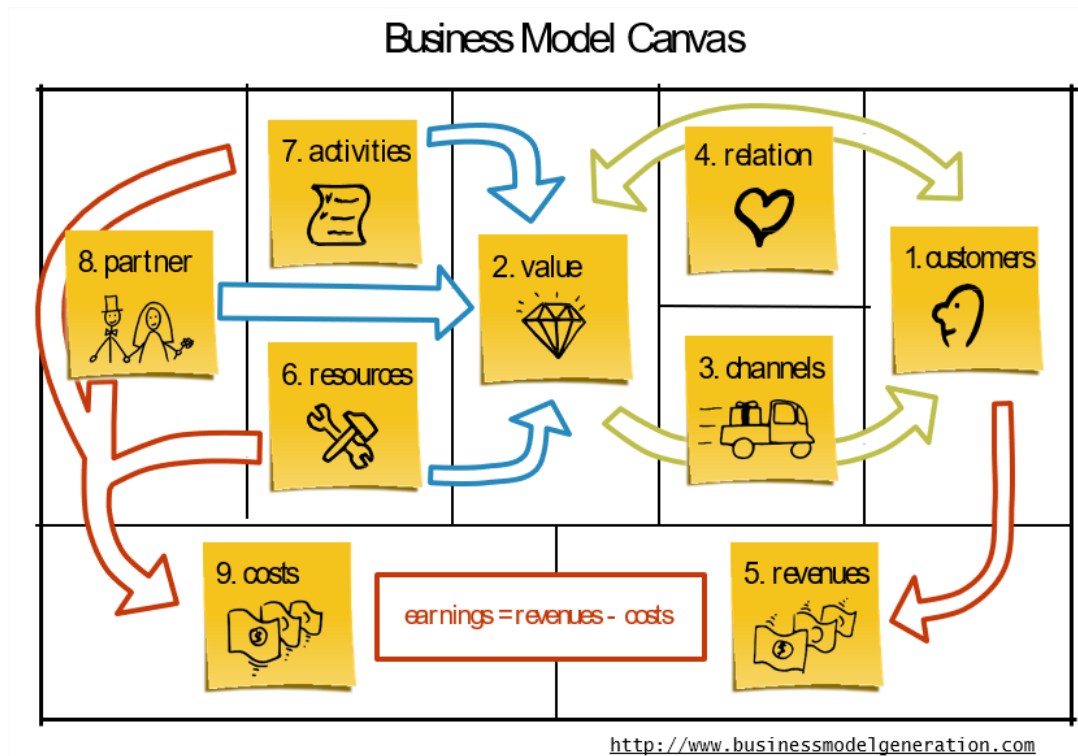


Figure 2: Business Model Generation Canvas illustrated (Source: Strategyzer)

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2017-1-HU01-KA202-035953
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<https://www.youtube.com/watch?v=-uifGqu3iRE>
<https://www.youtube.com/watch?v=ynQasjpBTck>



Critical Chain Project Management (CCPM)

CCPM is a method of planning and managing projects that emphasizes the resources (people, equipment and physical space) required to execute project tasks. It was developed by Eliyahu Moshe Goldratt (March 31, 1947 – June 11, 2011), an Israeli business management guru that was the originator of the Optimized Production Technique, the Theory of Constraints (TOC), the Thinking Processes, Drum-Buffer-Rope, Critical Chain Project Management (CCPM) and other TOC derived tools. It is based on methods and algorithms derived from Theory of Constraints. The CCPM differs from more traditional methods that derive from critical path and PERT algorithms, which emphasize task order and rigid scheduling. A critical chain project (CCP) network strives to keep resources levelled and requires that they be flexible in start times.

When to use it?

Critical Chain Project Management is an excellent alternative tool to usual planning and management tools like CPM, PERT, Gantt (traditional methods) since it has been credited with achieving projects 10% to 50% faster and/or cheaper than those.

According to studies of traditional project management methods by Standish Group and others as of 1998, only 44% of projects typically finish on time. Projects typically complete at 222% of the duration originally planned, 189% of the original budgeted cost, 70% of projects fall short of their planned scope (technical content delivered), and 30% are cancelled before completion. CCPM focuses on performance improvement on these traditional statistics.

How it works?

A Critical Chain (CC) is the sequence of both resources precedence and dependent tasks that prevents a project from being completed in a shorter time, given finite resources. If resources are always available in unlimited quantities, then a project's critical chain is identical to its Critical path method.

Critical chain is an alternative to critical path analysis. Its main distinctive features are:

1. Use of (often implicit) resource dependencies. Implicit means that they are not included in the project network but must be identified by looking at the resource requirements.
2. Lack of search for an optimum solution - a "good enough" solution is enough because:
 - a. As far as is known, there is no analytical method for finding an absolute optimum (i.e., having the overall shortest critical chain).
 - b. The inherent uncertainty in estimates is much greater than the difference between the optimum and near-optimum ("good enough" solutions).
3. Identification and insertion of buffers:
 - a. Project buffer
 - b. Feeding buffers
 - c. Resource buffers (companies are usually reluctant to give more resources)
4. Monitoring project progress and health by monitoring the consumption rate of the buffers rather than individual task performance to schedule.



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CCPM planning aggregates the large amounts of safety time added to tasks within a project into the buffers to protect due-date performance and avoid wasting this safety time through bad multitasking, student syndrome, Parkinson's Law, and poorly synchronized integration.

CCP management uses buffer management instead of earned value management to assess the performance of a project. Three types of buffers:

- Project Buffer: The total pooled buffer depicted in the image above is referred to as the project buffer.
- Feeding Buffer: In a project network, there are path/s which feed into the critical path. The pooled buffer on each such path represents the feeding buffer to the critical path (depicted in the image below), resulting in providing some slack to the critical path.
- Resource Buffer: This is a virtual task inserted just before critical chain tasks that require critical resources. This acts as a trigger point for the resource, indicating when the critical path is about to begin.

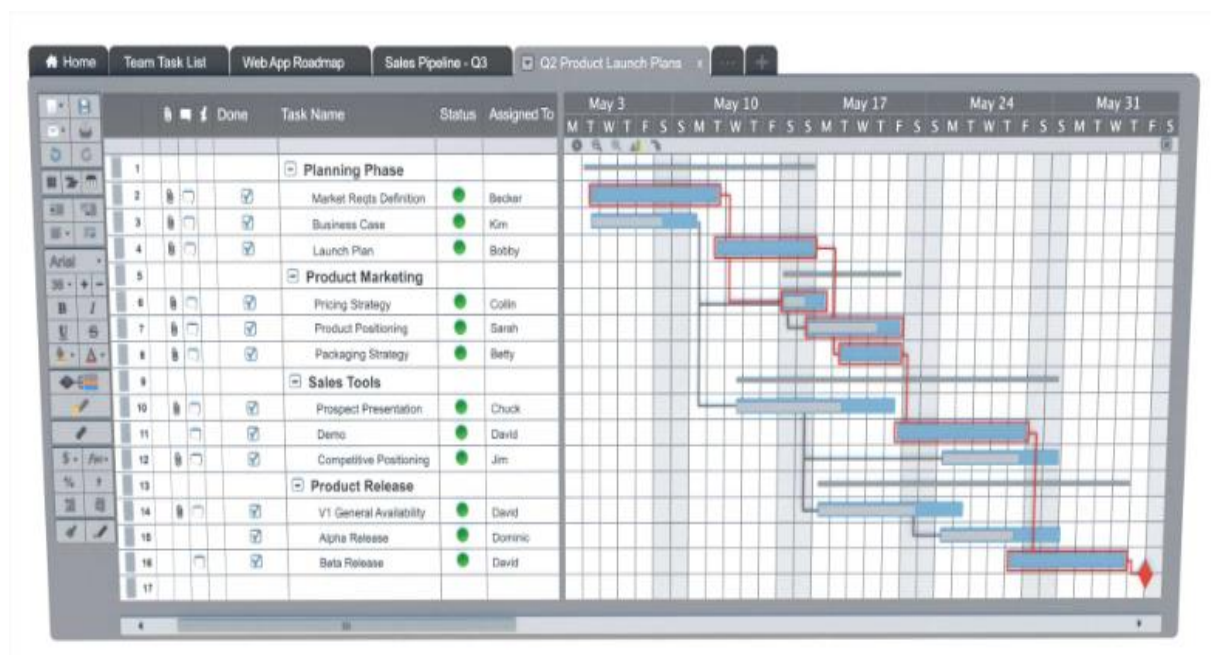


Figure 1: CCPM method (Source: Smart Sheet)

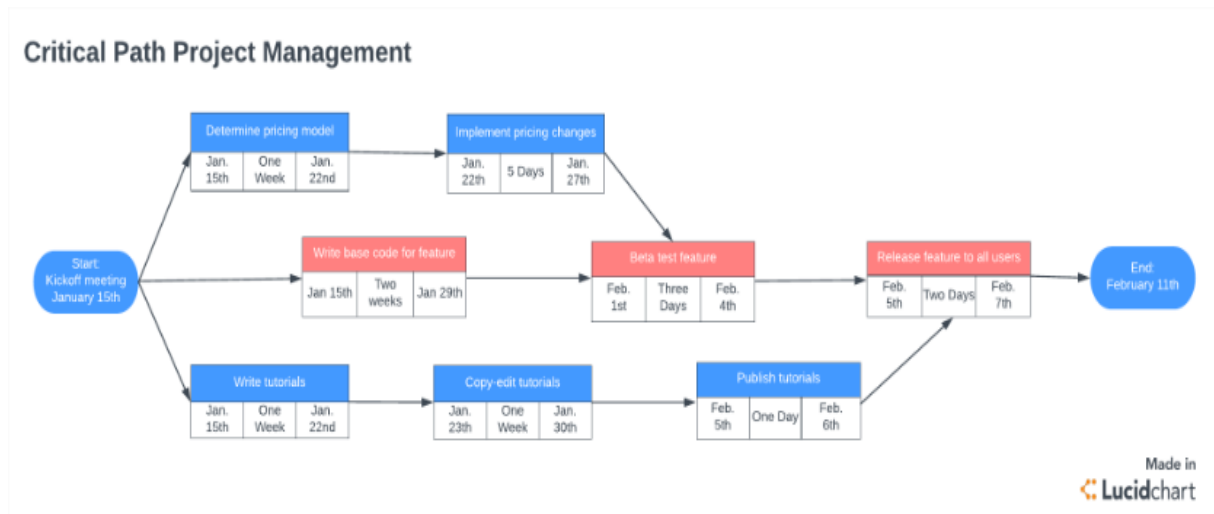


Figure 2: CCPM method (Source: Lucidchart)

What can be achieved?

With the CCPM method, organizations that adopt it experience a much timely project completion. By focusing on the resources needed to complete a project, project managers create a process that is simple and easy to manage.

Critical chain project management allows a team to see the entire project lifecycle. Most importantly, it helps them see how their efforts move the project forward.

Consider the following steps for preparing a project according to CCPM method

1. Identify the critical chain: Before you can get started, you need to identify the most important tasks, as well as the tasks that will take the longest to complete. These tasks will become your critical path. To help you identify your critical path, we recommend creating a work breakdown structure. Consider breaking down large projects into smaller, more manageable pieces. In CCPM, a work breakdown structure can help you determine where you will need the most resources. Additionally, it will show which tasks are going to take the most time. For a successful CCPM process, begin your project with the most important tasks first and then work in descending order.
2. Determine resource constraints: Critical chain project management focuses on resources, so consider any constraints you might experience as you assign employees to tasks. For example, you have set aside ten days for John to design your new website, but he is going on vacation for seven days during the allotted time. This is considered a resource constraint. To keep the project on track, you schedule Maria to work on the design in John's absence. By identifying resource constraints early in the process, you avoid any downtime or delays.



3. Limit your team's focus: In critical chain methodology it is important to keep your team focused on individual tasks as the practice will lead to more productive, harmonious, collaborative, and innovative behaviours. All these factors contribute to timely task completion and efficiency.
4. Eliminate multitasking: When employees switch between different tasks, productivity drops and task durations increase. And, ultimately, team morale decreases as your team members try to keep the project moving forward. The critical chain project management process keeps employees focused on fewer items at time, which allows teams to execute projects faster. For successful CCPM, you want to ensure your team has enough on their plate to stay focused, but not enough that they will have to multitask in order to get things done.
5. Create 50/50 time estimates: Successful critical chain processes cut the estimated time needed for projects in half. The idea isn't to stress out your team members; It's to avoid wasted time and push them toward a more efficient timeline. Remember that you'll have buffers in place of reduced time. Sometimes employees procrastinate, waiting until the last possible moment to start or even stretching out a task to fill time. By cutting the time needed for a task in half, you create a sense of urgency in your team. This practice will push them to stay focused and finish their tasks on time.
6. Implement buffers for uncertainties or unexpected changes: After you cut the estimated time needed by 50%, that 50% is then used as a buffer. It acts as a shock absorber for the project should a task take longer than anticipated to complete. One study showed that implementing project buffers with the CCPM process leads to employees finishing projects 25% faster.
7. Create a detailed project model: If you're using critical chain methodology, you're likely taking on a large, complicated project. To ensure timely project completion, create a detailed project model that your entire team can use. The model allows your team to see how well the project is progressing. The project model should include time estimates, task descriptions, assigned resources, time buffers, and finish dates. To help you create a successful CCPM model, take a look at this article that discusses everything you need to know about creating project management diagrams. Additionally, it shows which diagrams you can use to create a CCPM model. We'd recommend staying away from a Gantt chart. Instead, you can use a project network diagram, cross-functional flowchart, or a timeline.



