Change Management for Industry 4.0

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Agenda

- What is the culture?

- Culture model of Edgar Schein

- Lean Culture and Edgar Scein model

What is the culture?

Edgar Schein is Sloan Professor of Management Emeritus at the Sloan School of Management at the MIT.
With this book, Organization Culture and Leadership (4th Edition), the author has published a summary of his life long experience (born in 1928, PhD in Harvard of Social Psychology in 1952) of organizations.
For a blog writing about organizational cultures in the 21st century, this book is some kind of Holy Grail. There are many subjects this blog has tried to address that this book enlightens with wonderful ideas and tools, drawn on vast experience in big organizations such as DEC, Apple, Ciba-Geigy (now Novartis) or Amoco

This is the definition Schein gives :
* *A pattern of **shared basic assumptions** learned by a group as it solved its problems of **external adaptation** and **internal integration** (…) : a product of joint learning.*

* According to Schein, there are 4 categories of culture :
    * Macrocultures (nations, occupations that exists globally, …),
    * Organizational Cultures,
    * subcultures (groups within organizations,
    * microcultures (microsystems with or within organizations).
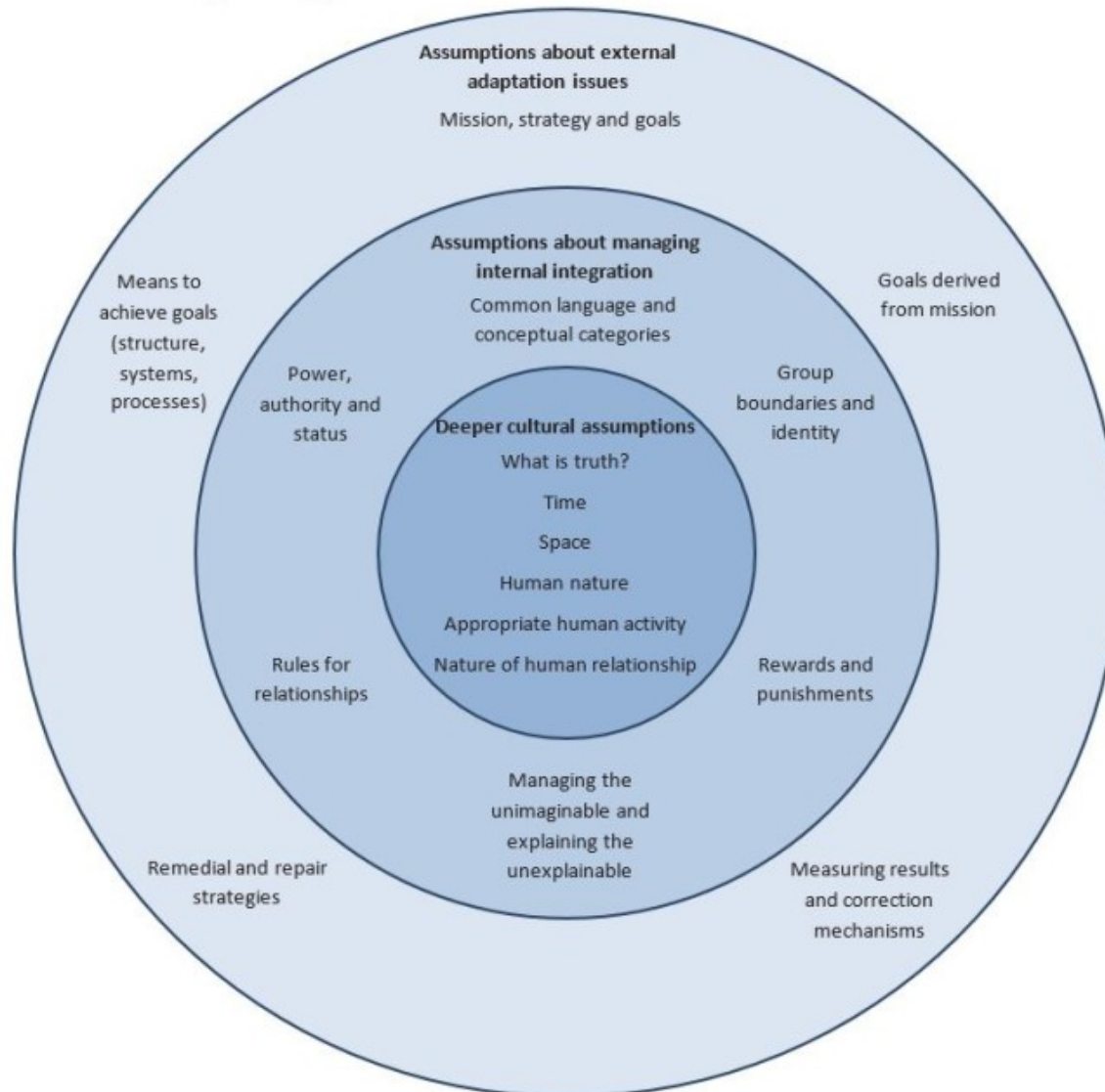
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What is the culture?

