Mastering Successful Parallel Areas of Complexity – a structured PM approach

Bicycle E-Commerce in USA – a fast growing high tech company with an agile product portfolio entering the most complex market

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Abstract

Over the last decade industries that normally used to satisfy their customers with their products through an existing dealer network were faced with the customer's increasing willingness and desire to purchase their products over the internet. New sales technology (e-commerce) had to meet and match (A) the complex, sometimes unpredictable customer expectations and behaviors (sales conversion) and (B) the product development of new products in a very dynamic, transparent and competitive market successfully because fast adapting creative companies grew often with such a speed that the structure required to manage the processes and projects could not grow at the same pace. In some instances, the market demand even forced such companies to act internationally immediately and globally later which added a new layer of complexity. After recognizing those parallel fields of complexity, the "Best in Class" companies initiated strategic projects and project management to manage this complexity pattern to finally increase the business success.

The paper will use a real world example (E-Commerce High Tech Bicycle Company entering the US market) where this complexity exists (agile product development, fast growing business, new dynamic market, multi-cultural stakeholders) to illustrate the complexity layers and to describe which approaches and methods from other industries (e.g. Automotive) and business fields (Complex Project Management) were used to increase the enterprise expertise in different dimensions (organization, product, humans, program management). The paper will bring specific focus to the practical aspects, e.g. how to respond if the complexity creates dysfunctional moments.

Finally, this paper will describe why and how theoretical models of complex project management, agility and decision making (Values, Eclectic, Psychology, Sociology and Power Based Factors.) were combined to identify needed actions, changes - and thus facilitated success.

Keywords*— Project Management, Portfolio Management, E-Commerce, Complexity, Bicycle*

1. Introduction and appraoch

The success of innovations (Hauschild,2005), product development and market penetration is ultimately proven by the customer's decision to buy the new product, act as a satisfied returning customer in combination with the right business model which ensures the expected and targeted company profitability. What sound easy and very logical is in reality quite a complex undertaking as many parallel "system components" (visible and invisible) are impacting each other (Bauman et.al 2015). The complexity impacts of (a) the market itself, (b) the dynamically acting stakeholders (micro (enterprises/ organizations, competitors, partners/ alliance, suppliers...) and macro economical (political acting national economies), (c) the high pace of technology changes, (d) the very complex nature of humans (as customers, employees, managers, shareholders etc.) and very often (e) the intercultural aspects because of the international or even global nature of those endeavours provide a first imagination how difficult it could be to understand and manage the complexity behind this "simple market introduction project".

One of the crucial requirements to develop success for such projects/ undertakings is the urgent need to (1) understand complexity and analyze those "complex moving parts", (2) create theoretical knowledge and practical transfer competence to decide which and how different theories must be considered and combined to create the optimal match/ fit between theoretical approaches, operational applications and organizational acceptance and business success.

How to approach those "foggy areas" in a structured approach to provide the best for practitioners? By using a practical real word example, the article will explain in Chapter II the institutional setting of the projects and connect the setting with relevant theoretical approaches, followed by Chapter III where those theories are briefly introduced. This introduction will be combined with the transfer and application within the selected example. Chapter IV will provide some first results (success and failures) as well as an outlook.

2. Situational Setting

A. The Company

Canyon started life as Radsport Arnold back in 1985. What began as a business run out of founder Roman Arnold's garage has evolved into one of the bike industry's leading innovators. Following the success of the first ever Canyon bikes developed in the late 90s, the company changed its name to Canyon Bicycles GmbH in 2001. For years, talented engineers and designers have been drawn to Koblenz, Germany, for the development of an ever-expanding range of road, mountain, triathlon, fitness and urban bikes. Canyon's technology-first approach focusses on applying the most cutting-edge materials, working together with the world's best riders and ensuring every product delivers the finest quality and performance. Canyon products are available exclusively via direct sales. Canyon started business in USA in the 3rd quarter of 2017.

B. The project

With the impressive positive customer response in many countries outside the US, the related revenue (article/ press release CANYON) and company growth, with an increased portfolio and correlating demand of customers in 2016 CANYON decided to enter the US market with an ambitious start date in the third quarter of 2017.(http://www.bikemag.com/news/canyon-usa-sales-coming-in-2017/)