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2017-1-HU01-KA202-035953
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Force Fields Analysis

This is a powerful strategic tool used to understand what's needed for change in both corporate and personal environments. The principle, developed by Kurt Lewin (in the 1940's), is a significant contribution to the fields of social science, psychology, social psychology, community psychology, communication, organizational development, process management, and change management.

When to use it?

Providing a framework for looking at the factors (forces) that influence a specific social situation, this tool is used in business for making and communicating go/no-go decisions. It helps you by bringing to you a state of equilibrium between forces (driving forces and restraining forces) so that you can make the best choice (go/no go decision).

How it works?

This framework looks at forces that are either driving movement toward a goal (helping forces) or blocking movement toward a goal (hindering forces).

Force field analysis is best carried out in small group of about six to eight people using flipchart paper or overhead transparencies so that everyone can see what is going on.

What can be achieved?

Force Fields Analysis is a tool that helps you in choices when you must make difficult or challenging decisions. It gives you an effective, structured decision-making technique that will improve the quality of your decisions and increase your chances of success.

The first step is to agree the area of change to be discussed. This might be written as a desired policy goal or objective. All the forces in support of the change are then listed in a column to the left (driving the change forward), whereas all forces working against the change are listed in a column to the right (holding it back).

The driving and restraining forces should be sorted around common themes and then be scored according to their 'magnitude', ranging from one (weak) to five (strong).

The score may well not balance on either side. The resulting table might look like the example above.

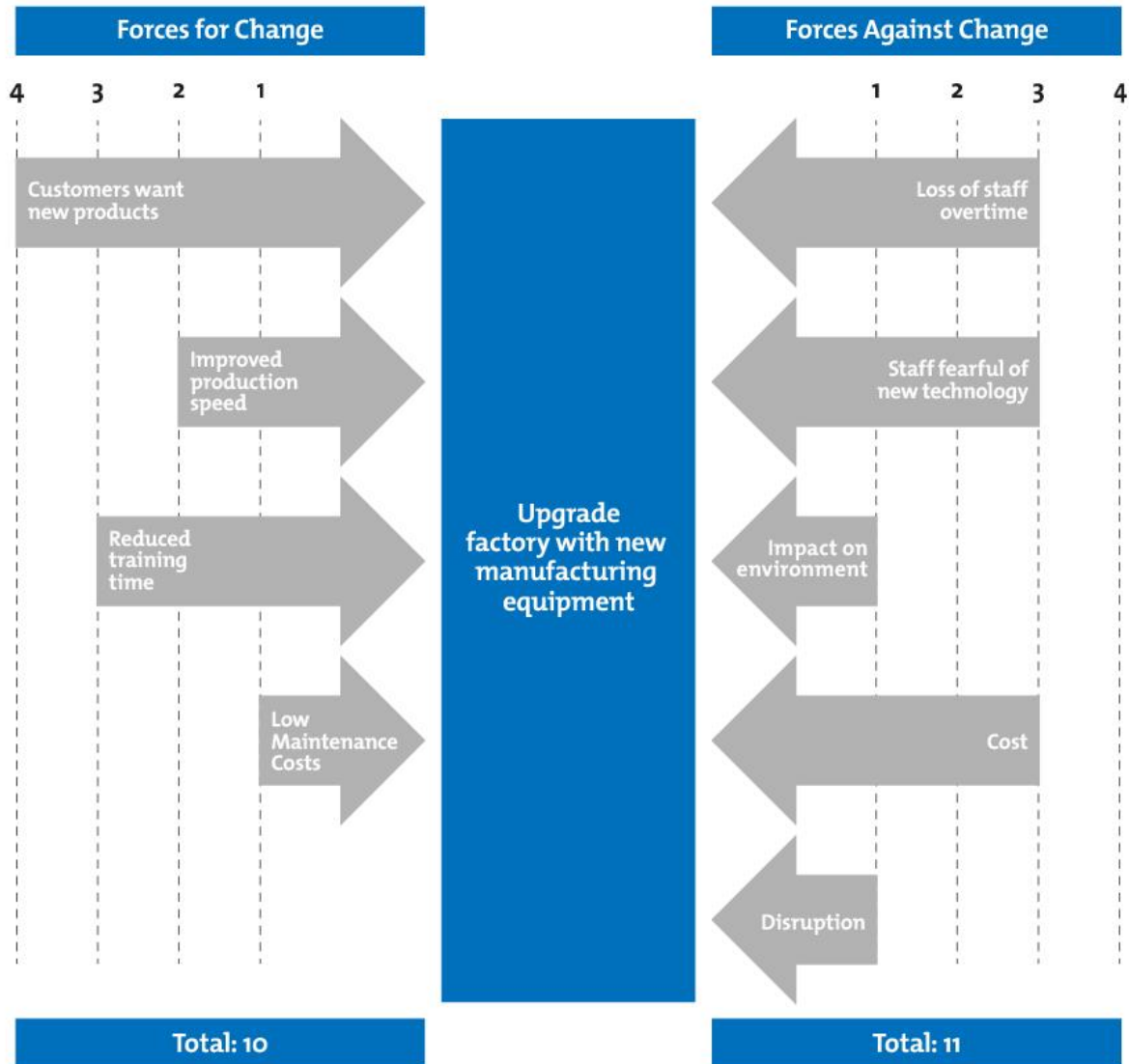


Figure 1: Force Field Analysis (Source: MindTools)

Throughout the process, rich discussion, debate and dialogue should emerge. This is an important part of the exercise and key issues should be allowed time. Findings and ideas may well come up to do with concerns, problems, symptoms and solutions.

It is useful to record these and review where there is consensus on an action or a way forward. In policy influencing, the aim is to find ways to reduce the restraining forces and to capitalise on the driving forces.



Summing up:

1. Define the change you want to see. Write down the goal or vision of a future desired state or you might prefer to understand the present status quo or equilibrium.
2. Brainstorm or Mind Map the Driving Forces - those that are favourable to change. Record these on a force field diagram.
3. Brainstorm or Mind Map the Restraining Forces - those that are unfavourable to, or oppose change. Record these on the force field diagram.
4. Evaluate the Driving and Restraining forces. You can do this by rating each force, from 1 (weak) to 5 (strong) and total each side. Or you can leave the numbers out completely and focus holistically on the impact each has.
5. Review the forces. Decide which of the forces have some flexibility for change or which can be influenced.
6. Strategize! Create a strategy to strengthen the driving forces or weaken the restraining forces, or both. If you've rated each force how can you raise the scores of the Driving Forces or lower the scores of the Restraining Forces, or both?
7. Prioritize action steps. What action steps can you take that will achieve the greatest impact? Identify the resources you will need and decide how to implement the action steps. Hint: Sometimes it's easier to reduce the impact of restraining forces than it is to strengthen driving forces.

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PESTEL

PESTEL is an acronym for a tool used to identify the macro (external) forces facing an organisation. The letters stand for Political, Economic, Social, Technological, Environmental and Legal factors. Depending on the organisation, it can be reduced to PEST or some areas can be added i.e. International. Before any kind of strategy or tactical plan can be implemented, it is fundamental to conduct a situational analysis in which the PESTEL forms part of. It is recommended to repeated PESTEL analysis at regular stages (6 monthly minimum) to identify changes in the macro environment.

When to use it?

The method can be very helpful in monitoring and responding to changes in the macro-environment and identifying needed differentiation from the competition (competitive advantages). PESTEL helps you determine how these factors will affect the performance and activities of your business in the long-term. It is often used in collaboration with other analytical business tools like the SWOT analysis and Porter's Five Forces to give a clear understanding of a situation and related internal and external factors.

How it works?

PESTEL is a simple and widely used tool that is often linked with SWOT Analysis. This tool aims to analyse your business environment and collect the opportunities and threats that it presents.

The PESTEL analysis can be prepared through searching and answering the following questions:

- 1) Political: What is the political situation of the country and how can it affect the industry?
- 2) Economic: What are the prevalent economic factors?
- 3) Social: How much importance does culture has in the market and what are its determinants?
- 4) Technological: What technological innovations are likely to pop up and affect the market structure?
- 5) Environmental: What are the environmental concerns for the industry?
- 6) Legal: Are there any current legislations that regulate the industry, or can there be any change in the legislations for the industry?

We can use PESTEL by following these steps:

- A. Brainstorm the changes that are happening around the PESTEL factors (Political, Economic, Social, Technological, Environmental and Legal factors). Besides collecting information related to these factors it is also important tailor the questions to suit the specific needs of your business;
- B. Brainstorm opportunities arising from each of these changes;
- C. Brainstorm threats or issues that could be caused by them;
- D. Create a plan and take appropriate action.



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What can be achieved?

With the PESTEL analysis you can gather a more comprehensive information about business environment. It also collects the opportunities and threats that are present in the industry.

At the same time, PESTEL is a good basis for a business strategy development by help implementing a more solid business plan. This tool helps gathering macro information but also focus it into is important for your business (business impact) and it can easily be represented like in the following template – it display a wide-range of information in an easy-to-read, visual format:

FACTOR	DESCRIPTION	BUSINESS IMPACT
Political	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • Government policy • Political stability or instability overseas • Foreign trade policy • Tax policy • Labour laws • Terrorism and military considerations • Environmental laws • Funding grants and initiatives • Trade restrictions • Fiscal policy 	<p><i>What is the business impact of this factor</i></p>
Economic	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • Economic Growth • Interest Rates • Exchange rates • Inflation • Disposable income of consumers • Disposable income of businesses • Taxation • Interstate taxes • Wages rates • Financing capabilities 	
Sociological	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • Population growth • Age distribution • Health consciousness • Career attitudes • Customer buying trends • Cultural trends • Demographics • Industrial reviews and consumer confidence • Organisational image 	
Technological	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • Producing goods and services • Emerging technologies • Maturity of technologies • Distributing goods and services • Communicating with target markets • Potential Copyright infringements • Increased training to use innovation • Potential Return on Investment (ROI) 	



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Environmental	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • <i>The decline of raw materials</i> • <i>Pollution and greenhouse gas emissions</i> • <i>Promoting positive business ethics and sustainability</i> • <i>Reduction of their carbon foot print.</i> • <i>Climate and weather</i> • <i>Environmental Legislation</i> • <i>Geographical location (and accessibility)</i>
Legal	<p><i>Elements that can be identified:</i></p> <ul style="list-style-type: none"> • <i>Health & Safety</i> • <i>Equal Opportunities</i> • <i>Advertising Standards</i> • <i>Consumer Rights and laws</i> • <i>Product Labelling</i> • <i>Product Safety</i> • <i>Safety Standards</i> • <i>Labour Laws</i> • <i>Future Legislation</i> • <i>Competitive Legislation</i>

With this information you can support general strategic and management decision-making, but it can also support internal decisions across your business, for instance when launching new products or studying the buyer market.

The tool is used to help identify factors involved in change rather than solutions to any of the factors. The factors identified should consider:

- Outside the control of the organization/company;
- Have some form of impact on the organization/company.

It is important to consider that it might not be crucial to meticulously classify each PESTEL factor since your need to identify how much those will or could really affect your business. You should define the goal of your analysis so that you can extend or focus this tool application.

P Political	E Economic	S Social	T Technological	E Environmental	L Legal
<ul style="list-style-type: none"> • Government policy • Political stability or instability overseas • Foreign trade policy • Tax policy • Labor laws • Terrorism and military considerations • Environmental laws • Funding grants and initiatives • Trade restrictions • Fiscal policy 	<ul style="list-style-type: none"> • Economic Growth • Interest Rates • Exchange rates • Inflation • Disposable income of consumers • Disposable income of businesses • Taxation • Interstate taxes • Wages rates • Financing capabilities 	<ul style="list-style-type: none"> • Population growth • Age distribution • Health consciousness • Career attitudes • Customer buying trends • Cultural trends • Demographics • Industrial reviews and consumer confidence • Organizational image 	<ul style="list-style-type: none"> • Producing goods and services • Emerging technologies • Technological maturity • Distributing goods and services • Target Market Communication • Potential Copyright infringements • Increased training to use innovation • Potential Return on Investment (ROI) 	<ul style="list-style-type: none"> • The decline of raw materials • Pollution and green house gas emissions • Promoting positive business ethics and sustainability • Reduction of their carbon foot print. • Climate and weather • Environmental Legislation • Geographical location (and accessibility) 	<ul style="list-style-type: none"> • Health & Safety • Equal Opportunities • Advertising Standards • Consumer Rights and laws • Product Labeling • Safety Standards • Labor Laws • Future Legislation • Competitive Legislation

Figure 1: PESTEL impact Map (Source: Andet5)



PESTEL Impact Map

6

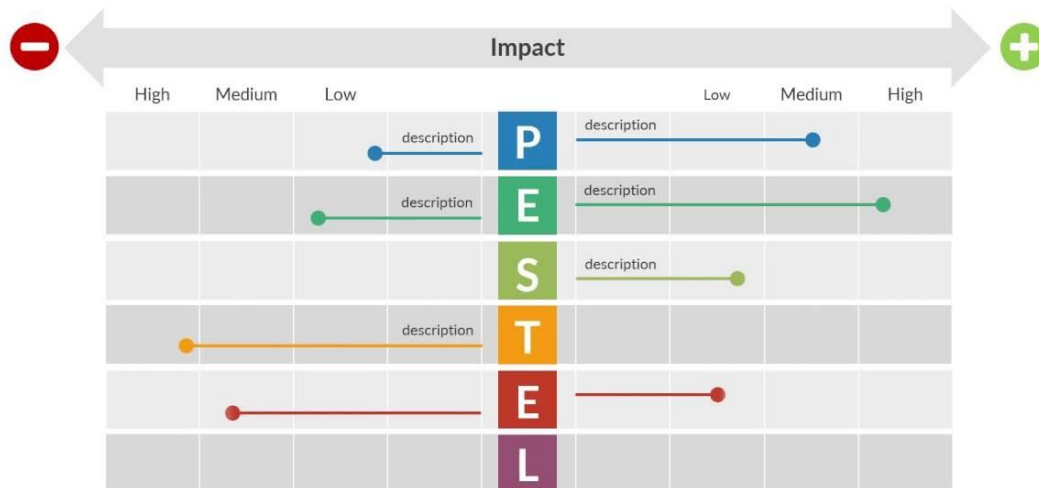


Figure 2: PESTEL impact Map (Source: InspiraSign)

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Porter's Five Forces Model (PFF)

This model helps managers and marketers analysing the market and the attractiveness and potential profitability of an industry sector. It is a strategic tool designed to give a global overview, rather than a detailed business analysis technique, and It helps reviewing the strengths of a market position, based on five key forces. Michael Porter, the author of this framework, refers to these forces as the microenvironment to contrast it with the more general term macro environment. They consist of those forces close to a company that affect its ability to serve its customers and make a profit. The five forces are: Threat of new entrants; Threat of substitutes; Bargaining power of customers; Bargaining power of suppliers; Industry rivalry.