Schein identifies 3 levels of culture :
- **artifacts** (visible),
- **espoused beliefs and values** (may appear through surveys)
- **basic underlying assumptions** (unconscious taken for granted beliefs and values : these are not visible).

- The latest being the more important since as Schein puts it *"Human minds needs cognitive stability and any challenge of a basic assumption will release anxiety and defensiveness"*. Many change programs fails for that very reason.

- Leadership is *the source of the beliefs and values* and the *most central issue for leaders is to understand the deeper levels of a culture (…) and to deal with the anxiety that is unleashed when those assumptions are challenged*.

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Culture Model of Edgar Schein

Culture according to Edgar Schein

Assumptions about external adaptation issues

Mission, strategy and goals

Assumptions about managing internal integration

Common language and conceptual categories

Means to achieve goals (structure, systems, processes)

Goals derived from mission

Power, authority and status

Group boundaries and identity

Deeper cultural assumptions

What is truth?

Time

Space

Human nature

Appropriate human activity

Nature of human relationship

Rules for relationships

Rewards and punishments

Managing the unimaginable and explaining the unexplainable

Remedial and repair strategies

Measuring results and correction mechanisms

Adapted from Schein, E. (2010) Organisational Culture and Leadership

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Aligning Subculture

- Inside organizations, there may be different subcultures.

- Schein identifies three of them :
    - **operator**'s (based on human interaction, high levels of communication, trust and teamwork),
    - **engineers** (elegant solution, abstract solutions to problems, automation and systems)
    - **executives** (financial focus, lone hero, sense of rightness and omniscience).

Schein is adamant that in any organization, the **alignment between these three subcultures is critical** : *Many problems that are attributed to bureaucracy, environmental factors or personality conflicts among managers are in fact the result of the lack of alignment between these subcultures.*

External adaptation and Internal Integration

- This are the core problems groups and organizations are faced with : survival in and adaptation to the external environment and integration of the internal processes to ensure the capacity to continue to survive and adapt

- *"Ultimately, all organizations are socio-technical systems in which the manner of external adaptation and the solution of internal integration problems are interdependent"*

- For long range growth, the author shows that the key is to keep the needs of the major stakeholders of the organization : investors, suppliers, managers and employees, the community and government and the customers.

- For external adaptation, the main challenge companies face is to obtain a shared understanding and consensus on
  - 1/Mission and Strategy,
  - 2/Goals,
  - 3/Means,
  - 4/Measurement
  - 5/ Correction (repair strategies).

External adaptation and Internal Integration

For internal integration the main problems according to the author are:

1/ Creating a common language,
2/ Defining group boundaries and criteria for inclusion and exclusion
3/ Distributing power authority and status
4/ Developing norms of trust, intimacy, friendship and love
5/ defining awards and punishment
6/ explaining the unexplainable.

All groups *develop norms around these categories and if these norms get external tasks done while leaving the group reasonably free of anxiety, the* **norms become critical genetic elements of the culture DNA**.

Reality and Truth

- All kinds of society are based on deeper assumptions on general abstract issues.