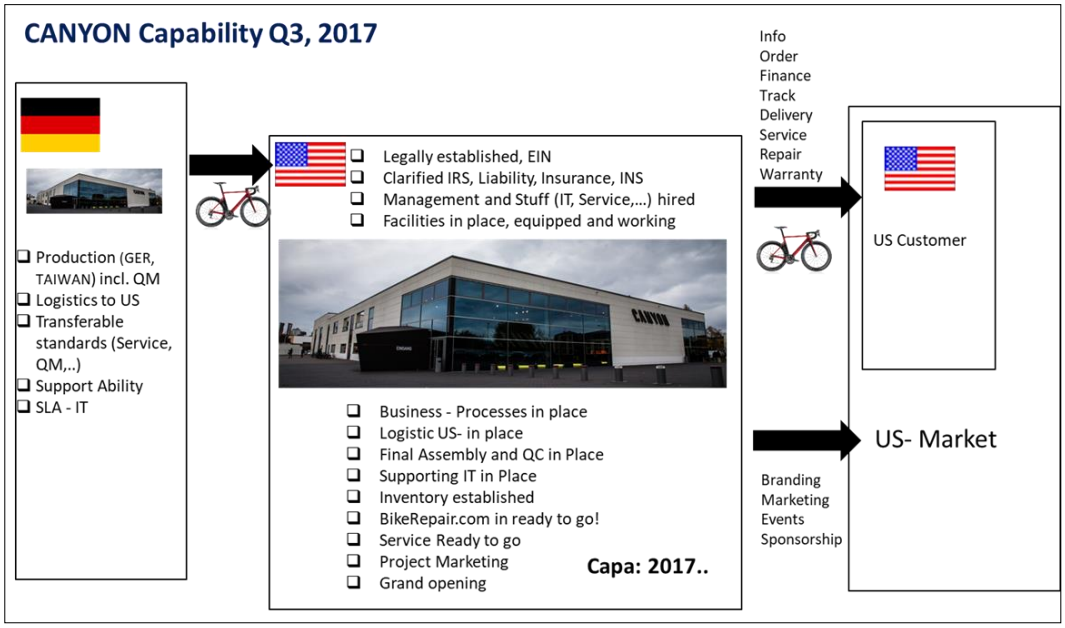

Fig. 1. Project Setting

What are the most important project conditions that formed the above described complex setting"?

- *New Market:* The US market is new to the CANYON group who is operating very successful mostly on the European continent. Many market specific elements and their dynamic had to be considered (legal situation,liability, labor law, tax, insurances,…).
- *New Customers:* The US market is imprinted with specific customers habits (US specific needs, tastes, (product and service expectations,), experienced as global customers (Yip, 2011), (Yip, 2007) ; to be considered!
- *New Culture:* From the intercultural situation, the US market is very demanding and complex as (1) it is very different from the German Culture and (2) also very heterogenous because of its specific immigration history! (House, 2004), (Chhokar, 2007).
- *New foreign entity situation:* With this project CANYON decided to establish an independent national legal entity for the first time – a very different approach compared to the former partner organization!
- *New products:* The project also had to consider the market specific product portfolio and had to implement new bike models (MY2018).
- New IT: SAP ERP
- New supplier situation: 3PL, FJM

C. *The project – theory relation*

The given project context manifests how many aspects had to be taken into consideration. Many of those aspects can be attached to a theoretical model. Those models provide explanations why and how something could occur and allow, coupled with specific recommendations, to master potential problems. Figure 2 shows the underlying principles and displays selected theories and experts relating to this CANYON project. Let's look at some examples:

Complex Project Management: Considering the definition of complex projects[1] (https://iccpm.com/sites/default/files/kcfinder/files/Resources/CPM%20Competency%20Standard%2

[1] Complex projects are open, emergent and adaptive systems that are characterised by reclusiveness and non-linear feedback loops

0V4.1.pdf) when it is obvious that one must understand the theory of complex project management and system theory to be able to (a) organize, plan and execute a project with high dynamic and many unpredictable change over the time and (b) to select and assign the right team members to the project.

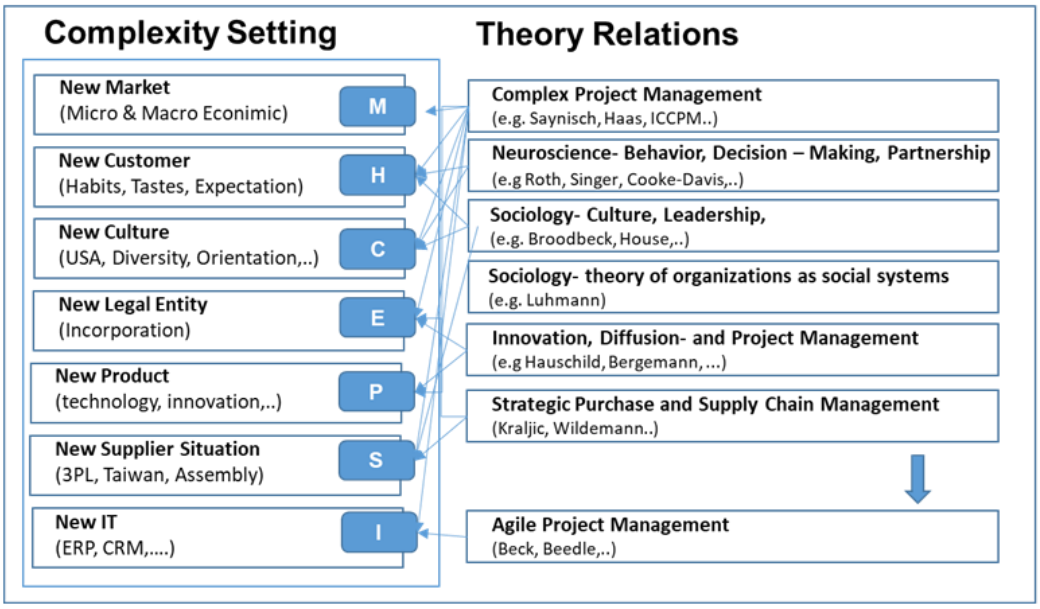

Fig. 2. Project Theory Relationship

3. Relvant theoretical approaches

A. Complex Project management

Under this assumption, the academic theory of Systems Engineering, an interdisciplinary approach and means to enable the realization of successful systems (System Engineering Book of Knowledge, Pyster, A. and D. Olwell (eds). Hoboken, NJ, 2013), must be applied. Furthermore, this application should be considered as a holistic engineering and management approach to the design, planning, management and improvement of the system- in this instance the CANYON USA project system. Most notable, however, is the project management perspective on complex systems.