When to use it?

PFF is used to assess and analyse industry's competitive forces and to shape organization's strategy according to the results of the analysis. It uses five forces that determine the competitive intensity and therefore the attractiveness (or lack of it) of an industry in terms of its profitability. An "unattractive" industry is one in which the effect of these five forces reduces overall profitability.

Once you understand the Five Forces model you become more informed about your industry, competitors and business. It is important to know what each force means and what metrics you can use to determine their impact on your company and market.

How it works?

To assess the strength of competition and the profitability of market you should analyse and evaluate the five forces. To use this tool follow these 3 steps:

- Step 1. Gather the information on each of the Five Forces;
- Step 2. Analyse the results and display them on a diagram;
- Step 3. Formulate strategies based on the conclusions.

About the Five Forces:

1. Supplier Power: Depending on certain factors, a supplier can have various levels of control and influence on your success. They can influence your product cost, profit margin, and inventory. There are different types of suppliers, which vary based on your industry and product. Most fall into one of these four categories: manufacturing, independent craftspeople, importers or distributors.

The factors used to gauge the supplier power can include:

- a. Number of suppliers in the market.
- b. Number of customers they serve.
- c. How unique is their product?



2. Buyer Power: Buyers can influence your business by demanding lower prices, better customer experiences, higher-quality products or more services and features. There are several factors that would make buyer bargaining power higher than that of a business. Here are the most important to know:
 - a. Buyer demand is lower than supply;
 - b. The cost of switching to your competitor is very low.

3. Competitive Rivalry: How ferocious are your competitors? Extremely high degrees of competitiveness can negatively impact your business and the industry. It makes it harder to gain customers and increase profitability. It can also stunt innovation and growth. When you consider entering a market or launching a new product it is critical to assess the competitive landscape and you should consider these questions:
 - a. How many competitors are there?
 - b. Is the market expected to grow?
 - c. What's the cost to switch to a competitor?
 - d. Are fixed costs high?

4. Threat of substitution: When you have a great idea or innovative product, there will always be copycats. Some may disappear and pose little threat to your business. Others could rise to become serious contenders. With this force you can evaluate the likelihood that your product or company can be replaced. The threat will be higher if the substitution:
 - a. Is easily or more available than yours;
 - b. Has a higher quality;
 - c. Performs at the same or at a higher level than your product;
 - d. Costs less than yours;
 - e. Is more convenient or easier to use.

5. Threat of New Entry: Analysing threats to entry can help you decide if the launch of a new product or business is worth the investment. It may not even be practical or possible. For existing companies, the threat of new entry can help gauge the chance that newcomers will emerge and hurt your profitability. The most common barriers to entry (conditions that would make it difficult or impossible for new businesses to enter the market) are:
 - a. High start-up costs;
 - b. Extensive legal requirements;
 - c. Strict and/or lengthy regulations.

PORTER'S FIVE FORCES MODEL

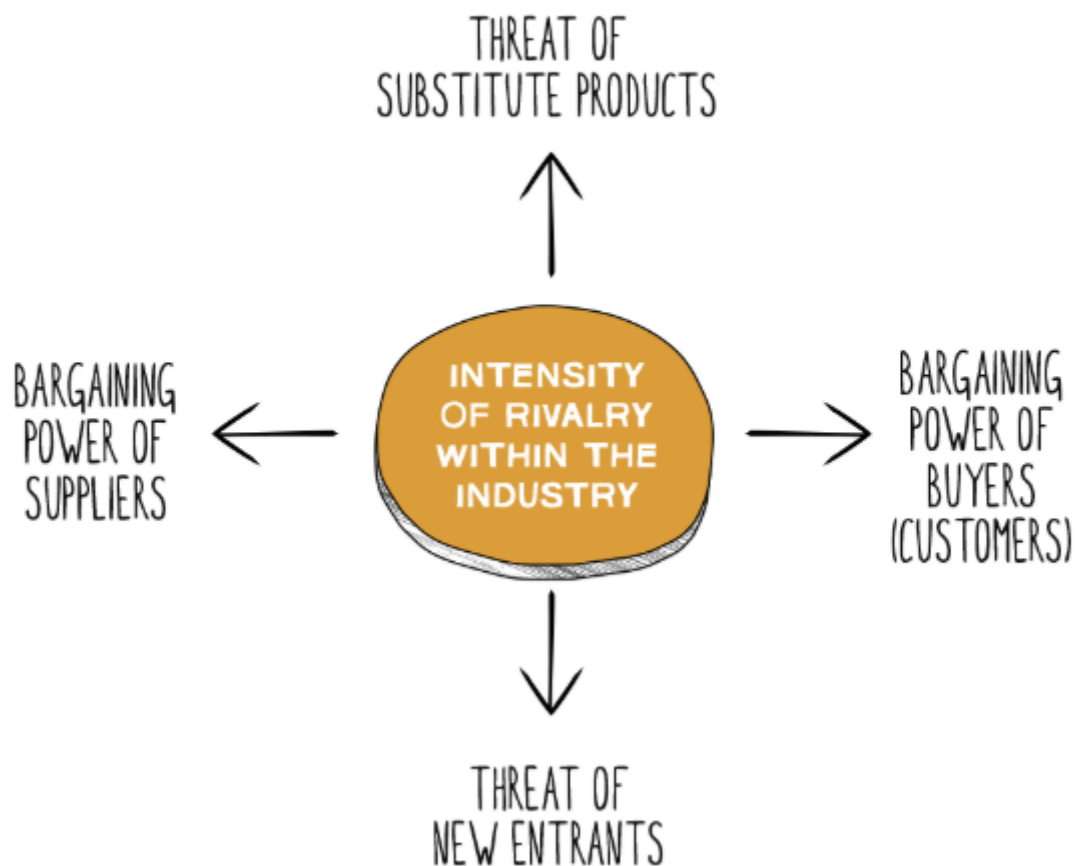


Figure 1: Porter's Five Forces Model (Source: Smart Insights)

What can be achieved?

After using this tool, you will get an analysis of industry's structure and can use that information to formulate a company's strategy. Nevertheless, this tool has its limitations and requires further analysis, such as SWOT, PEST or Value Chain analysis.

With PFF you can get a qualitative evaluation of a company's strategic position, but only at a starting point.



To use the PFF you should follow 3 steps:

Step 1 - Gather the information about your industry and to check it against each of the factors influencing the force:

1. Supplier Power - Main factors you should to analyse in this force:
 - Number of suppliers; Suppliers' size; Ability to find substitute materials; Materials scarcity; Cost of switching to alternative materials; Threat of integrating forward.
2. Buyer Power - Main factors you should to analyse in this force:
 - Number of buyers; Size of buyers; Size of each order; Buyers' cost of switching suppliers; There are many substitutes; Price sensitivity; Threat of integrating backward.
3. Competitive Rivalry - Main factors you should to analyse in this force:
 - Number of competitors; Cost of leaving an industry; Industry growth rate and size; Product differentiation; Competitors' size; Customer loyalty; Threat of horizontal integration; Level of advertising expense.
4. Threat of substitution - Main factors you should to analyse in this force:
 - Number of substitutes; Performance of substitutes; Cost of changing.
5. Threat of New Entry - Main factors you should to analyse in this force:
 - Amount of capital required; Retaliation by existing companies; Legal barriers (patents, copyrights, etc.); Brand reputation; Product differentiation; Access to suppliers and distributors; Economies of scale; Sunk costs; Government regulation.

Step 2 - After gathering all the information, you should analyse it and determine how each force is affecting an industry. For example, if there are many companies of equal size operating in the slow growth industry, it means that rivalry between existing companies is strong. Remember that five forces affect industries differently so don't use the same conclusions of analysis for even similar industries.

Step 3 - Formulate strategies based on the conclusions. At this stage, managers should formulate company's strategies using the conclusions of the analysis. For instance, if it is hard to achieve economies of scale in the market, the company should pursue cost leadership strategy. Product development strategy should be used if the current market growth is slow and the market is saturated.

Although, Porter's Five Forces (PFF) is a great tool to analyse industry's structure and use the results to formulate firm's strategy, it has its limitations and requires further analysis to be done, such as SWOT, PEST or Value Chain analysis.



Figure 2: Porter's Five Forces Model (Source: Business2you)

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SWOT

SWOT analysis is a well-known and worldwide used strategic management tool that has been designed for supporting its user in making a better understanding of those external and internal factors that positively or negatively influence the actual status of an organisation or the achievement of an objective.

When to use it?

The method is very useful if you want to define the future steps of your strategy by identifying those factors that influence the organisation's current position and those potential resources that help you to achieve your goals.

How it works?

The process is very simple and does not require much material resources. The aim is to create a matrix by collecting the following four types of internal and external factors. The internal factors (Strengths and Weaknesses) stem from the organisation, while external factors (Opportunities and Threats) represent the objective environmental issues that are beyond the direct control of the organisation.

- *Strengths* refer to all positive internal attributes and characteristics (both tangible and intangible) that differentiate the organisation from its competitors and other external actors, e.g. a strong brand, customer loyalty, company culture, reputation, advanced technology, high level employee commitment, intellectual property, etc.
- *Weaknesses* are all internal factors that act as barriers to achieve optimal performance. These are those areas where the organisation should improve. Such issues can belong to this category like limited resources, poor location and the low level of those factors that has been mentioned as potential strengths.
- *Opportunities* are those favourable external factors that support organisations to capitalize its competitive advantages, e.g. macroeconomic matters, market changes, technological progress, etc.
- *Threats* are those external factors that jeopardize the actual position or the future progress of the organisation such as legal legislation, unfavourable economic and market trends, disadvantageous political and socio-cultural changes, etc.

What can be achieved?

The SWOT analysis can serve as a very good starting point for strategy making as it helps to define of the first steps of the new strategic actions. The analysis can take shape in a form of a matrix (see below) or a simple list. The gist is that it helps to facilitate the intellectual resources accumulated by an organisation in order to display a wide-range of information in an easy-to-read, visual format.



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SWOT Factors	<i>Positive</i>	<i>Negative</i>
<i>Internal</i>	Strengths	Weaknesses
<i>External</i>	Opportunities	Threats

The SWOT can be used for supporting general strategic decision-making but also for the analysis in special segments, like marketing, sales or production.

There is no objective benchmark how properly a SWOT analysis can be carried out. The success of the analysis relies on the willingness and ability of the users to evoke the possibly widest range of issues that influence the current and future position of the organisation. The effectiveness largely depends on to what extent the users are aware the exact aim of the analysis.

SWOT analysis can be carried out individually, but you can exploit the possibilities it provides if it is executed in a group of competent people. The results should be visualised; therefore, you will need a flip-chart or a large paper and a marker for recording the various items. When determining each section (strengths, weaknesses, opportunities and threats) the right questions should be asked. In the followings some examples will be presented.

- Strengths: What advantages does the organisation have? What is does it better than the competitors do? What resources does the organisation have at its disposal? What valuable assets does the company have?
- Weaknesses: What can be improved? What are the typical mistakes? What should be avoided? What resources are the organisation lacking?
- Opportunities: What promising trends can be identified? What positive changes in technology, market, government policy, social patterns, etc. are identifiable? What potential regulation changes could help the business?
- Threats: What are the obstacles external to the organisation? What actions of the competitors can be expected? What social changes might threaten the organisation or the market?

The list of questions is far from being comprehensive; it can be extended or reduced according to the specificities of the organisation, industry, business area or other relevant issues. Illustrative questions are summarised in Figure 1.