- This is how people relates to reality and truth, time and space, human nature and how people should relate to each other.

- Reaching consensus for instance *is a process of building a* **shared social reality.**

- There are many different criteria for determining truth, from belief and morality (pure dogma and right / wrong dichotomy) to pragmatism (scientific method).

- This does not only relate to how truth is defined but also to uncertainty avoidance.

- The ability to embrace uncertainty is a genuine advantage as, how Schein puts it, *Organizational Cultures that can embrace uncertainty more easily will be inherently more adaptive*. A key advantage in today's economy.

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Time and Space

- This is the second axis along which the structure of a culture is built. Anthropologists have noted that every culture make assumption about time.

- Schein identifies three types of organization depending on their time orientation: **past, present and future**. Hofstede again has found that economic development was correlated with a **future** orientation.

- A second dimension for how we relate to time is the notion of monochronic and polychronic.

- **Monochronic** is a view of linear time that ca be split, wasted, spent etc …

- This is typical of the western rational cultures. Some culture in Southern Europe or Middle East view time as *polychronic, a kind of medium defined more by what is accomplished than by a clock, within which several things can be done simultaneously*.

- In **Polychronic** cultures, relationships are viewed as more important than short-run efficiency and may leave monochronic managers frustrated and impatient.

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Time and Space

- Besides, there may be different relation to time depending on the organisation subcultures. For instance, operators time frame is the present, while Engineering subculture (R&D) has a much longer and different time horizon.

- Space has both a physical and a social meaning and feeling about distance have biological roots.

- This ends up in different levels of distance (intimacy, personal, social, public) whose length may differ depending on the culture. Also space includes a symbolic value through different allocations (executives at the top of the building, managers with dedicated office etc …).

- This is one of the reason why the introduction of new communication technologies (email, collaborative spaces, social networks) causes **anxiety**: *it forces to the surface assumptions that have been taken for granted* **in terms of relation to space**.

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Human nature, activity and relationships

This set of issues and dimensions reviewed constitute a kind of grid against which to map a given organizational culture.

- [Douglas Mc Gregor](#) has a [well-known framework](#) on this subject known as
  - **Theory X** (managers believe people are lazy and must be motivated and controlled)
  - **Theory Y** (people are basically self-motivated and need to be channelled and challenged).

- The latter assume it is possible to design organizations that enable employee needs to be congruent with organizational needs.

- This is the dimension of organizations seeking to grow and to dominate their market.

Human nature, activity and relationships

- A second useful framework is the one about orientation.

- There is the **Doing** orientation whereby nature can be controlled and manipulated, there is a pragmatic orientation toward the nature of reality and a belief in human perfectibility.

- On the other hand, the **Being** orientation where nature is powerful and human is subservient to it, an orientation that implies fatalism and enjoying what we have, here and now.

- This is the orientation of organizations looking for a niche, trying to adapt to external realities rather than creating markets.

- In between both there is the **Being-In-Becoming** organization where the focus is on development rather than on a static condition. It is more on what the person is and can become rather than what the person can accomplish.

- This human related dimension is critical in making the organization safe for all.

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Culture Typologies

- Typologies are abstract construct that are derived from factor analyzing perceptual data.

- These construct help in providing some order out of observed phenomena and predicting some new phenomena that may arise. These are abstract and therefore do not reflect adequately the reality. Yet they help in comparing different organizations.

- Gathering data on an organization can be achieved by asking employees how they perceive their organisation in terms of purpose, strategy or mission.

- There are different types of organizations :
  - **coercive** (prisons, military camp …),
  - **utilitarians** (private companies),
  - **normative** (political parties, non profit …). Some type of organizations fit the culture and in Asian or Latin countries for instance, *Business cannot be effective unless they are coercive*.

Culture Typologies

- Another axis of culture typology is the **variation of authority**.

- It can range either be : autocratic, paternalistic, consultative, participative, delegative and abdicative. *The search for the universally correct leadership is doomed to failure because of cultural variation, organization history and the actual task to be performed.*

- There are four types of organisation depending on their orientation : power (autocratic founders), achievement (results), roles (bureaucracies) and support.