According to Queensland University of Technology (QUT) in Brisbane Australia (Haas,2009a), complex projects are characterized by uncertainty, ambiguity, dynamic interfaces and significant political or external influences (Amberg et. al 2012), and/or usually run over a period that exceeds the technology cycle time of the technologies involved, and/or can be defined by effect but not by solution. To an extent, all the aforementioned characteristics can be applied to the CANYON US project. Creating a CANYON (global-) wide complexity system for similar projects is inherently dynamic, as it is created and managed by three different main stakeholder groups (CANYON, CANYON suppliers, CANYON regional customers and organization). All have different roles in the system and impart significant and unique external influence. Because the very nature of the project is driven by its intended effect on the current and future CANYON business performance, the program(s) content will need to keep pace with the stakeholders' pace and dynamic. To avoid it will (as a result), become outdated before it can be really adapted (i.e. implemented at future CANYON projects as well) it must be considered from the beginning. The complexity model version 2 (Haas, 2009b) defined parameters (size, time, costs, team composition, urgency, flexibility of cost, time, scope, clarity of problem, opportunity and solution, risks, requirement volatility, strategic importance, political implications, stakeholders, level of change, risks and dependencies), can be used for the CUS- project to define the project complexity (see figure 3) as well as to identify the required set of

competence. There are requirements available (Mckinlay, 2016) which could be used to evaluate the required and available competence and maturity level (individual and organizational) (see figure 4)

High	Moderate	Independent
Level of change+large-scale enterprise impacts OR Both problem and solution difficult to define/ understand, solution difficult to achieve, unproven technologies OR Four and more categories	Four or more "moderate complexity" OR One categories in "Highly complex" and three or more in "Moderate"	Remaining Combinations

Fig. 3. Complexity Metric [08](HAA2009)

Special Attribute	Explanation
Wisdom	not linked to age, more to experiences and pathways
Action and outcome oriented	Drive and desire to deliver outcomes
Creates and leads innovative teams	Lead, inspire and provide energy to teams, comfortable to try new things (failure)
Focused and courageous	push boundaries, question the status quo, make the hard decisions
Ability to influence	not manipulate, influence to garner support

Fig. 4. Requirements to a manager of Complex projects

B. Neuroscience- Behavior, Decision – Making, Partnership

Whenever humans (customers, suppliers, employees and managers) are involved in projects it is essential to achieve target conform behavior which could extend to changing behavior. Therefore, the nature of behaviour must be understood (execution of a decision), especially decision making and limitations of behavioral changes.

Because decision making (and resulting behavior as team member, partner) is a permanent requirement and operational task for individuals and organizations and is required at all levels – strategic, tactical, and operational - it is necessary to understand and consider two major elements of human behavior in decision making before transferring it to the project (in this case CANYON).

These two elements: (1) "looking" into human decision-making principles/ mechanism and (2) understanding what that means for motivation in partnership with decision making. For both elements, the human side of the stakeholders and the new results of the neurobiology will be referenced.

1) The Human Decision Making Mechanism[2]

The human side of decision making includes factors and aspects like (Baumann et.al, 2013):

(A) Personality of the decision makers –humans are highly individual. Which mechanisms drive a person to decide and how generic or individual are they?

(B) Human Reward System –the rewards of stakeholders are very individual. Humans need to be motivated for a specific decision; also to stay or to leave a partnership within a setting (team, contract, alliance,).

[2] The limitation of this paper does not allow a more detailed description here. Please see also: (Baumann et. al 2013 &2014).

(C) The human decision-making process - how humans decide and act to achieve an expected reward and how incentives, motivation and rewards are correlated.

(D) Human Behavior after decision and the limitation of behavioral changes.

When it comes to decision-making, all those aspects play very closely together. Decision making is the point where humans (and organizations) have the choice to select the most preferable option to achieve a certain (business) goal. This decision is made under the influence of available internal and external information including knowledge from the past and the present, experiences from the past, projection of the future, and should reflect the "best option".

This information can and should be considered as incentive, or "informational incentive" (Prinz,1976). If the "incentive evaluation" motivates the receiver ("here is something in it for ME"); (s)he will decide and execute the decision – showing behavior; and in the group context social behavior is the sum of all human behavioral patterns that are a reaction and/or action towards other group members (Prinz, 1976).

Researchers have found that human intellect and rationality struggle when making complex behavioral decisions. According to "the four level model," [20](Roth, 2007a) decision-making is determined by the interaction between the three limbic levels and the lingual cognitive level, called the ratio. The limbic system's "emotional experience memory" [21](Roth, 2007b) has the main role. It needs to be considered, however, that two of the four levels are located in the unconscious part of the brain and, therefore, are not accessible. It becomes clear that human decisions are ultimately based on emotion and are controlled by certain decision criteria (experiences) in the unconscious. It is imperative to recognize that the emotional and unconscious part of the brain is dominant when humans make decisions. The limbic system's dominant role affects both the type of decision and the result of the decision process. This mutual reaction also involves the cognitive lingual part, but as kind of "decision consultant".

Within this crucial limbic system the "mesolimbic system" is responsible for motivation – to "create" motivation to decide in conformance with the "incentive" and to behave to achieve the targeted situation. The mesolimbic system controls human behavior by means of a "promising reward" – the incentive (leads to production of dopamine) is followed by an expectation to achieve the reward (preferred situation) and initiates the production of opiates in the brain if the reward is received (mechanism is called "human reward system"). The mesolimbic system also registers and saves information about how reward expectations were fulfilled in the "individual reward memory", which is the basis for any future motivation (production of dopamine).