It can be helpful if you combine the SWOT with a brainstorming session. You can either list strengths, weaknesses, opportunities, and threats together (better for small teams) or ask participants to create and submit lists individually (better for bigger teams).

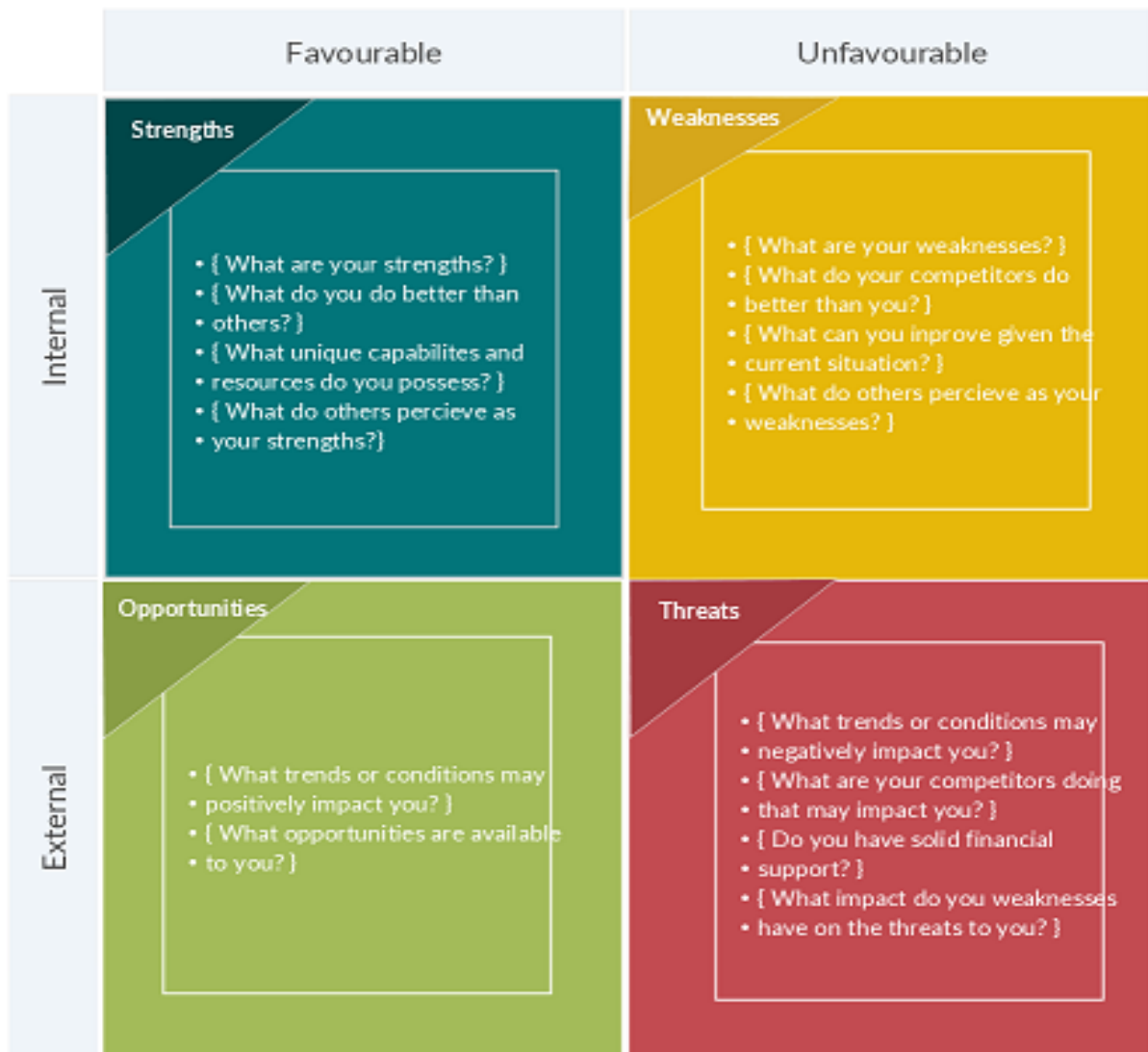


Figure 1: Illustrative questions (Source: TBA)

Having established the SWOT it is now for the business to consider what it might do next to develop its strategy.

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TOWS matrix

TOWS Analysis is a variant of the classic business tool, SWOT Analysis. TOWS and SWOT are acronyms for different arrangements of the words Strengths, Weaknesses, Opportunities and Threats.

Nevertheless, TOWS and SWOT may have similar roots, TOWS is a tool for strategy generation and selection and SWOT analysis is a tool for audit and analysis. For instance, you might use a SWOT at the beginning of the planning process and a TOWS later as you decide upon ways forward. In both cases, this analysis results in a TOWS (or SWOT) Matrix like the one shown below.



Figure 1: TOWS & SWOT analysis (Source: TheBalance)

When to use it?

While SWOT gives you information for brainstorm strategies, TOWS matrix is a more practical and powerful tool because it leads to solutions and to implementation.

TOWS matrix helps you get a better understanding of the strategic choices that you are facing and supports better business decisions based on the questions "how do you...":

- "make the most of your strengths?"
- "overcome your weaknesses?"
- "empower opportunities?"
- "overcome your threats?"

How it works?

As you can notice TOWS is simply SWOT spelled backwards and its letters are an acronym for Strengths, Weaknesses, Opportunities, and Threats. In order to use TOWS matrix you have to



create a chart where your internal features (Strengths and Weaknesses) intersect with the external ones (Opportunities and Threats).

The graph below shows an example of how your table should look.

TOWS MATRIX	Opportunities	Threats
	<i>Opportunity 1</i>	<i>Threat 1</i>
	<i>Opportunity 2</i>	<i>Threat 2</i>
Strengths	S-O Strategies	S-T Strategies
<i>Strength 1</i>	<i>S-O Strategy 1</i>	<i>S-T Strategy 1</i>
<i>Strength 2</i>	<i>S-O Strategy 2</i>	<i>S-T Strategy 2</i>
Weaknesses	W-O Strategies	W-T Strategies
<i>Weakness 1</i>	<i>W-O Strategy 1</i>	<i>W-T Strategy 1</i>
<i>Weakness 2</i>	<i>W-O Strategy 2</i>	<i>W-T Strategy 2</i>

Figure 2: TOWS Matrix (Source: own elaboration)

What can be achieved?

In this method you analyse the external environment (threats and opportunities) and the internal environment (weaknesses and strengths) and you can use its techniques to think about the strategy of your whole organization, a department or a team.

You can also use it to think about a process, a marketing campaign, or even your own skills and experience.

The TOWS Matrix is a very simple tool to use and the reason so many business strategists use it is because it is not based on academic merits but rather in a practical and real approach. It makes teams and colleagues focusing on the same page and on the same issues. For instance, if you want to focus in your management goals TOWS guides brainstorming conclusions and analysis into proper action.

This tool can be easily represented in a simple diagram (like in the Figure 2), representing simultaneously strategic and operational information.



The first step to do a TOWS is to draw a matrix:

TOWS MATRIX	External Opportunities (O)	External Threats (T)	
		<i>O1) ...</i>	<i>T1) ...</i>
		<i>O2) ...</i>	<i>T2) ...</i>
Internal Strengths (S)	S-O "Maxi-Maxi" Strategy	S-T "Maxi-Mini" Strategy	
<i>S1) ...</i>	<i>Strategies that use strengths to maximize opportunities .</i>	<i>Strategies that use strengths to minimize threats .</i>	
<i>S2) ...</i>			
Internal Weaknesses (W)	W-O Strategies	W-T Strategies	
<i>W1) ...</i>	<i>Strategies that minimize weaknesses by taking advantage of opportunities</i>	<i>Strategies that minimize weaknesses and avoid threats.</i>	
<i>W2) ...</i>			

Now that your matrix has been created, it's time to put your brain to work and come up with some strategies. Remember, the point is to come up with many ideas for each box. Since you'll have lots of strengths, opportunities, etc. listed, there is plenty of information and knowledge to come up with multiple solutions.

To carry out your TOWS Analysis, consider the following combinations:

- Strengths/Opportunities: Use internal strengths to capitalize on external opportunities. Consider all strengths one by one listed in the SWOT Analysis.
- Strength/Threats: Consider all strengths one by one listed in the SWOT Analysis with each threat to determine how each internal strength can help you avoid every external threat.
- Weaknesses/Opportunities: Consider all weaknesses one by one listed in the SWOT Analysis with each opportunity to determine how each internal weakness can be eliminated by using each external opportunity.
- Weaknesses/Threats: Consider all weaknesses one by one listed in the SWOT Analysis with each threat to determine both can be avoided.



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2017-1-HU01-KA202-035953
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<https://www.youtube.com/watch?v=Wu8mma-kpDg>

<https://www.youtube.com/watch?v=2xquSq0MSAc>



Affinity Diagram

Affinity diagrams were invented by Jiro Kawakita in the 1960s, who called this diagram the K-J Method. They help prioritize actions and improve group decision-making when resources are limited. By the 1970s, affinity diagrams were part of what's known as the Seven Management and Planning Tools, an approach to process improvement used in Total Quality Control in Japan¹.

An affinity diagram shows the relationships between information, opinions, problems, solutions, and issues by placing them in related groups. It allows a broad range of ideas to be organized so they can be more effectively analysed.

An Affinity Diagram² is a tool that gathers large amounts of language data (ideas, opinions, issues) and organises them into groupings based on their natural relationships. The Affinity process is often used to group ideas generated by Brainstorming.

When to Use it?

- When confronted with many facts or ideas in apparent chaos³
- When issues seem too large and complex to grasp
- When group consensus is necessary

How it works?

Creating an Affinity Diagram⁴

Materials needed: sticky notes or cards, marking pens, large work surface (wall, table, or floor).

Step 1 - Generate ideas

Use the Brainstorming tool to generate a list of ideas. The rest of the steps in the Affinity process will be easier if these ideas are written on sticky notes.

Step 2 - Display ideas

Post the ideas on a chart pack, a wall, or a table in a random manner

Step 3 - Sort ideas into groups

The team members physically sort the cards into groupings, without talking, using the following process:

- Start by looking for two ideas that seem related in some way. Place them together in a column off to one side.
- Look for ideas that are related to those you've already set aside and add them to that group.
- Look for other ideas that are related to each other and establish new groups.

¹ <https://www.smartdraw.com/affinity-diagram/#whatisAffinityDiagram>

² <https://www.balancedscorecard.org/portals/0/pdf/affinity.pdf>

³ <http://asq.org/learn-about-quality/idea-creation-tools/overview/affinity.html>

⁴ Brassard, M. (1989). The Memory Jogger Plus +, pp. 17 - 39. Methuen, MA: Goal/QPC.



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification**

This process is repeated until the team has placed all of the ideas in groups.

Ideally, all of the ideas can be sorted into related groups. If there are some "loners" that don't fit any of the groups, don't force them into groupings where they don't really belong. Let them stand alone under their own headers

Step 4 - Create header cards

Create header cards for the groups. A header is an idea that captures the essential link among the ideas contained in a group of cards. This idea is written on a single card or sticky note and must consist of a phrase or sentence that clearly conveys the meaning, even to people who are not on the team. The team develops headers for the groups by:

- Finding already existing cards within the groups that will serve well as headers and placing them at the top of the group of related cards.
- Alternatively, discussing and agreeing on the wording of cards created specifically to be headers.
- Discovering a relationship among two or more groups and arranging them in columns under a superheader. The same rules apply for superheaders as for regular header cards.

Step 5 - Draw finished diagram

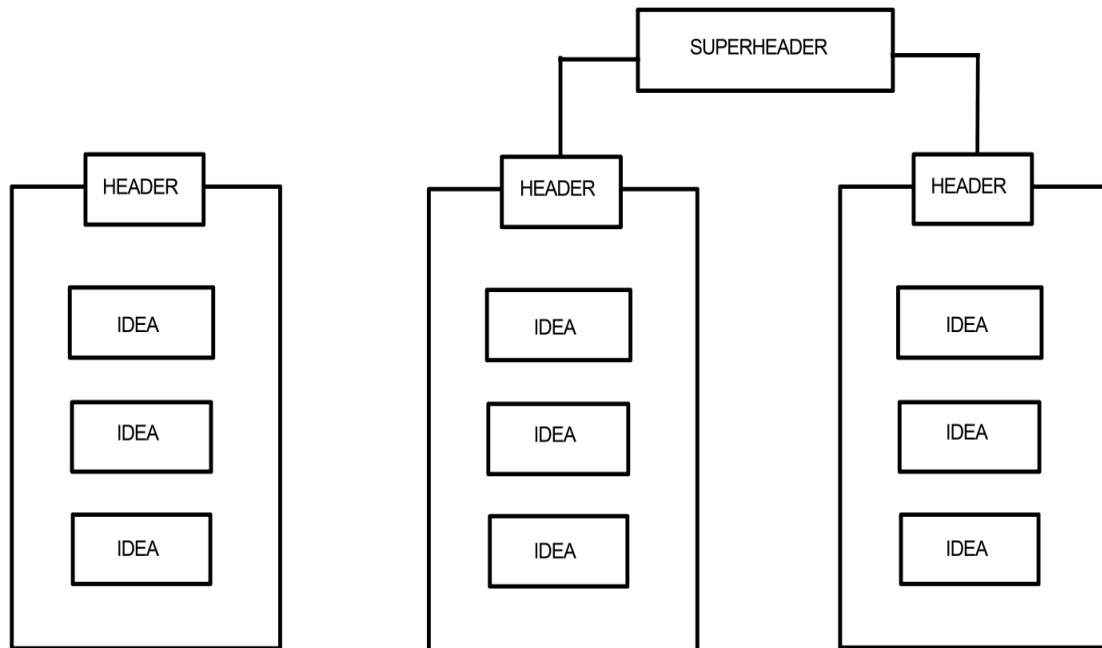
- Write a problem statement at the top of the diagram.
- Place header and superheader cards above the groups of ideas.
- Review and clarify the ideas and groupings.
- Document the finished Affinity Diagram

What can be achieved?