- Another typologie can be carried out along 2 dimensions : solidarity (like-minded) and sociability (friendly).

- Low on both is Fragmented, High on solidarity alone is Mercenary, High on Sociability alone is Communal and High on both is **Networked**.

Leadership and culture

- Cultures basically spring from three sources :
  - 1/ beliefs, values and assumptions of founders
  - 2/learning experience of group members
  - 3/new beliefs brought in by new members/leaders.

- The first one is by far the most important: **Leadership is highly sought by group members to reduce the group's anxiety**.

- Again, if the way to do things allow to get task completed while keeping group anxiety at a low level, this will become organizational culture.

- But if the environment changes and those assumptions become dysfunctional, the organization must find a way to change its culture.

- This is the role of the leader as John Kotter reported in his book *What Leaders Do*.

Leadership and culture

- There are **embedding** mechanisms a leader defines that will define the culture.

- What leaders measures, how he reacts to critical incidents, how he allocates resources, how he allocates rewards and status, how he recruits, promotes and excommuniates.

- Then there are the **structural** mechanisms (organization structure, procedures, rituals, physical spaces, stories, statements.

- Through the way leaders handle these mechanisms (embedded and structural) they communicate both explicitly and implicitly on their assumptions. If they are conflicted, these conflicts become part of the culture.

Deciphering cultures

- Before acting on a culture it is strongly recommended to decipher it to define the change strategy and/or to understand what is wrong.

- Deciphering a culture can be carried out using the following pattern :
    1. Visit and observe
    2. identify artifacts and processes that puzzle you
    3. Ask insiders why are things done that way
    4. identify espoused values tha appeal to you and ask how they are implemented
    5. Look for inconsistencies and ask about them
    6. Figure out from the above the deeper assumptions that determine the observed behavior.

- However, deciphering a culture requires the analyst to understand the potential consequences of an investigation and clearly communicates this to executives : ***the members of the organization may not want to know or may not be able to handle the insights into their own culture.***

Assessing cultures

- Schein also proposes a framework for a company to assess its own culture rapidly.

- This is one day workshop, bringing together one or more representative groups (with an external consultant to manage the workshop)

- Culture is a group phenomenon so it's best assessed in a group context.

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Assessing cultures

- Here are the steps :
    1. obtaining leadership commitment : leader should also emphasizes that openness and candor are needed and that culture is not good or bad).
    2. Selecting groups for self assessment
    3. explaining the purpose of the workshop
    4. selecting an appropriate setting for the workshop
    5. a short lecture on how to think about culture (with the 3 levels of culture)
    6. identifying artifacts (what is going on here)
    7. identify espoused values (why are we doing things our way ?)
    8. identify shared underlying assumptions (do the espoused values explain the artifacts or is there anything more ?) – this is the most important step : *once assumptions are made conscious, it triggers a whole new set of insights and begins to make sense of things that weren't making any sense before.*
    9. identify cultural aids or hindrance (within artifacts, values and assumptions which are the ones that help / hinder the goal). It is much easier to draw on the strengths of the culture than to overcome the constraints by changing the culture.
    10. decide on next step

Managing Culture Change

- Edgar Schein proposes a conceptual model for culture change

- The most important takeaway is this : change creates **learning anxiety** (leaving what we know to something we don't).

- This learning anxiety can be fueled by any of the following (valid) reasons : fear of loss of power/position, fear of temporary incompetence, fear of subsequent punishment, fear of loss of personal identity and fear of loss of group membership.

- The higher the learning anxiety, the stronger the resistance and the defensiveness.

- Change agents must draw on **Survival Anxiety** (what will happen if we don't do anything) to unfreeze the situation and make sure that Survival Anxiety is greater than Learning Anxiety.

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Managing Culture Change

- This is similar to the **Burning Platform** of Darryl Conner or the Sense of Urgency of John Kotter.