The so called "cerebral cortex" simultaneously records the circumstances of the specific reward situations and expectation (effort, achievability, likelihood, partners' behavior,). So, both mesolimbic system and cerebral cortex ultimately determine the individual's evaluation of the targeted reward. The mesolimbic system controls motivation and behavior by delivering dopamine (incentive related) and other brain opiates (reward related). If, under the consideration of "reward memory", an incentive is not strong enough (no dopamine) the person will not decide in favor of the preferred situation. Furthermore, the human reward system acts quite simply: (1) emotionally, (2) unconsciously and (3) egocentrically. Because of the ability to record past rewards (positive) and punishments (negative; including not achieved rewards), to create an emotional anticipation of a reward, and to evaluate existing risk (probability to achieve the reward, reach-ability, investment), the HRS permanently considers the individual's advantage. It answers the simple question: "What's in it for me?" This leads to personality, because what motivates one person does not consequently motivate the next person and personality-based aspects of an individual's behavior need to be considered in order to understand what specifically motivates that person.

The term personality (with respect to psychology) is defined as, "the sum of all personality traits of a human being, therefore his relatively time stable behavioral attendance" (Cierpka, 2007) and is a lifelong combination of temperament, feelings, intellect and type of how a person is acting and communicating. Humans differ in these combinations –they form individual personalities and different personality models exist[3] [4]. In respect to the personality development several factors (Roth,

[3] The most commonly taught model in PM is the Langmaack model (Langmaack, B., Braune-Krickau, 1995). Internationally, however, the **BIG-FIVE** model is more common (McCrae, R.R., Costa, P.T., 1990). The BIG-FIVE

2007a) play an important role (genetic preposition, prenatal impacts, early experiences in social interactions, cultural impacts, family, business environment, society...). The individual features of a personality are related to the four functional levels introduced above and their interaction with each other. Those features are more behavior dominating if a situation is new (somehow unpredictable) to the person or demanding and puts the person under "pressure". The same principles apply also when it comes to decisions relating to partnerships (Spang et. al, 2012):

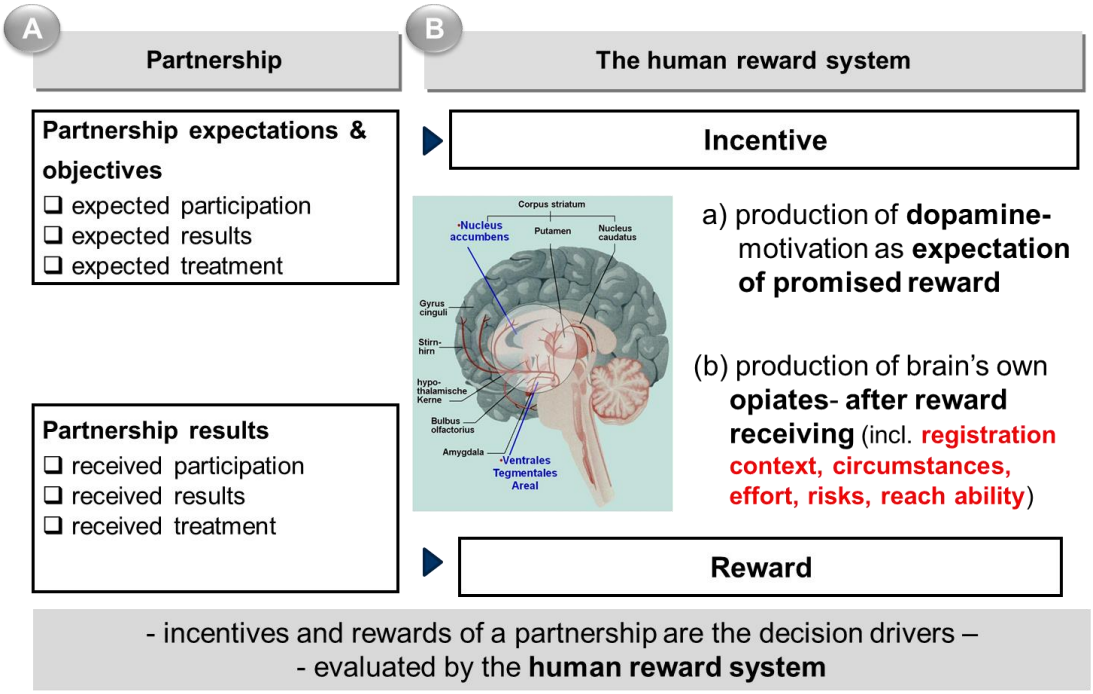

Fig. 5. Decision Making principles in (business) partnerships

C. *Sociology- Culture, Leadership,*

1) Aspects

The application of the described theory is also required in intercultural „settings "- but again area very individual process also in that context. (Baumann et.al, 2006). But besides all this „individuality ": culture and interculturality are nowadays accepted crucial competitive success factors »Culture impacts relationship and business operations.« (Harris et. al, 2004); neglect or misuse of intercultural knowledge could harm or even destroy your business success.

For new markets and working in projects diverse cultural aspects are relevant to achieve success (Baumann et. al, 2014):

Integration-aspects: Human often show diverse types of interpretation or (re-) acting,

Solution-aspects: Diverse cultural approaches and methods are used (e.g. conflict resolutions)

Knowledge-Aspects: Certain content might be not preferred or even be declined and therefore not "thought of".

Communication-Aspects: Cultural preferences are driving in what way and how transparent existing information will be communicated

Leadership-Aspects: Behavior of and expectation to leaders could differ between diverse cultures.

model is based on adjective lists with over ten thousand adjectives, and defines five very stable and independent factors – (1) neuroticism, (2) extraversion, (3) openness for new experiences, (4) compatibility and (5) conscientiousness.

[4] Reward and punishment, as defined by Jeffrey Gray's model, "**Big Two**," distinguishes between impulsivity and timidity (Gray, J.A., 1987). People who are categorized as "impulsive" have a strong susceptibility for rewards (BAS- behavior activation system); they are characterized as optimistic, reward oriented, and having a tendency for aggression, violence, gambling and drug addiction. Conversely, timidly categorized persons display a strong susceptibility for punishment (BIS-Behavioral Inhibition System). They can be characterized by permanent concerns, feeling of threats, phobias and general fear. The features of a personality are related to four functional levels and their interaction.