The Affinity process is a good way to get people to work on a creative level to address difficult issues. It may be used in situations that are unknown or unexplored by a team, or in circumstances that seem confusing or disorganized, such as when people with diverse experiences form a new team, or when members have incomplete knowledge of the area of analysis.

The Affinity process is formalized in an Affinity Diagram and is useful when there is a need to:

- Sift or sort large volumes of data. For example, a process owner who is identifying customers and their needs might compile a very large list of unsorted data. In such a case, creating an Affinity Diagram might be helpful for organizing the data into groups.
- Encourage new patterns of thinking. An Affinity exercise is an excellent way to get a group of people to react on a "gut level" rather than mulling things over intellectually. Since Brainstorming is the first step in making an Affinity Diagram, the team considers all ideas from all members without criticism. This stimulus is often enough to break through traditional or entrenched thinking, enabling the team to develop a creative list of ideas.



Finished Affinity outlook⁵

⁵ <https://www.balancedscorecard.org/portals/0/pdf/affinity.pdf>



SOAR

SOAR - Strengths, Opportunities, Aspirations and Results - strategy tool in business

When to use it?

SOAR analysis is a strategic planning technique which helps organisations focus on their current strengths and opportunities, and create a vision of future aspirations and the result they will bring. The use of SOAR in contrast to SWOT has its justification when we want to focus and investigate on the masses and mechanisms that the company has, and not the weaknesses of internal or perceived threats that may not happen.

The output from a SOAR analysis is a set of actions that leverage strengths and opportunities to strive for shared aspirations with measurable results. It provides a basis for further in-depth analysis using other business tools. SOAR analysis is a powerful tool to bring stakeholders together to recognise the potential of the organisation and create a shared vision of the future. Building on strengths requires less effort and resources than trying to correct weaknesses. The technique is more action oriented than a SWOT analysis and is focussed on outcomes ⁶.

How it works?

Step 1. Identify stakeholders who will participate, and determine the format and frequency of meetings (One large summit? A series of shorter meetings?). Participants should represent all levels of the organization and all functional areas.

Step 2. Create an interview questionnaire or guide for gathering information about strengths, perspectives, and aspirations of employees and key stakeholders.

Step 3. Engage employees and other stakeholders—including clients, vendors, and partners, if appropriate—to discover the conditions that created the organization’s greatest successes. Ask powerful, positive questions to generate images of possibility and potential.

Step 4. Threats, weaknesses, or problems should not be ignored, but rather should be reframed. Discussion should focus on “what we want” rather than “what we don’t want.”

Step 5. Summarize the organization’s positive core, which is its total of unique strengths, resources, capabilities, and assets.

Step 6. Identify aspirations and desired results that create a compelling vision of the future using the best of the past and that also inspire and challenge the status quo.

Step 7. Decide which opportunities have the most potential.

Step 8. Write goal statements for each of these strategic opportunities and identify measures that will help track the organization’s success.

Step 9. Plan actions and implement the plan for each identified goal.

What can be achieved?

SOAR method at some points is “positively re-structured SWOT analysis”.

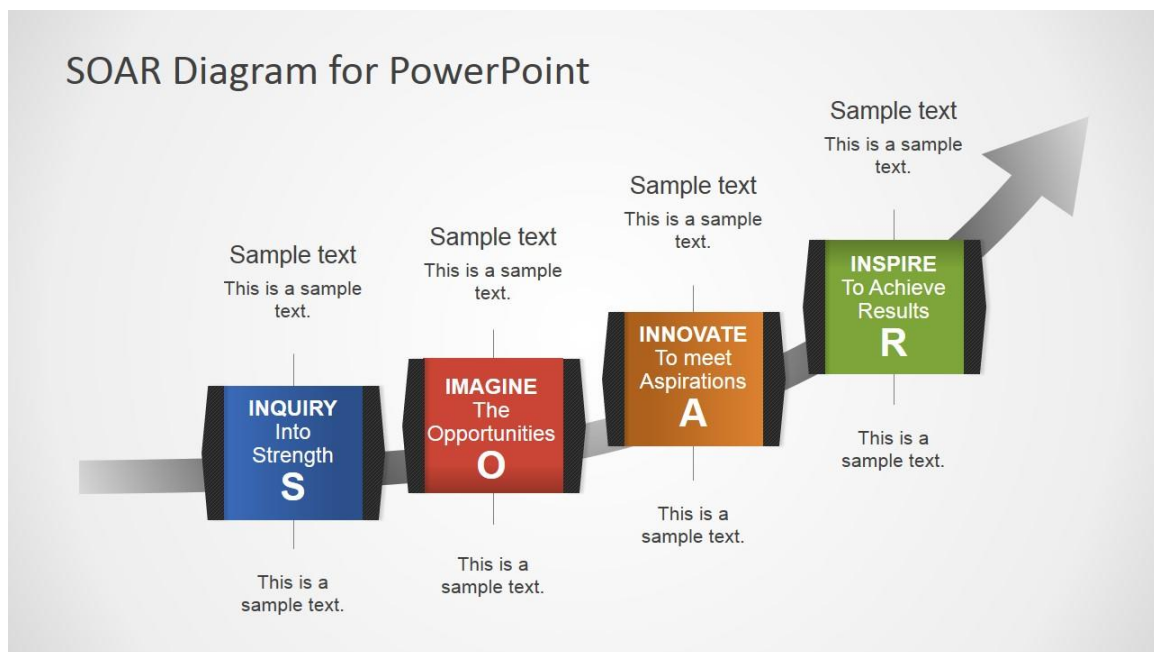
⁶ <https://www.groupmap.com/map-templates/soar-analysis/>



SOAR can be presented as 2 x 2 matrix analysing four main aspects. When conducting an analysis, the basic questions to be answered are:

Strengths What are the company, team greatest assets?	Opportunities What are the best possible opportunities?
Aspirations What the company, team want to be and what is a aspiration for the future?	Results What are measurable results company, team want to achieve?

Different ways of presentation as a diagrams⁷:



⁷ <https://slidemodel.com/templates/soar-diagram-template-for-powerpoint/>





System Thinking

Systems thinking originated in 1956, when Professor Jay Forrester founded the Systems Dynamic Group at MIT's Sloan School of Management. The term has been defined and redefined in many different ways since its coining by Barry Richmond in 1987⁸.

According to the Merriam-Webster dictionary, a system is defined as a regularly interacting or interdependent group of items forming a unified whole⁹.

When to use it?

Systems thinking is a set of synergistic analytic skills used to improve the capability of identifying and understanding systems, predicting their behaviours, and devising modifications to them in order to produce desired effects. These skills work together as a system¹⁰.

How it works?

As with most systems, systems thinking consists of three kinds of things:

1. Elements. These elements will manifest as characteristics of systems thinking.
2. Interconnections. This is the way the elements or characteristics feed into and relate to each other.
3. Function, purpose, or goal. This should describe the purpose of systems thinking in a way that can be clearly understood and relates to everyday life.

Notably, the least obvious part of the system, its function or purpose, is often the most crucial determinant of the system's behaviour¹¹.

Ross Arnold and Jon Wade examined various literature definitions of System Thinking to check whether they contain all three of the aforementioned kinds of things (elements, interconnections, and a goal or function). At the end they formulated the following definition of System Thinking:

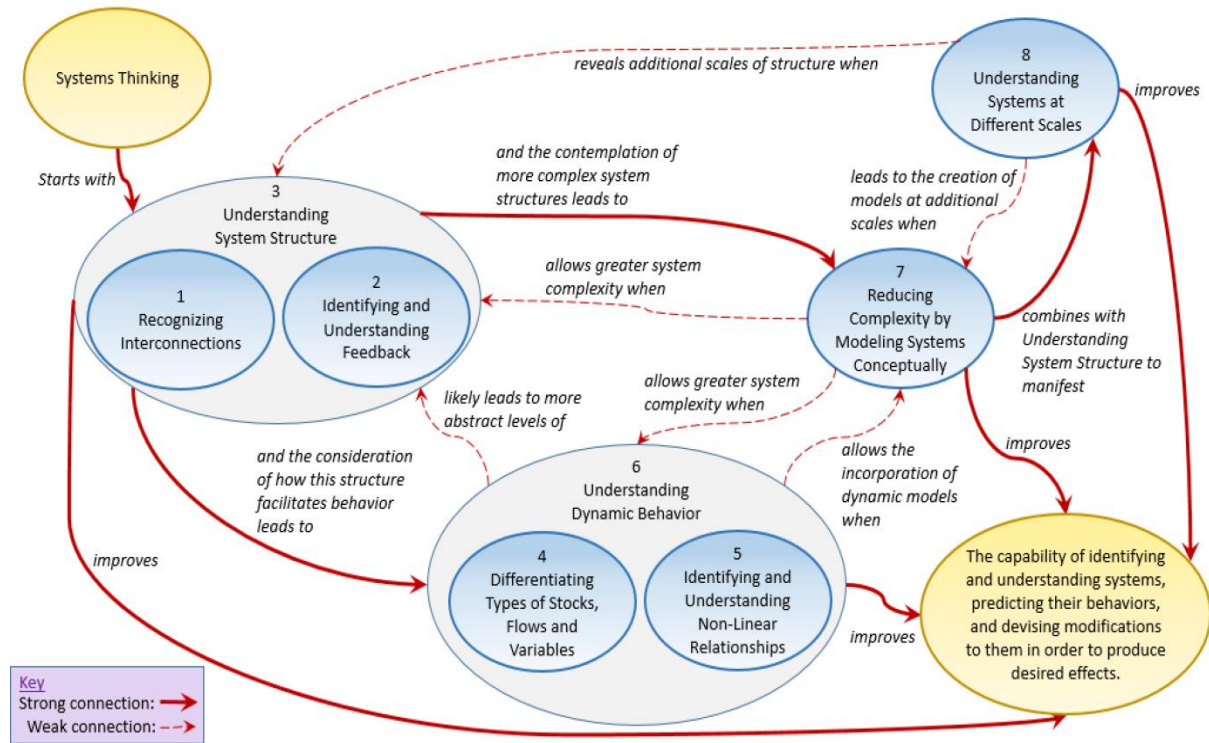
⁸ Arnold, Ross & Wade, Jon. (2015). A Definition of Systems Thinking: A Systems Approach. *Procedia Computer Science*. 44. 669-678. 10.1016/j.procs.2015.03.050.

⁹ <https://www.merriam-webster.com/dictionary/system>

¹⁰ Arnold, Ross & Wade, Jon. (2015). A Definition of Systems Thinking: A Systems Approach. *Procedia Computer Science*. 44. 669-678. 10.1016/j.procs.2015.03.050.

¹¹ Meadows, D. H. (2008). *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.

What can be achieved?



System Thinking systemigram¹²

¹² Arnold, Ross & Wade, Jon. (2015). A Definition of Systems Thinking: A Systems Approach. Procedia Computer Science. 44. 669-678. 10.1016/j.procs.2015.03.050.



Lean Management¹³

Basic definition of Lean management is "Production system able to reduce systematically all wastes that are included in the activities in order to satisfy the customer"¹⁴.

One of the main goals of lean project management is creation and removal of bottlenecks in the production process in order to accelerate growth and increase productivity. "Lean" is a systematic method for the elimination of waste ("Muda") within a manufacturing system. Lean also takes into account waste created through overburden ("Muri") and waste created through unevenness in workloads ("Mura"). Muda means in Japanese "futility; uselessness; wastefulness", Muri - means "unreasonableness; impossible; beyond one's power; and is a key concept in the Toyota Production System (TPS); and Mura - means "unevenness; irregularity; lack of uniformity.

Lean production (sometimes referred to as lean manufacturing) was pioneered by Toyota in Japan after the Second World War. The Toyota Production System was considered to be the most efficient in the world, and it was recognised that their lean production principles could be applied not only to any other manufacturing process, but also to other business activities.

When to use it?

The term 'lean construction' is an adaptation of lean production techniques applied to the construction industry and can be characterised as techniques aimed at maximising value and minimising waste.

Lean Construction is the answer for companies that focus on effective development in the field of construction by using innovative management methods.

How it works?