- In order to achieve this, it is strongly recommended to lower Learning Anxiety in a view to create psychological safety, doing the following : communicating a compelling vision, formal training, involvement of the learner, informal training of groups, practice fields coaches and feedback, positive role model, support groups in which learning problems are discussed and consistent systems and structures with the new way of thinking and working.

- ***The only way to overcome resistance is to reduce the learning anxiety by making the learner feel "psychologically safe".***

- *The change goal must be defined concretely in terms of the specific problem you are trying to fix, not as culture change*.

- The change may not be possible without cognitive redefinition whereby people will have to unlearn the former way of working to learn the new one. This unlearning period is psychologically painful. These new cultural elements can only be learned if the new behavior leads to success and satisfaction.

Lean and Social Businnes principles

- Which somehow echoes what Mary Poppendieck said during [Lean IT Summit 2011](#) : "*In any industry nowadays, the fastest learner wins. if your competitor are faster learners then you're in trouble.*"

- There is a paradox in the **concept of a learning culture** : how to set up such a culture when by essence, culture is more a conservative force aiming at reducing cognitive anxiety by making things predictable, shared and meaningful ?

- The author have identified 10 dimensions of such learning culture, 10 dimensions he has observed in successful companies that are critical for companies to survive in today's economy, and that requires special skills for the Learning Leader.

- I just could not resist discussing how these dimensions are aligned with some of the Lean and Social Business principles …

What is leadership ?

- There are many definitions of leadership.

- Some people get confused between leadership and management.

- Best definitions I know are from Peter Drucker (*Management is doing the things right, leadership is doing the right thing*) and John Kotter – in What Leaders Really Do (*Management is about dealing with complexity. Leadership is about coping with change*).

- According to Schein, *the essence of Leadership is creation and management of the dynamic processes of culture (…). Leadership is the source of organization beliefs and values and is highly sought by group members to* ***reduce anxiety***.

1- Proactivity

- Schein is adamant that proactive problem solving is a critical skill for people to build a learning culture.

- Not only because problems are solved but also because while solving a problem, people learn.

- Learning by problem solving **is the gist** of Lean philosophy.

- During the [2012 edition of the Lean IT Summi](#)t, Mike Orzen insisted that one of the most important systems in an organization is the problem solving system.

2- Commitment to learning to learn

- This is the definition Michale Ballé gives to Lean [FR].

- Schein insists that learning is achieved while getting feedback and taking the time to reflect.

- This is where its gets complicated in our organizations as Chris Argyris reports in this HBR paper Teaching Smart People How to Learn (1991) *Success in the market place increasingly depends on learning.* The problem is that *members of organizations that many assume to be the best at learning are, in fact not very good at. (…) Because many professionals are almost always successful in what they do, they rarely experience failure. And because they have rarely failed, they have never learned how to learn from failure. Their ability to learn shuts down precisely at the moment they need it the most.*

- This is where Leadership comes into play : if leaders ask for help and accept it, they will show the path for learning. If leaders value experimentation and reflection, they will contribute to this learning culture.

3- Positive assumptions about human nature (Theory Y)

- Theory X approach of management (people are lazy and must be motivated and controlled) is not appropriate in the learning organisation as in that case, teams won't learn and theory X will become self-fulfilling prophecy.

- Which can be viable in a stable context but surely not in such a turbulent one as ours.

- Instead, Schein think that Learning Leaders must believe people will be keen on learning if they are put in the right and safety context (Theory Y).

- Besides, Schein evokes the post-heroïc leader whereby knowledge is more distributed and leaders are dependent on experts in their organization.

- This is one of the main core value of Social Business. Actually that social software in organization are the tools to implement Theory Y in the organization.

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4- Belief that environment can be managed

- We are here on the [Doing / Being cultural axis](#).

- Schein argues that for organizations to learn in a turbulent economy, a *Being* culture whereby people are fatalist and enjoy what they have could survive in a slowly changing market but not in such as fast paced as ours.

- But to survive in ours you need a ***Doing*** **culture**.

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5- Commitment to truth through pragmatism and inquiry

- Schein positions the cursor on the Truth axis (from Dogma to Pragmatic and scientific method).