2) Acad*emic Background/ Research intercultural aspekts*

Intercultural aspects in correlation with entrepreneurial behavior and business organizations were the focus of academic research over the years. Some of them are just looking at single industries (Hofstede, 1980), (Rancis et.al1994) making the transfer more complicated. As an alternative academic approach, the so-called neutral GLOBE-Study (Global Leadership and Organizational Behavior Effectiveness) could serve the best fit. vor (House et. al 2004),(Chokar 2007); investigated cultural factors for effective organizations and leadership in more than 60 countries with more than 17,000 interviewees (middle management from ca. 900 enterprises (food, financal services, telecommunication).

There are nine cultural dimensions in ten diverse cultural regions/ countries which can be seen "cultural close" with similar values for the dimensions (e.g. GER, AUS, NDL, CH – North-European cultural region). There are significant differences within those dimensions caused by different expectations, interpretations or requirements. Those dimensions are (figure 6 and to compare USA/ GER see fig.7):

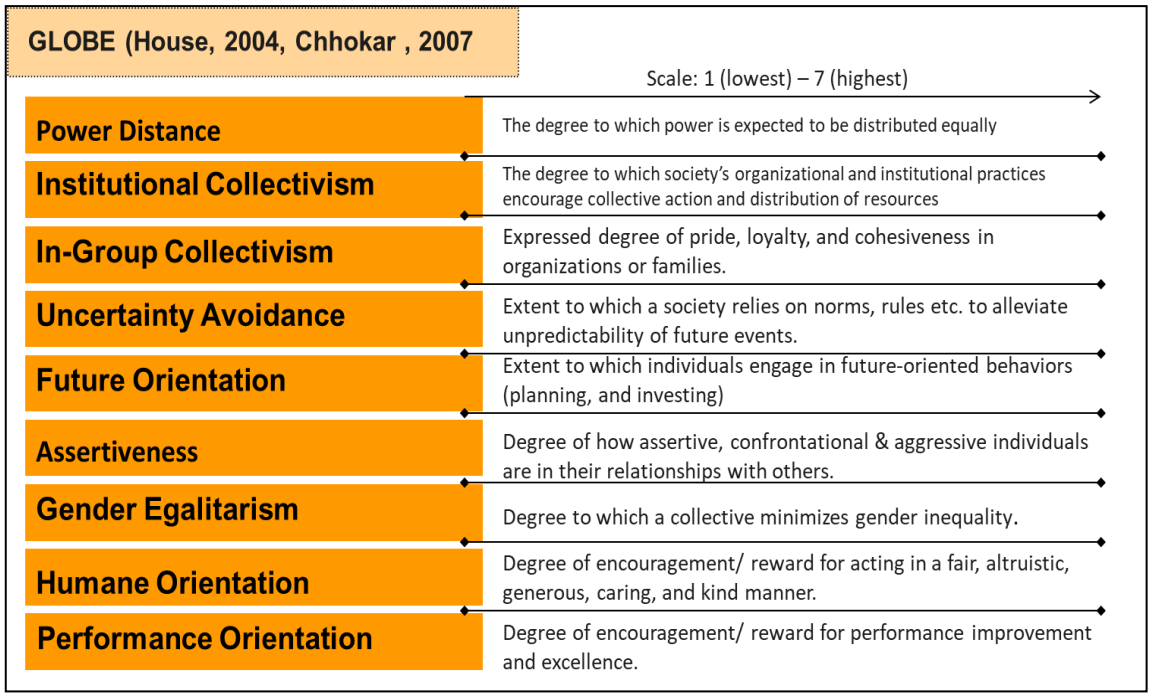

Fig. 6. Cultural dimensions (adapted by Hous, 2007)