Important elements of the implementation of Lean principles into company activities are as follows:



Lean Principles¹⁵

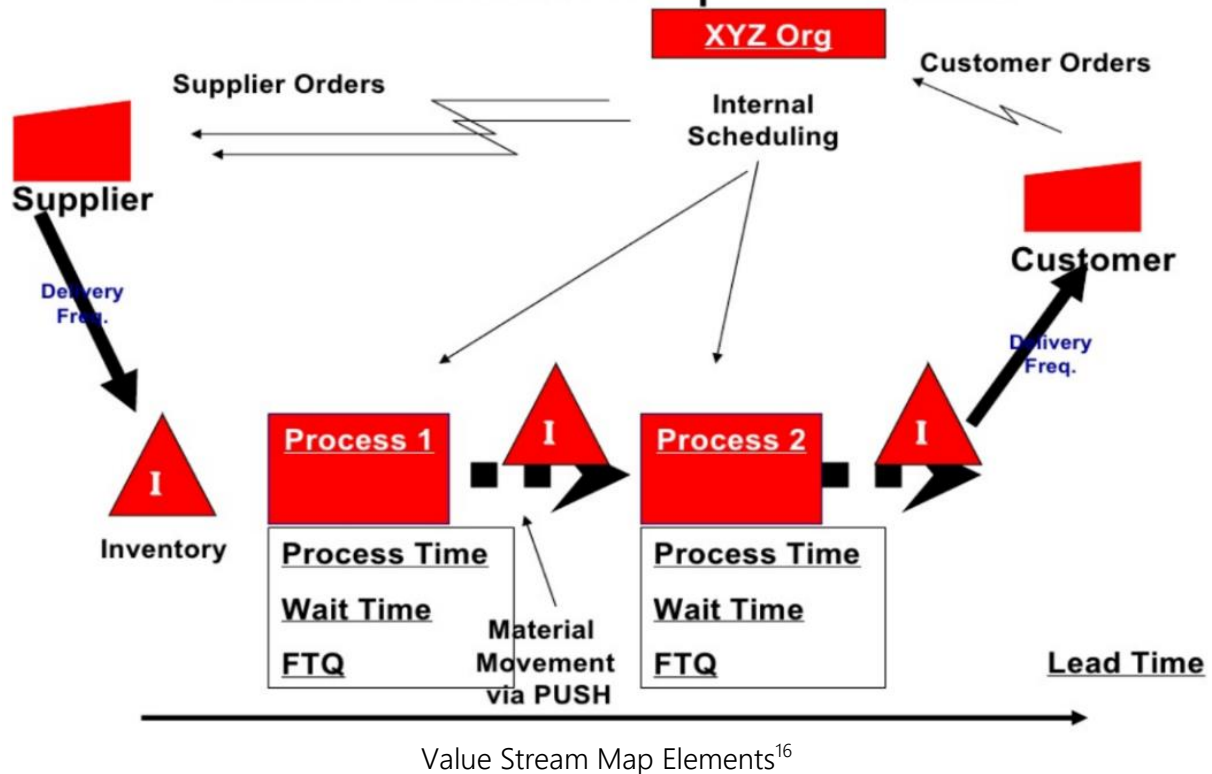
¹³ Continuing V.E.T. Training Programme in Lean Construction, Module 1, Conceptual Level, Erasmus+ Programme

¹⁴ Koch T., 2011

¹⁵ <https://www.trackvia.com/workflow-tools-resources/lean-principles-business-process/>

What can be achieved?

Value Stream Map Elements



Keep flows without stopping

The key thing is to avoid stopping the flows – cash flows, transports, works. In order to do that project manager is bound to create such schedule that will not be susceptible for risk. Risk cannot be avoided but can be managed and minimalized.

Make people responsible for activities

Delegating activities is important for the project manager, because he cannot do all things by himself. Making people responsible is increasing their importance for the project, but also is letting them know they will be held accountable for the outcome.

Continue mastering principles 1-4 until perfection and monitor effects.

Lean construction is conducted in accordance with similar principles to those of lean thinking: Elimination of waste. Application of lean construction is justified by various weaknesses of construction work processes, which include:

¹⁶ <https://www.slideshare.net/jjcastellon/value-stream-map-training>



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2017-1-HU01-KA202-035953
Business MENTOR training and CERTification

- High levels of material stocks on site. These result in unnecessary long-term “freezing” of capital, they lead to unnecessary logistic processes and potential damages, e.g. due to unfavourable weather conditions;
- Maintenance of too large, badly organised warehouse areas. This leads to disturbances in the flow of materials and loss of time due to searching for those materials which are needed at the time;
- High susceptibility of construction manufacturing to defects. The lists of faults which are made during acceptance, sometimes reach several thousand items. These are partially due to insufficient qualifications of the work teams engaged, or due to insufficient supervision of the work processes;
- Insufficient preparation of production. In many construction companies, due to limited staffing of the production preparation department, it is impossible to warrant the appropriate production planning on site.



Whole Design System

The Rocky Mountain Institute RMI (2006) suggests that whole system design means: "Optimising not just parts but the entire system. it takes ingenuity, intuition and team work. Everything must be considered simultaneously and analysed to reveal mutually advantageous interactions (synergies) as well as undesirable ones"¹⁷

When to use it?

This can solve many problems at once, create multiple benefits from single expenditures, and yield more diverse and widely distributed benefits that help attract broader support for implementation.

How it works?

Rocky Mountain Institute (RMI) and its partners have used whole-system thinking and integrative design to create profitable factor ten solutions. Now, in collaboration with academic and industrial partners, RMI has identified 17 principles for applying this innovative approach to practical design, in three steps. Every step for better understanding have been followed by the examples¹⁸.

What can be achieved?

Whole-system thinking underpins integrative design that can yield radical resource efficiency. Integrative design optimizes an entire system as a whole, rather than its parts in isolation. With this method it easier to define goals of planned activities by use by collaborative actions across this discipline, as well as optimalization of baseline parametric values. The method require to look for the simplest solution.

¹⁷ Charnley, F et al., Exploring the process of whole system design, Design Studies (2010), doi:10.1016/j.destud.2010.08.002

¹⁸ Rocky Mountain Institute © 2010, Factor Ten Engineering Design Principles, Version 1.0



BIM (construction sector only) ¹⁹

BIM means different things to different professionals. Some say BIM is a software application, others say it is a process for designing and documenting information on buildings. Some say it is a holistic approach to design, construction and maintenance a building.

There are many definitions of BIM. Some say BIM is a type of software, some say BIM is a 3D virtual model of the building while others refer to it as a process. The table below²⁰ highlights just some of the definitions of BIM currently in circulation.

Definition	Source
Construction of a model that contains the information about a building from all phases of the building life cycle	ISO 16757-1: 20151
Discrete set of electronic object-oriented information used for design, construction and operation of a built asset	PAS 1192-5:20152
Digital representation of the physical and functional characteristics of a building over its life cycle	BS 8536:20103
A rich information model, consisting of potentially multiple data sources, elements of which can be shared across all stakeholders and be maintained across the life of a building from inception to recycling	National Building Specification (NBS)4
Shared digital representation of physical and functional characteristics of any built object (including buildings, bridges, roads, etc.) which forms a reliable basis for decisions.	BS ISO 29481-1 20105
The development and use of a multi-faceted computer software data model to not only document a building design, but to simulate the construction and operation of a new capital facility or a recapitalized (modernized) facility	General Services Administration (GSA)6
A BIM is a digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its lifecycle from inception onward	National Institute of Building Science (NIBS)7

¹⁹ I. B. Kjartansdóttir, S Mordue, P. Nowak, D. Philp, J. T. Snæbjörnsson, Building Information Modelling BIM, CONSTRUCTION MANAGERS' LIBRARY, ERASMUS+ 2015-1-PL01-KA202-016454

²⁰ OPPORTUNITIES AND THREATS: Definition on BIM – ACE. Stefan Mordue



Definition	Source
Building Information Modelling is digital representation of physical and functional characteristics of a facility creating a shared knowledge resource for information about it forming a reliable basis for decisions during its life cycle, from earliest conception to demolition	RIBA (Royal Institute of British Architects), CPIC (Construction Project Information Committee)
BIM is a process that involves creating and using an intelligent 3D model to inform and communicate project decisions. Design, visualisation, simulation and collaboration enabled by Autodesk BIM solutions provide greater clarity for all stakeholders across the project lifecycle. BIM makes it easier to achieve project and business goals.	Autodesk

While there are different definitions of BIM, there is a common consensus that BIM is a Process for combining information and technology to create a digital representation of a project. It integrates data from many sources and evolves in parallel with the real project across its entire timeline, including design, construction, and in-use operational information²¹.

When to use it?

BIM maturity levels

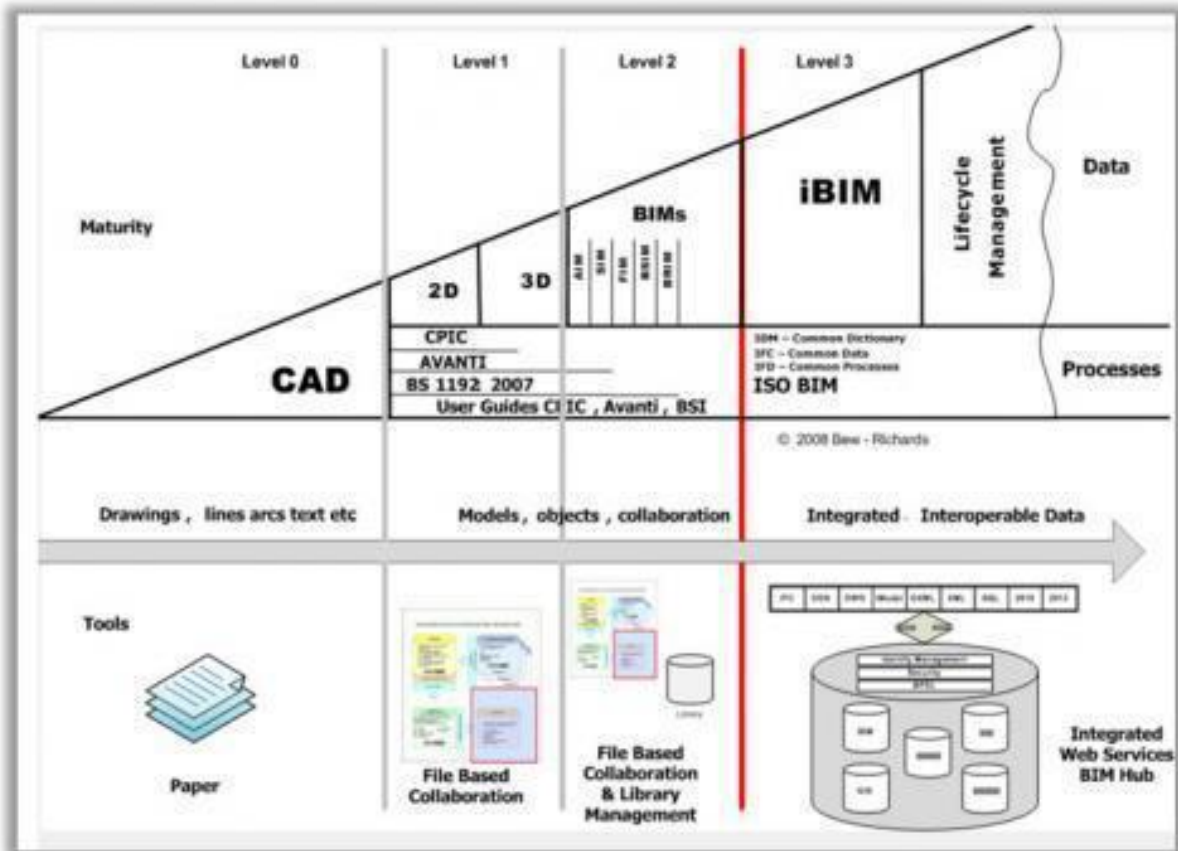
BIM maturity levels are used to describe the maturity a BIM project. They are useful in that they identify what the supply chain is expected to deliver, while the client can clearly understand what the supply chain is offering.

Level 0: PRE BIM

This stage is the starting point, the status before the implementation of BIM, and means no collaboration between project team and is defined as unmanaged CAD.

2D documentation is most likely used to share information. Though 3D visualizations can be used, 2D is the basis for all documents. quantities, cost estimates and specifications are generally not linked to the visualizations model or documentation. In this stage, there is no digital collaboration. The output is paper drawings or electronic prints, or mixture of both.

²¹ Mordue S, Swaddle P, Philp D, Building Information Modelling for Dummies (Wiley) 2015



UK's BIS-BIM Strategy²²

Level 1: Object based modelling

Object-based 3D parametric software tool is used to produce models. Users produce models within all stages of a construction, and the model is the basis for 2D documentation and 3D visualization.

The difference between stage 0 and 1 are minor process changes and contractual relations. Typically, in stage 1 a mixture of 3D CAD, for concept work, and 2D CAD for documentation and product information. Electronic sharing of data is carried out from a common data environment, often managed by the contractor. Collaboration between different disciplines does not occur.

Level 2: Collaborative BIM

In this stage, different disciplines are actively cooperating with others through a model based collaboration process. The collaboration often occurs through a cloud based application.

²² I. B. Kjartansdóttir, S Mordue, P. Nowak, D. Philp, J. T. Snæbjörnsson, Building Information Modelling BIM, CONSTRUCTION MANAGERS' LIBRARY, ERASMUS+ 2015-1-PL01-KA202-016454



Contractual amendments become necessary and models can be linked to various analysis tools. Processes are assessed through the models.

Each discipline is building up their own model, instead of single shared model. The collaboration appears through information exchange between disciplines, which becomes the crucial aspect of this level. Design information is shared through a common file format (such as IFC and BCF), within a Common Data Environment (CDE). This enables organisations to combine data with their own model and use the information onwards.