- The idea here is that there is not a single learning method : as the type of problems to solve change there should be different methods.

- This is where his view tends to be contradicted by Lean philosophy which has been thriving using the same problem solving method, at all levels of the organization for about fifty years : the PDCA.

- However, and this is where Lean and this statement of the MIT Emeritus professor converge, Lean Leaders knows there is much they don't know and they do teach this to their teams. The only thing they know is that regardless of the problem, the scientific method will help them solving it.

- Note that this pragmatic approach whereby the organization exposes its products to customers (and therefore to market's reality) as soon as possible in a view to learn is at the heart of the Agile software development approach and it has been discussed extensively in 37Signals book Getting Real or in Eric Ries Lean Start-Up.

6- Positive orientation toward the future

- Learning culture position on the Time orientation lies in the future.

- As the author puts it : "*If the environment is becoming turbulent, the assumption that the best orientation is to live in the past or to live in the present clearly seems to be dysfunctional.*"

- Embracing Social Software is a way to make sure the organisation is a/ solving today's problems with todays tools and b/ get used to integrating new wave of disruptive technologies as they emerge.

7- Commitment to full an open Task-relevant communication

- *The learning culture must be built on the assumption that communication and information are central to organisation well-being and must therefore create multi-channel communication system that allows everyone to connect to every one else.*

- This is a very strong statement which emphasizes the role of Social Software in the Learning Organization.

- Schein insists this openness must be limited to task-relevant information so that to prevent any interpersonal problems from happening across hierarchical or multicultural boundaries.

- This views sheds a great light on a key issue for Social Software to create value : to be task-related and integrated in the flow of work.

8- Commitment to cultural diversity

- The author idea here is that the more an organization is culturally diverse, the more capable it will be to deal with unpredicted events.

- This is something François Hisquin (CEO Octo Technology) reported to #hypertextual during his interview [FR]. The corresponding task for the leader is to ensure for diversity in the team and for good cross-cultural communication and understanding.

- Here again, Social Software allows for horizontal communication across the organization and *makes connections where none previously existed* to quote Danah Boyd.

- This is invaluable as far as providing space for communication between different sub-cultures of the organization that would hardly have a chance to connect otherwise.

9- Commitment to system thinking

- [Ray Kurzweil](#) made an [impressive talk at USI 2011[FR]](#) where he explained that the economy at the information age no longer is linear : it is exponential.

- Schein is aligned with this statement claiming that the learning leader knows the world is complex and overdetermined (most things are multiply caused).

- There again, this is another pillar of Lean Thinking that Social Software, while creating horizontal real-time task-related communication, fosters and encourag

10- Belief That Cultural Analysis is a Valid Set of Lenses for understanding and improving the world

- According to Schein, in a learning culture, there is the belief that analyzing feedback and reflecting on their culture is a necessary part of the process.

- This point goes back to the whole book but also to Chris Argyris paper referenced earlier :

If learning is to persist, managers and employees must also look inward. They need to reflect critically on their own behavior, identify the ways they inadvertently contribute to the organization problems and then change how they act.

- This takes courage and this is completely embedded in both Lean (reflecting on the way we work thanks to management coach – see Toyota Kata) and in Social Business which encourages rapid feedback and collaboration to solve business issues.

Lean Principles

- **How to make organisations adaptive ?**
- This is this core question that Lean addresses : how to make organisations adaptive in times of constant change ? Lean proposition is to empower people via teaching and coaching so that all employees are available to identify problems at the earliest stage and solve them using a scientific method (hypothesis, experiment, measure, decide).

- **Data Vs Gemba**
- The wrong assumptions in today's organisation is that, based on data, managers in their office are able to develop a realist plan. First, as Robert Austin reports, data can be gamed which makes Management by Objectives not very virtuous :
  - *The evidence is mounting that by themselves, management by Objectives at least as we currently practice it and formulaic decision-making do not make an organisation sufficiently adaptive and continuously improving for long-term survival in highly competitive markets.*
  - Data only tells so much about what is actually happening. Therefore Lean really requires people making plans and taking decisions to base these according to what they actually observe on the actual place where work is carried out (the Gemba).