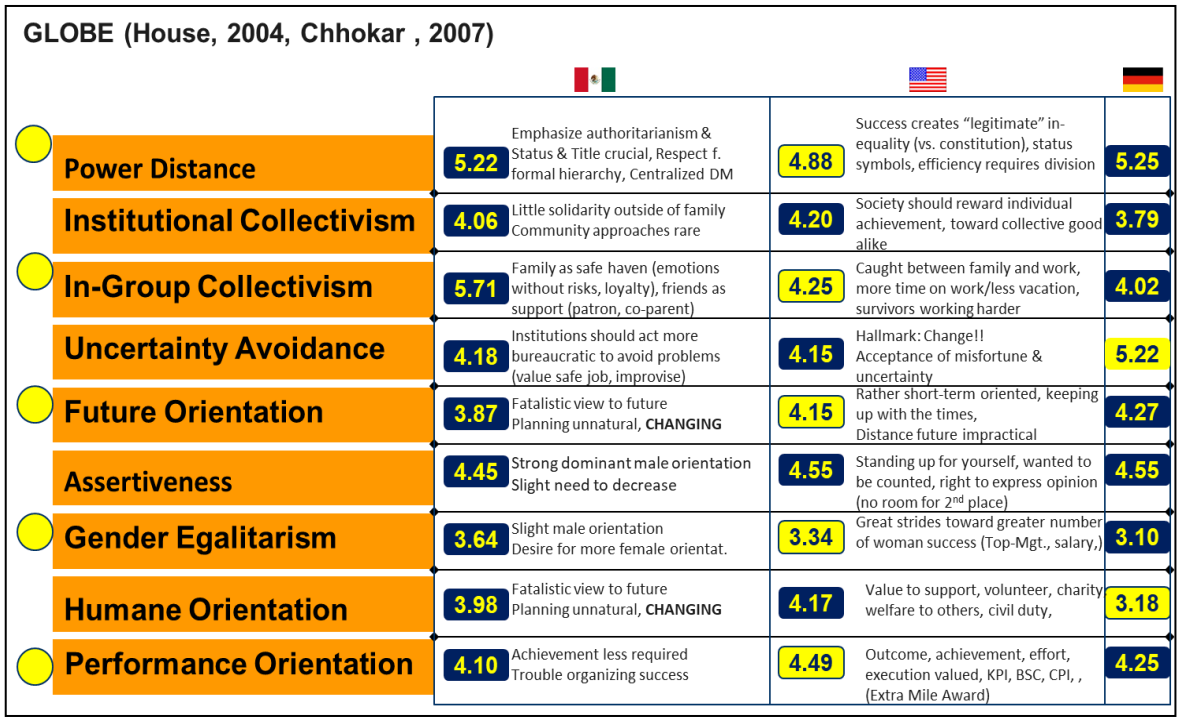

Fig. 7. Dimensional comparision (USA/ MEX/GER) (House, 2007)

The challenge in those intercultural contexts (individual and organizational) to know and to consider the "foreign" pattern/ habits of life and problem handling and to accept that those attitudes are reasonable in the same way as our own ones. One has to accept that "foreign-cultural" is only one different variant of a huge variety of possible "cultural orientation systems". Important is the professional reflection and acceptance and the transfer into leadership, approaches and (project) management. In a practical situation a German person has to avoid to interpret through a "German-Culture- Filter" and to define a smart behavioral target system matching the "right cultural script" (Thomas et. al, 2004).

There are two crucial and correlated transfer areas:

1. The single project (CANYON USA) where for a temporary duration humans with different cultural backgrounds are performing to achieve a common set of goals (cross-cultural team complexity).
2. The enterprise (CANYON) where employees with very diverse cultural background are working together permanently in an international organization (cross-functional company complexity) .
3. The company (CANYON) who is approaching a new market where customers are acting with different cultural expectations and behavior (quality, service, return,..) (cross-functional customer complexity).

D. Agility and agile Project Management

Whenever entrepreneurial undertakings are exhibiting a higher degree of complexity - traditional approaches and methods are still required but not sufficient on their own anymore. A project management "2nd order (PM-2) is required additional. (Saynisch, 2010) because of the dynamic, unpredictability and unstable trajectory of the execution.

One method that could be used is the so-called "agile project management" used to (re-) act much more flexible to changing and dynamic conditions. Several relevant "agile" principles must be considered (Charles, 2011).

- The ability to create and respond to change in order to profit in a turbulent global business environment.

- The ability to quickly reprioritize the use of resources when requirements, technology and knowledge shift.
- A very fast response to sudden market changes and emerging threats, by means of intensive customer interaction.
- Use of evolutionary, incremental and iterative delivery to converge on an optimal customer solution

The "agile" approach in project management is focused often on a short "time window" (predictable, foreseeable) where activities are planned and controlled to achieve a (relatively narrow) time-goal; e.g. 2 weeks by using methods like SCRUM-framework (Schwaber, 2016) and sprints[5]. This allows to plan and execute the given time-period in detail and consider all changes within this period as they will likely be immediately visible. The method was originally developed in the software development industry to master the fast-changing 9Customer) requirements is transferable. Complex projects are facing similar situations (Haas, 2009a) (see above III.A.) and therefore those theoretical approaches should and must be considered in managing those projects.

4. Transfer into the CANYON Project

The afore mentioned project (CANYON USA, new market, customer, complex) was like a perfect example to demonstrate in practice that a theoretical foundation is REALLY needed and that the successful transfer is possible. This chapter (limited because of the no. of pages) will describe the transfer (see figure 8).