Level 3: Integrated BIM (iBIM)

In this level, semantically-rich network based integrated models are created, shared and maintained collaboratively through the project life-cycle phases.

Models in this stage become interdisciplinary nD models, where complex analyses at early stages of design and construction are allowed. Model deliverables include business intelligence, lean construction principles, green policies and whole life-cycle costing. The Project Lifecycle is now phase-less. In this stage, major changes are necessary on contractual relationships, risk allocation models and procedural flows. A shared interdisciplinary model is necessary to provide two-way access to project stakeholders, which will eventually facilitate into Integrated Project Delivery (IPD). The precise details and aspects of Level 3 are yet to be defined, but are likely to be centred around open standards and will require new legal frameworks.

How it works?

BIM dimensions

BIM models are often divided into dimension.

In general terms following dimensions can be included in a model:

- 2D. Two-dimensional graphical information.
- 3D. Three dimensional graphical information.
- 4D. Time an programme information.
- 5D. Cost information.
- 6D. Facilities management information.

BIM Implementation²³

BIM Implementation Strategy

The strategy for BIM implementation in any organisational or project context is best derived from two perspectives – the purpose of using BIM and the organisational maturity. To establish the purpose to implement BIM, some of the key considerations include:

²³ Arnab Mukherjee, Piotr Nowak, BIM Implementation



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- Lower whole life cycle cost?
- Produce better designs?
- Assist with project budgeting and pricing?
- Reduce claims or litigation?
- Improve delivery certainty and time?
- Improve decision-making processes through better visualization and “what-if” scenarios?
- Improve delivery outcomes?
- Prevent knowledge-loss from construction to facility management?
- Create digital turnover documents?
- Perform Operations and Maintenance?
- All of the above?

Based on the considerations above, a BIM implementation strategy can be formed.

In conjunction with the above, the organisational maturity (both technical and technological) will determine the level of BIM implementation – broadly, it is suggested that there can be three levels²⁴ of implementation:-

- Stage 1 (object-based modelling): the migration from 2D to 3D and object-based modelling and documentation. The BIM model is made of real architectural elements that are represented correctly in all views. The BIM model is still single-disciplinary and the deliverables are mostly CAD-like documents, traditional contractual relationships and liability issues are maintained.
- Stage 2 (model-based collaboration): this represents a progression from modelling to collaboration and interoperability. Designing and managing a facility is a highly complex process that requires smooth communication and collaboration among all members of the project team. Stage 2 maturity requires integrated data communication and data sharing between the stakeholders to support this collaborative approach.
- Stage 3 (network-based integration): This stage is the transition from collaboration to integration and it reflects the real underlying BIM philosophy. At this stage, project lifecycle phases dissolve substantially and players interact in real time to generate real benefits from increasingly virtual workflows. BIM Stage 3 models become interdisciplinary models allowing complex analyses at early stages of virtual design and construction. At this stage, model deliverables extend beyond semantic object properties to include business intelligence, lean construction principles, green policies and whole lifecycle costing.

²⁴ Farzad Khosrowshahi, Yusuf Arayici (2012) Roadmap for implementation of BIM in the UK construction industry, Engineering, Construction and Architectural Management, Vol. 19 Iss: 6 pp. 610 – 635



What we can achieved?

Procuring BIM Projects

BIM in its ideal state influences the entire project life-cycle - from inception to operation and maintenance. The way projects are procured (i.e. the project team is put together) plays an important part in determining the BIM delivery mechanism – it is indeed the case that only certain routes of procurement can be considered for a successful delivery of a BIM enabled project. The table²⁵ below highlights some typical processes associated to BIM that can be applied across different procurement methods. They include the use of BIM as template for generating tender documents, use of BIM as a delivery tool through integration from design by consultants with construction by contractors and specialist subcontractors, early involvement of contractors and specialist subcontractors, lifecycle BIM (moving from delivery to facilities management or operations), and mechanism of risk sharing of collaborating parties. The RAG denomination suggests the potential to facilitate these processes under different procurement options. It is to be noted that multiple variations to these may occur depending on project specific context.

	BIM as tender template	BIM as delivery tool	Consultant/ specialist subcontractor engagement	BIM as asset management tool	BIM as risk share mechanism
Traditional Route	★	★			
Design & Build	★	★	★	★	
PPP/BOOT	★	★	★	★	★
Management Contracting	★	★	★	★	
Partnering/ Collaboration	★	★	★	★	
Integrated Project Delivery	★	★	★	★	★

★ Increased degree of
 ★ Somewhat difficult
 ★ Decreased degree of

²⁵ Adapted from Holzer D (2015) BIM for procurement - procuring for BIM : R.H. Crawford and A. Stephan (eds.), Living and Learning: Research for a Better Built Environment: 49th International Conference of the Architectural Science Association 2015, pp.237–246. ©2015, The Architectural Science Association and The University of Melbourne.



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The type of procurement will dictate the approach towards the BIM implementation and should be factored in while preparing the BEP (BIM Execution Plan). For example, the BEP for a D&B project will differ from that of a management contracting project both in its underlying delivery assumptions and contribution models.

Validate the benefits of BIM under various procurement models in a more quantitative fashion. More research is required to provide policy-makers with guidance about the right balance to adjust existing delivery methods whereby collaboration is fostered without the danger of over-constraining innovation across the construction industry with excessive layers of regulation.

Legal issues and challenges

The degree of legal complexity stems from the degree of adaptation of BIM – if it is adopted “internally”, i.e. within the members of the same organisation or consortium, common standards should suffice; however, when it involves “external” organisations (consultants, contractors, sub-consultants, sub-contractors, suppliers, manufacturers, facilities managers and so on), Contracts which enable the use of BIM will have to be used.

BIM is a relatively new concept in context of construction and hence the legal context and content issues are yet to be fully tested through precedence. There are a number of key legal considerations which needs to be dealt with for any BIM enabled projects – some of which are listed below²⁶. It is to be noted that most major forms of Contracts now cater for a BIM enabled project and the items noted below are by no means exhaustive.

Contractual framework: Most of the issues in terms of the Contractual Framework concern two fundamental aspects – (a) whether to use a stand-alone BIM protocol or have the BIM protocol embedded in the main contract (e.g. as part of the Employers Requirements or Works Information Document) – while both options have advantages and disadvantages, the industry seems to be somewhat evenly balanced and (b) the relationship between the models, the number of models to be created and the relationship between the model(s) and 2D drawings, in particular the level of detail for 2D drawings and level of reliance placed on them.

Model management: Some of the key questions include who appoints the model manager, how is the manager to be replaced, and who bears the costs, if any, arising from this role. Typically it can be the Employer who should take ownership of these issues; however, in a D & B approach it can be argued that it should be the principal contractor. The arrangements should reflect the procurement route chosen (see table in section 3.5). The relationship between the model manager and other entities and the power to issue binding instructions should also be clearly defined.

²⁶ <https://www.thenbs.com/knowledge/bim-mapping-out-the-legal-issues>



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Ownership, liability, intellectual property and confidentiality: The BIM model will include contributions from multiple parties and to avoid issues with ownership and intellectual property/copyright infringements the BIM protocol should set out clearly who can use the contributions to what effect and who holds ownership of the model. The protocol should also clarify mechanisms to suspend individual rights (in case of a dispute) and means to establish clarity where extent of contribution may not be clear (i.e. where contribution from one party ends and another party begins). Another aspect that should be set out clearly in the BIM protocol is the issue of liability – which party is liable for what and to what extent, what consents should be sought for what actions and from whom.

Confidentiality (including rules of access, copying and distribution) requirement should also be set out perhaps through a confidentiality and non-disclosure clause within the protocol. It is important to note that in most cases the liability provision does not include the software used and the BIM protocol should contain provisions to managing any potential software liability issues.

Reliance on data and data protection: The BIM model will be used by a variety of parties who will make decisions and commit resources based on the information contained within the model – to manage the liability issues, the BIM protocol must include requirements of limiting liability and consequential damages for parties contributing to and using the data from the model. It is often the responsibility of the model manager to ensure that the data is quality-assessed and parties are working to the most up to date version of the model.

Insurance issues: Parties must take out the appropriate insurance to reflect their involvement, liability and reliance in the BIM process. The UK government has proposed the greater use of integrated project insurance - where such cover is not available, traditional insurance coverage should be secured.

Risk management: The risk of delay and cost due to errors in the BIM process including the output typically will lie with the Employer (although it is possible to transfer the ownership to the Principle Contractor through a D & B mechanism). The BIM protocol should set out processes to deal with any eventualities arising out of these risks – it is also advisable to set out a contingency fund collectively to mitigate any issues arising out of these risks.



Use of BIM in Infrastructure Projects

BIM as a project delivery toolkit is being used not only for building projects –its growth in usage for civil engineering projects is also continuously increasing. Examples of typical BIM utilisation includes underground rail network²⁷, airport expansions, river, roads and bridges projects, highway and motorway expansions, water distribution networks and indeed the smart city projects – covering the majority of infrastructure and transportation industry.

Civil engineering projects are sometimes criticised for creating designs for compliance, not focussing on buildability aspects – with the increase of uptake in BIM, civil engineering designs factor in not just regulatory compliance but also on-site data.

The most notable and current example of use of BIM in a civil engineering project in European context is perhaps the Crossrail²⁸ project in UK – where a centralised set of linked databases include over a million CAD files, 25 design contracts, 30 construction contracts and 60 logistics works contracts.

The 3D design information model is hosted by Crossrail and shared with the construction contractors. It will eventually move across to the operators and maintainers of the railway.

The key benefits, as perceived by Crossrail, include risk reduction, increased safety, reduction of errors, improved collaboration, and reduced information loss across contracts and an overall improvement of project performance.

²⁷ <http://www.crossrail.co.uk/construction/building-information-modelling/crossrail-bentley-information-academy>

²⁸ <http://www.crossrail.co.uk/construction/building-information-modelling/>



NPV²⁹

Financial decisions concerning projects are made by the owner, or a substitute investor on the owner's behalf. Investment decisions are very important for the enterprises because:

- Completed investment shapes profitability and value of the company for a long time, success may significantly increase and stabilize income, while failures in investment may result in decrease of income and therefore decrease the market value of the company,
- Investment in assets have crucial meaning for the possibility of introducing new products on the market, technological changes and market expansion,
- The majority of investment decisions engages significant financial means.

Investment projects have to prove their financial and economic rationality. Methods of their profitability assessment may be divided into ordinary (analysing specified economic ratios) and discounted. Only discounted methods are theoretically correct. They are generally applied by large corporations, international financial institutions such as the World Bank or UNIDO.

Discounted methods allow for assessment of investment projects in a coherent and relatively integral way and provide comparative information enabling selection of projects most of all contributing to an increase of the company's market value.

When to use it?

While calculating the value of net cash flows the following calculation rules should be included:

1. Net cash flows are cash flows after taxation influence.
2. Cash flows are taken into account at the end of sub-periods. The project is divided into annual sub-periods. In reality the streams of proceeds and recedes in the project occur both at the beginning of sub-periods, in their course and at their end. This assumption causes underestimation of NPV. However, the error in calculation occurs "on the safe side". The scale of such error depends on the length of a sub-period. The longer the sub-period, the bigger the error.
3. Capital expenditure for completion of an investment is treated as expenses at the moment they are actually incurred; in the part which was financed from external sources (for example credit) constitute an expense for the investor at the moment they are repaid (for example credit instalment repayment).

²⁹ A. Minasowicz, Economy and Financial Management in Construction, Construction Managers' Library, Leonardo da Vinci: PL/06/B/F/PP/174014, Warsaw 2008



4. Also capital expenditure born by the investor in the course of the investment's functioning constitute an expense, for example connected with replacement of elements of machine park, transportation means etc.
5. Expenses incurred before making a decision about completion of a given investment are not included in the expenditure, they are then considered to be the "sunk costs".
6. Changes of the working capital occurring in the whole period of the company's functioning are included in the calculations.
7. At the end of the period included in the calculation the so called liquidation value is included – it contains the value of the whole company and in the case of a post-liquidation sale – the value of recovered working capital. Liquidation value is calculated as net amount.

The level of risk depends on the flow of time. Uncertainty of the forecasts always increases together with prolonging of the time scope. The result is that the actually reached value is significantly different from the expected value. Even a detailed analysis cannot change the fact that the forecasted result is charged with high risk.

How it works?

Ordinary ratios for assessment of an investment's profitability

Payback time

Some companies in advance specify the period when investment outlays should return themselves. Payback time for an investment project is the time when accumulated net cash proceeds become equal to incurred expenses. This rule contains a silent assumption that the shorter the payback time, the more beneficial the investment. A significant defect of this method of assessment is among others the fact that it completely omits proceeds connected with completion of the project after the assumed payback time. The payback time does not allow any comparison of different investment projects from the point of view of their profitability and risk.

Discounted payback time

It includes the influence of time on the value of cash proceeds being the result of completed project, but only in the assumed, expected payback time. It still does not include revenues after the accepted payback time.

Although it includes the elements of alternative cost and risk, it still omits the entirety of proceeds after the period assumed as boundary.

Profitability of engaged capital

This is a relatively popular ratio for assessment of investment projects. It is calculated by division of the sum of forecasted net income that is after deducting depreciation and taxation costs, by the investment value. This ratio is, therefore, based on accounting income and omits



distribution of cash flows during the investment itself. The result depends on the accounting calculation and not on the actual cash flows.