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Lean principles

- As [Michael Ballé reminded #hypertextual [FR]](#), Lean means permanent change through continuous improvement.

- Processes never are good enough. They are improved through the improvement Kata which answers the following questions:
  - How should this process operate ?
  - What is the intended normal pattern ?
  - What situation do we want to have in place at a specific point in time in the future ?
  - Where do we want to be next ?

- It is formalized with the following steps :
  1. Define the target condition
  2. Understand the actual condition now
  3. Identify the first obstacles preventing us from reaching the target condition
  4. Identify the next stepù
  5. Understand what we can *go and see* we have learned from taking the step

Problems as the source of continuous improvement

- Between the current and target conditions there is a gray zone no one knows about.

- The wisdom of Lean is to acknowledge this ignorance and resist the temptation of setting a plan.

- Rather the approach consists in proceeding towards the target condition step by step, removing obstacles and problems one by one, anticipating that as we proceed toward the target condition, new obstacles will appear along the way, obstacles you can't think about beforehand and that will ruin your plan.

- Lean is all about practice and the way to instill the improvement Kata in the culture it has to become behaviour routines.

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Problems as the source of continuous improvement

- In Toyota, problems are not an embarrassing issue which is a source of blame and shame.

- It is an opportunity to improve and learn. To such extent that for Toyota, no problem is a problem as there is no more opportunity to improve. And Toyota has a wonderful tool to regulate problems emergence : Kanban. While moving to the one-piece-flow, the Graal of pull flow process, limiting the Work in Progress in progress allows to tighten the process and have new problems appearing.

- The problems are tackled one by one using the PDCA (Plan Do Check Act – aka Deming or Shewart wheel). Which translates in Toyota culture to the following steps of practical problem solving :
  - Pick-up the problem
  - Grasp the situation (go and see)
  - Investigates causes
  - Develop and test counter-measure (one by one)
  - Follow-up

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Toyota discipline

- It seems a heavy process however the great thing about tackling problems as they appear, they are still small and simple and PDCA can be carried out in very short iterations.

- Tackling problems as they appear means launching the PDCA process on the spot.

- *Toyota is not more successful than other companies because Toyota people have greater discipline to stick with a plan or experience fewer problems. Rather they spot problem at the process level much earlier when the problems are still small and you can understand them and do something about them. Their success is not due to sudden innovation but about the ability to execute more effectively in the face of unforeseeable obstacles and difficulties. (…) Costs and quality improvements are made in small steps and take considerable time to achieve and accumulate. Relying on periodic improvements and innovations alone – only improving whane we make a special effort or campaign – conceals a system that is static and vulnerable.*

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The Coaching Kata

- *Toyota has long considered its ability to permanently resolve problems and then improve stable processes as one of company competitive's advantage.*

- This can only be carried out if the improvement Kata knowledge has been spread out all levels of the organisation.

- It is the responsibility of managers to teach this improvement Kata to their team. This is carried out through a mentor / mentee iterative process based on the [A-3 document](). In other words, coaching and A3 are what allow to scale improvement process to the entire organisation.

- Managers are extremely important in Lean organisations. Not only for the teaching dimension of their role but also for walking the talk : *The way the majority of managers and leaders behave will determine how people in the organisation act and thus determine the organisation culture. If senior managers don't go first in personally practicing and learning the improvement kata, then it is unlikely that they will be able to effectively enlist mobilize and guide those managers and leaders toward the desired behavior pattern. The kind of cultural shift we are talking about cannot be delegated by the senior leaders.*

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Improvement Kata, Coaching Kata and PDCA

- So this is the core of Lean : an improvement Kata (a practice and behaviour) for the company to improve on a permanent basis.

- Then there is PDCA which allows to solve problems and build knowledge using a scientific methods based on facts (which makes it very difficult for politics to drive the processes).

- Lastly there is the coaching Kata which put managers at the core of the process as teachers and in charge of scaling the improvement Kata to all the employees.

- While learning and solving problems, teams engage and make the company adaptive.