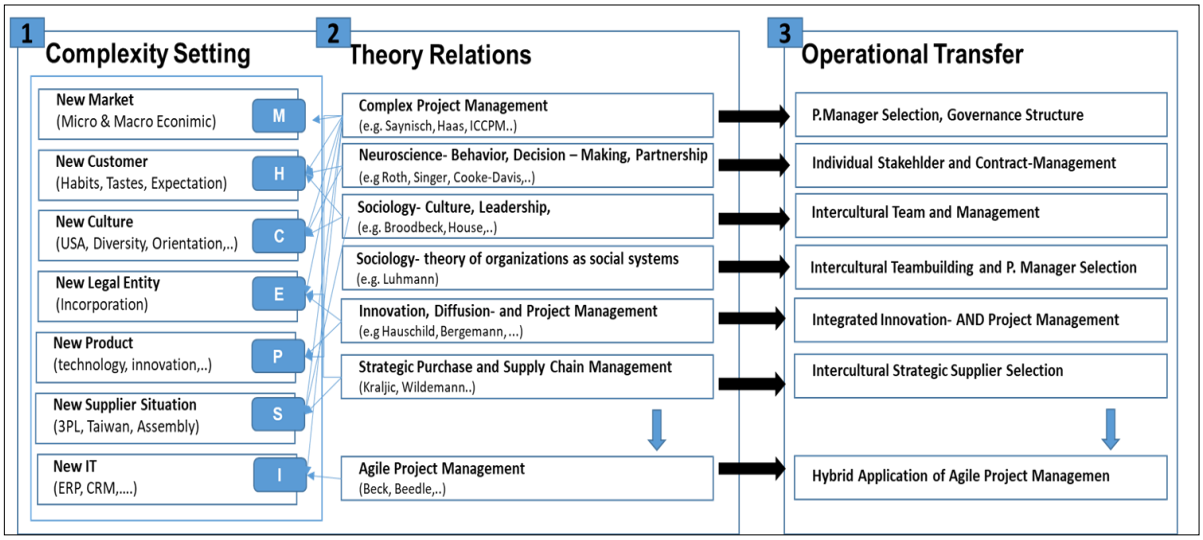

Fig. 8. Theory – "Real World" - Transfer

A. *Complexity and Complex project Management*

Applying the project complexity model version 2 (Haas, 2009b) parameters (size, time, costs, team composition, urgency, flexibility of cost, time, scope, clarity of problem, opportunity and solution, risks, requirement volatility, strategic importance, political implications, stakeholders, level of change, risks and dependencies), the CANYON USA project would be defined as a highly complex project. Such complex projects require an understanding of the nature of complexity, dynamic character (not time stable), and the impossibility to plan or predict the future trajectory of the system CANYON-CUS) (Saynisch et. al, 2010), so the successful adaptation of complex project management

[5] Other agile methods are e.g.: eXtreme Programming (XP) (Back, 2004), Crystal und Crystal Clear (Hanser 2010), Adaptive Software Development (ASD) , Feature Driven Development (FDD), Test-Driven Design (TDD) (Unhelkar, 2013)

(CPM) is necessary and includes: (1) Diagnosing complexity, (2) Assigning competent Leaders, (3) Use of the "right" Project Structure and (4) Management of the Complexity Dimension. Although this paper is limited and cannot address those elements in their entirety, it will attempt to diagnose their critical relevance through this project context in chapter IV. In doing so, the authors will ask, "can traditional (linear) industry engineering and (project) management methods be transferred and managed to master this complexity with a "Hybrid Complexity Dimension?"

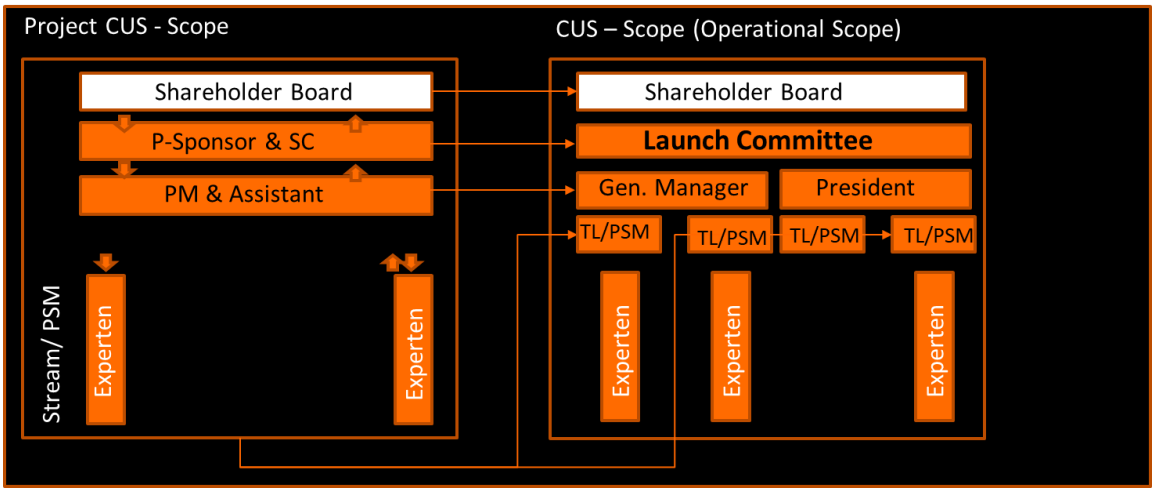

Fig. 9. Complexity Classification

Because of the unstable and unpredictable configuration of complex projects, an agile (management) approach must be utilized to define and adjust the project configuration where and when needed. This required the PM to define a "way of incrementally and recursively engaging in a management cycle of planning, controlling, feedback, and change direction [accordingly]" (Wernham, 2012). More specifically, linear engineering and management principles (management 1st order) were adopted, allowing the PM to handle the system within more predictable project phases in coexistence with CPM (management 2nd order). In order to maintain agility a structured change management should be implemented to handle, track, and manage the continuous change process, both organizational (i.e. stakeholders) and product (i.e. specifications, BoM-bill of material, tests..) related, of the system and its interrelated elements. The established project organization must be designed to maintain this level of complexity as it is characterized by a coexistence of horizontal (hierarchic– within the individual programs) and vertical (hierarchic- within the CUS system, between program(s) strategic levels) architectural patterns (Baumann et. al 2007), (Singer, 2003), (Foerster, 2004). Within that the CANYON USA [project] architecture universally implemented validated industry methods, including: quality methods (QFD), configuration management, dynamic recursive business process reengineering, recursive feedback loops, and continuous improvement were implemented.

- *Ensured the match between complexity level and PM ability* by selecting a project director who had the required skills, capability, competences and expertise for THIS specific situation.
- *Implemented a conformed (cross-functional and inter-cultural) governance structure (4-level)* which allowed (1) dynamic reaction to unpredictable changes, (2) fast decision and change approval structure, (3) involvement of all relevant stakeholders to create "consensus pace", (4) overcome/ avoid cross-functional and intercultural "road blocks" (figure 10).
- Ensured that on each level of this structure all relevant stakeholders & cultures were involved.