The ratio ignores alternative capital costs, actual cash flows and the risk of a given investment, as well as the risk of an investment and provides an inclination to use current profitability as a reference point for investment selection. It assumes reasonability of continuing the present operation; treats future and changes of the capacity of competitive entities not as a challenge, which requires analyses and action, but as a continuation of the present condition.

What can be achieved?

The method of discounting the stream of future income and deducting their sum from the investment expenditure is generally considered the basic method of complex assessment of investment projects. The method itself is rather simple, usually with support of computer techniques. However, it requires accurate estimation of the future stream of revenues and precise application of specified methodology.

Such methodology requires for example using only the following items for discounting:

- Future cash flows,
- Flows including inflation and taxation,
- Only flow changes.

While calculating the income, the accountants adjust it in two ways. Firstly, they present the income when it is obtained and not when the company received payments. Secondly, the differentiate current expenses from capital (investment) expenditure. Instead of that they depreciate investment costs for a few years and deduct annual depreciation rate from the income. As a consequence of such procedures the income includes some of cash flows and excludes others and is deducted by depreciation rates which are not actual cash flows.

The assessment of cash flow should always recognize not the moment of arising but the moment of payment. In the financial analysis both liabilities and receivables should be recognized when they are settled and not when they arise. Project analysis should necessarily include, apart from capital (investment) expenditure, also net working capital (difference between current assets and liabilities).

Another problem is the assessment of future inflation. Forecasts of the banks are usually not very precise. Besides, another problem is that inflation for different groups of goods varies significantly.

Inflation rate, consumer price index (CPI) or producer price index are calculated for a wide scope of goods and services. As a result, the actual influence of inflation on investment prices and on income from the projects may be significantly different from the average ratios.



Inflation usually influences cash flows and the expected return rate at the same time. Therefore the required return rate is automatically adjusted by the inflation rate that is the so called inflation premium.

Inflation premium is an element of RRR which increases the required return rate sufficiently for maintenance of purchase power connected with inflation. Usually the banks publish percentage rates in their nominal and not actual values. If discount rate is expressed as nominal, then also cash flows should be presented including the increase of prices, payments and material costs, so that the analysis is coherent.

Using nominal discount rates means application of one accepted inflation rate for all elements of cash flows.

Assessment of NPV is accurate only if cash flows take into account the influence of taxation. Actual cash flows are the ones which remain at the company's disposal and may be used for payment for delivered goods, services or designated for dividends. From the point of view of a manager, an increase of payments due to income tax related to the completed investment is the same as any other expense which decreases net income. As a result, future net proceeds which are subject to discounting are income after taxation.

If a credit or a loan is necessary for completion of a project in order to finance its part or whole, the costs of debt and the interest are deducted from the basis for income tax. Nevertheless, while calculating NPV the costs of interest should not be included in the costs decreasing the income.

Real options

Traditional assessment of the project's value is based on calculation of NPV which assumes that the analysed investment means a simple decision concerning acceptance or rejection of a project. When the financial means have already been invested, the investor has to manage the project until its completion, regardless of the events which may occur after the decision is made. Launching of the project cannot be delayed, the project cannot be left unfinished for example because of obtaining information that its costs will be doubled.

The perspective of real options includes the future flexibility of management, while the traditional NPV formula assumes its avoidance. In the majority of projects the managers do not make their decisions at once. They may react to changing conditions and distribute them for the duration of a given project.

An example of real option is a situation when the company has to decide whether to implement a new technology. Acceptance of such investment may result in losses but may at the same time provide the company with new possibilities and opportunities. Total rejection of development options on the basis of raw NPV calculation may deprive the company of important development ways.



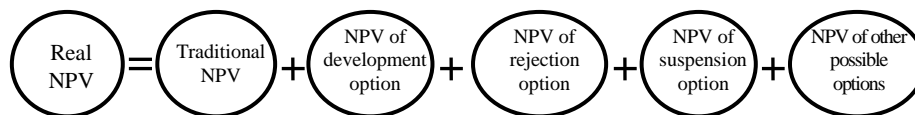
When a building investor obtains property title for a beneficially located plot of land near the city centre during preparation of projects and applying for building permission it has an alternative – to sell the land, that is the option of rejection. Should this be a suspension option, for example for a year or two, then the perspective of fast increase of rent prices for office space could be estimated more accurately. Generally, the more specified and long-lasting investment the more significant decisions can be taken into account.

Flexibility could also be specified in the building process itself – for example using different materials if the price for suggested materials increased. Another option is to design facilities so that they can be quickly and cheaply rebuilt from one designation to another – possibility of converting for example offices into flats or a hotel into shops.

There is an option of abandoning plan A and moving to plan B in every situation. An available plan B is also an asset. Having only plan A exposes the company to threat causes by possible shifts of situation.

Real NPV

In order to cover flexibility of an investment the level of complexity of NPV analysis should be raised. The project which enables possibility of taking further actions after dissolution or significant decrease of uncertainty is more valuable than an inflexible one.



Division of real NPV³⁰

Rejection option

A good example of rejection option is a situation when a foreign company contacts the investor and offers it the exclusive right to distribute and manufacture modern technology and related products in its country. It is a completely new technology only just entering the market and its brand is not yet recognized. The investor would have to pay 4 million EUR. The investor's experience tells it that if the technology turns out to be effective and becomes popular, the expected value of all cash flows will amount to 20 million EUR. In the opposite case the losses will also amount to 20 million EUR. The possibility of both options is equal.

³⁰ A. Minasowicz, Economy and Financial Management in Construction, Construction Managers' Library, Leonardo da Vinci: PL/06/B/F/PP/174014, Warsaw 2008



Value Chain Analysis^{31,32,33}

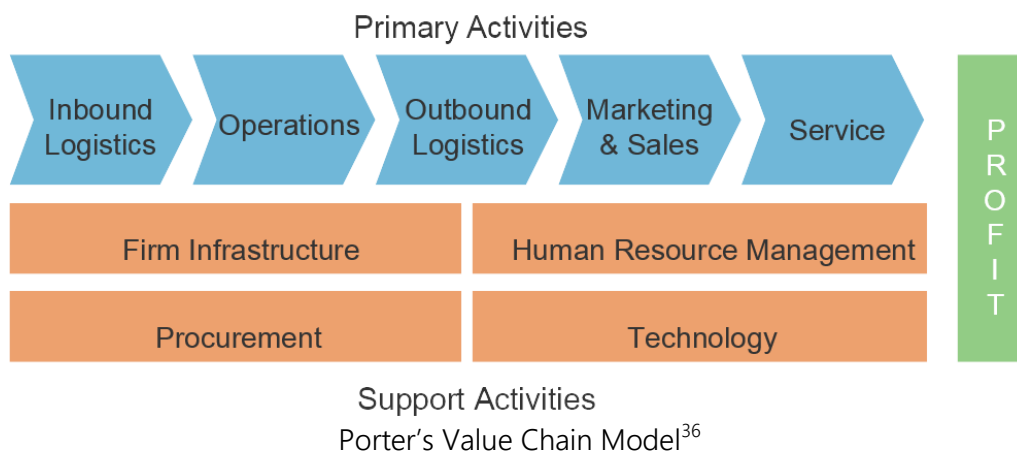
Value chain analysis (VCA)³⁴ is a process where a firm identifies its primary and support activities that add value to its final product and then analyse these activities to reduce costs or increase differentiation. Value chain represents the internal activities a firm engages in when transforming inputs into outputs.

When to use it?

Understanding the tool

Value chain analysis is a strategy tool used to analyse internal firm activities. Its goal is to recognize, which activities are the most valuable (i.e. are the source of cost or differentiation advantage) to the firm and which ones could be improved to provide competitive advantage³⁵. In other words, by looking into internal activities, the analysis reveals where a firm's competitive advantages or disadvantages are. The firm that competes through differentiation advantage will try to perform its activities better than competitors would do. If it competes through cost advantage, it will try to perform internal activities at lower costs than competitors would do. When a company is capable of producing goods at lower costs than the market price or to provide superior products, it earns profits.

M. Porter introduced the generic value chain model in 1985. Value chain represents all the internal activities a firm engages in to produce goods and services. VC is formed of primary activities that add value to the final product directly and support activities that add value indirectly.



³¹ <http://www.netmba.com/strategy/value-chain/>

³² https://en.wikipedia.org/wiki/Value_chain

³³ Grant, R.M. (2010). Contemporary Strategy Analysis. 7th ed. John Wiley & Sons, p. 239-241

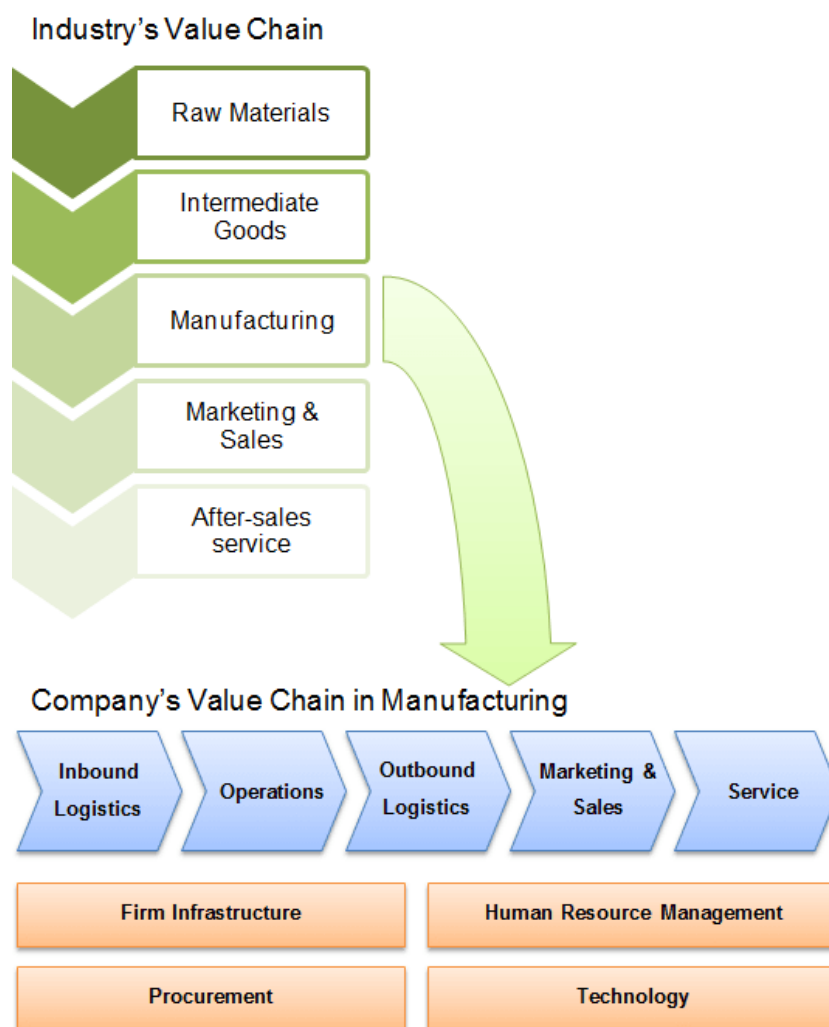
³⁴ <https://www.strategicmanagementinsight.com/tools/value-chain-analysis.html>

³⁵ <https://www.strategicmanagementinsight.com/topics/competitive-advantage.html>

³⁶ <https://www.strategicmanagementinsight.com/tools/value-chain-analysis.html>

How it works?

Although, primary activities add value directly to the production process, they are not necessarily more important than support activities. Nowadays, competitive advantage mainly derives from technological improvements or innovations in business models or processes. Therefore, such support activities as 'information systems', 'R&D' or 'general management' are usually the most important source of differentiation advantage. On the other hand, primary activities are usually the source of cost advantage, where costs can be easily identified for each activity and properly managed. Firm's VC is a part of a larger industry's VC. The more activities a company undertakes compared to industry's VC, the more vertically integrated³⁷ it is. Below you can find an industry's value chain and its relation to a firm level VC.



Industry's value chain and its relation to a firm level VC ³⁸

³⁷ <https://www.strategicmanagementinsight.com/topics/vertical-integration.html>

³⁸ <https://www.strategicmanagementinsight.com/tools/value-chain-analysis.html>



What can be achieved?

Using the tool

There are two different approaches on how to perform the analysis, which depend on what type of competitive advantage a company wants to create (cost or differentiation advantage). The table below lists all the steps needed to achieve cost or differentiation advantage using VCA.

Competitive advantage types	
Cost advantage	Differentiation advantage
<p>This approach is used when organizations try to compete on costs and want to understand the sources of their cost advantage or disadvantage and what factors drive those costs. (good examples: Amazon.com, Wal-Mart, McDonald's, Ford, Toyota)</p>	<p>The firms that strive to create superior products or services use differentiation advantage approach. (good examples: Apple, Google, Samsung Electronics, Starbucks)</p>
<ul style="list-style-type: none"> • Step 1. Identify the firm's primary and support activities. • Step 2. Establish the relative importance of each activity in the total cost of the product. • Step 3. Identify cost drivers for each activity. • Step 4. Identify links between activities. • Step 5. Identify opportunities for reducing costs. 	<ul style="list-style-type: none"> • Step 1. Identify the customers' value-creating activities. • Step 2. Evaluate the differentiation strategies for improving customer value. • Step 3. Identify the best sustainable differentiation.



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