C-Dimension	Independent	Moderate	Highly	CUS
Time/ Cost	<3months <$250K	3-6months $250K-$750K	>6 months >=750K	★ High
Team-Size	3-4	5-10	>10	★ High
Team Composition	Strong P-Leadership Team worked in past Formal proven PM	Competent P-Leadership Team w. intern./extern. Res. Contractor performance known	Team inexperienced CPM Complex Team structure Complex Contract	★ High
Urgency/ Flexibility	Minimized scope Small MS, Schedule flexible	Schedule, scope minor variation Achievable MS and scope	Over-ambitious scope/schedule Deadline aggressive, fixed Budget, quality inflexible	★ High
Problem Clarity	Clear Business Objectives Easily understood problems	Defined bus. Objectives Problems undefined	Unclear business objectives Problems undefined/ ambiguous	Moderate
Solution Clarity	Solution readily achievable Well understood technol.	Solution difficult to achieve Technology new to organizat.	Solution groundbreaking innov., imature, complex	Moderate
Requirement Volatility	Strong customer support Basic requirements understood, stable, straightforward	Adequate customer support Basic requirements understood but expected to change Moderate complex functionality	Inadequate customer support Requirements poorly understood, volatile, largely undefined High complex functionality	★ High
Politic/ SH Importance	Strong executive support No political implication Straightforward communication	Adequate executive support Minor political implications 2-3 SH groups, challeng. Commun.	Mixed/ inadequate executive support Major political implications, Visible at highest level, Multi-compl.SH	Moderate
Organizat. Change	Impact single BU, Familiar business process	Impact 2-3 familiar BU's Most familiar business processes	Span functional groups Transforms/ shifts organization Impact many processes	★ High
Commercial Change	Minor changes commercial approach	Enhancement to existing commercial practices	Ground breaking commercial practices	Moderate
Risks, Ext. Constraints	Low risk, some external influence No challenging integration No new regulatory requirements	Moderate risk, some external influence No challenging integration Some new regulatory requirements	High risks, many external influence Significant integration required No new regulatory requirements Highly regulated sector	★ High

Fig. 10 Concluded Project Governance Structure

B. Neuroscience (Behavior, Decision – Making, Partnership) ➔ Individual Stakeholder and Contract Management

CANYON analyzed the "given situation" and discussed (high-level and in an understandable manner) the underlying theoretical background. Equipped with this understanding, CANYON

- Considered that in setting up the structure of the project team as well as the later entity was based on a *smart selection of people* took place (matching of role and person; also cross-cultural)
- *Communication* was planned under the *principles of motivation and incentives*!
- The *best possible fit of individual reward* was ensured (sending US employees to Germany for training, special employee advantage to ensure access to CANYON bikes, team events, support from Germany during launch period, alignment between customer and individual customer relation (production badge for customer).
- *Human partnership principles* were considered in the design, structure, negotiation[6] and execution of contracts with crucial vendors (bike assembly, logistic, IT,…) to ensure sustainable and economic execution.

C. Sociology- Culture, Leadership ➔ Considering cultural diversity

CANYON had a clear understanding of the significance and relevance of intercultural aspects for such an undertaking (project and market entry). Therefore, the cultural differences had been analyzed and considered

- In the *selection and assignment for the project team* (workstream leader USA & GER)

[6] Application of Haward-Principles of Negotiations

- Involvement of *vendors with US-specific background* (e.g. communication, customer service, ..).
- Definition of *US-specific product portfolio* (bike spec's, accessories, clothes)
- Definition of a *US-specific communication* road map and design of facility and show room.
- Individual *education/ training of specific cultural differences* (GER/ US/ TWN)
- *Consideration specific habit in application of IT-software* (ERP- screen and process design).
- *Involvement of CUS- experts into the design of business processes* of the future US-entity.

D. Agile Project Management ➔ Hybrid Project Management

With the understanding of the project complexity CANYON could combine the complexity approach with the agile project management methodology. CANYON:

- Combined a well thought through "old fashion" planned approach with the agile methodology
- The project was planned high level by using gates and milestones
- Those gates/ milestones outcomes and requirement were clearly defined and communicated
- The project control/ monitoring was implemented as a hybrid of agile and non-agile methods
- The project stream meetings took place EVERY week!
- This status meeting was (mainly) focused to two weeks "sprints" (last week done, this week planned).
- In accordance with agile principles a weekly plan for each workstream was discussed under involvement of other impacted workstreams.
- In parallel each workstream had to forecast (honesty principle) for the next "workstream MS" as well as the last MS/ GATE".
- This allowed the combination of detailed short term focus (weeks), mid-term (next workstream MS) and long term (last MS) team prospective.
- A one-fits-all approach toplanning and controlling was not implemented (workstream responsibility for time planning in detail) – MS and weekly documented activity forecast

5. Summary and outlook

CANYON learned that complex projects require a special and holistic match of project setting (organization, processes, planning and execution) and the realization approach. This approach is a combination of an *international* smart complex project (management) approach and a *global* company approach.

This challenge is tough but can be managed when the *theoretical foundation/ background* is:

- known and analyzed carefully and smartly matched to the specific setting of the project, undertaken and company
- transferred in a smart way to the practical application under consideration of intercultural aspects.
- transferred into the operation fully planned and executed in close and permanent connection with (1) the management and (2) the practical users to ensure acceptance and competent application.

It was and will be of relevance that the management is aware of the complex nature of the project being undertaken, the special requirements to the project organization and governance structure and takes operational responsibility during planning and execution within this "special governance structure" for complex projects.

Besides the entrepreneurial reason for the CANYON projects it must be considered that the synchronization between the special complex project actions must be aligned to the similar complexity of the CANYON enterprise situation (different cultures, human behavior, agile business management, dynamic behavior).

What CANYON successfully learned during this project had and will have a relevant impact to our organization.

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