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EVALUATION FROM FACTORS FOR O SHARING OF KNOWLEDGE FACTORY WORKER IN ONE COMPANY AUTOMOTIVE

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1

Abstract: At search per larger competitiveness, The industry has discussed and applied several concepts related to people and processes. However, in many organizations, the concepts adopted are implemented and maintained in a disjointed way. Several authors recognize O paper gives advantage competitive of knowledge, which _ It is treated in form implied us models traditional in Management gives Production. exploring opportunities in that scenery, O objective It is to analyze O sharing of knowledge factory worker in two plants in a manufacturer in auto parts gives region south of Brazil, per quite in factors relatives The Management of Knowledge, Organization of Job and Organization gives Production. THE methodology applied It is one approach qualitative-quantitative, which involves workers and managers in the State of Paraná to identify and evaluate such factors, as to their degree of importance, according to the Knowledge-based Analytical Hierarchical Structure (MUNIZ, 2010), and its evaluation fur method *Analytic hierarchy Process* (SAATY, 1997), as proposed per Oliveira (2016). It is search indicates, the importance of those factors at opinion of managers and production workers, and whose results highlight: The incentive, with 17.53% of scenery global, followed for the quality (Zero defect) with 12.17%, and instruction in job with 10.04%.

Keywords: Knowledge. Production. decision. Industry 4.0

INTRODUCTION

The automotive industry is an important segment for the world economy, that, through the design, development, manufacture, advertising and sale of vehicles registers an investment of US$ 91.5 billion and a return of nearly US$2 trillion annually, still representing an average annual increase of 2.6% (ANFAVEA, 2015). Furthermore, with around 9 million people employed directly, this is a sector that makes up more than 5.0% of employment in the industry worldwide in production (OICA, 2015). At the Brazil, what corresponds to ninth larger producer of cars and commercial vehicles, this industrial sector represents 23.3% of the product national gross at the sector industrial.

This one study addresses factory worker at the place Where occurs job direct in transformation and sharing of Knowledge is the process in create and to exchange knowledge in between at people (VAN DEN HOOF; RIDDER, 2004), what implies collaboration and synergy of workers to jointly achieve goals common. This theme is part of the Knowledge Management area, which is the systematized, formal and deliberate at the sense in capture, to preserve, share and (re)use the knowledge unspoken and explicit created and employees by people during routine tasks and improvement of production processes, in order to generate measurable results for the organization and for people (MUNIZ JR.; TRZESNIAK; BATISTA JR., 2009). There is consensus on the role of knowledge as advantage competitive organizational.

Hsiao, Chen and chang (2011) indicate what interaction Social and Communication influence at ability in management of knowledge with views to organization's performance. Wong (2005) shows that there is a relationship between factors of Implementation in Management of Knowledge (GC) and performance organizational. Hsiao, Chen and Chang (2011) indicate positive results between social interaction and performance organizational. sié and Yakhlef (2009) defend what sharing and the dissemination in knowledge and apprenticeship in between at people must to be performed per quite in dialogue and they are associates to

understanding of because in things happen, which includes each individual's judgment and experiences. The GC, at the however, still It is one question sub explored at practice in Management, although to attract the attention of researchers (NONAKA; VON KROGH; VOELPEL, 2006). That has influenced various areas, in between they The Management in Production, *management,* and the Computer Science. The KM theme in General Management Theory is a field relatively "young", and many concepts are still evolving (NONAKA; VON KROGH; VOELPEL, 2006).

Important factors for the implementation of Knowledge Management include: Support and leadership managerial, culture, technology gives information, strategy and purpose, measurement, organizational infrastructure, processes and activities, incentives motivational, resources, trainings, management in resources humans, and features personal (NAKANO; MUNIZ JR.; BAPTIST JR., 2013; MUNIZ JR.; BAPTIST JR.; LOUREIRO, 2010; WONG, 2005; OLIVEIRA, 2016). The formal treatment of factors such as these contributes to the creation of a favorable context for sharing knowledge among workers, in that project, with a focus on preparing for The industry 4.0.

The research problem is the search for better competitiveness in the preparation for The industry 4.0, and for such, have up discussed and applied several concepts related The people, Law Suit and knowledge. Still, in many organizations, you concepts adopted are implemented and kept in form disjointed. Questions important in search at the scenery introduced are: Which factors are priorities for what a system in production line up People, Law Suit and Knowledge? How to evaluate such factors? How important are these factors in opinion in managers and workers in production?

The objective that is general of this search It is to evaluate you factors for haring of knowledge factory worker at company object of study, with acting at the branch automotive, analyzing the results of its two units located in the southern region of Brazil, through gives collect in Data and information what can to be worked and transformed in improvements for current process. The achievement of general objective implies at achievement from following goals specific:

- Correlate you factors relevant for the Organization of Knowledge, gives Production and of Job relatives to environment factory worker;
- To apply methods in aid The power plug in decision for identify you factors most relevant at company object of study; and
- Map aspects behavioral what influence the sharing of Knowledge.

For the achievement of that objective, that job if based at search in Oliveira (2016), what uses The Structure hierarchical analytics based at the Knowledge (MUNIZ JR. et al., 2010) to identify knowledge sharing factors worker and makes use of the *Analytic Hierarchy* decision-making aid method *Process* (AHP), proposed per Saaty (1977), together gives technique *incomplete pairwise Comparison,* proposal per Harker (1987).

The importance gives management in knowledge inside gives industry automotive he can bring great results, both for the company and for the employee, but it is a challenge The to be hit, then there is The worry in as That stage he can to be hit without generate big ones impacts or losses, although with The adoption in improvements inside of the industry there is The great possibility of advance gives economy and also of growth gives company, conquering new markets or up until same, a positioning best inside of Marketplace towards you their big ones competitors.

The search uses one approach quali-quantity what involves workers and managers to identify the factors and evaluate them. This research indicates the relationship between the factors and the explicit use of the theme "knowledge" in the productive system of the object company of study, assessing at your two units, both being prepared for the technologica evolution regarding the industry 4.0

Of that form, Is it over there contributes The promotion in a context favorable The creation and to sharing of workers' knowledge and is in line with recent demands in search, aiming The larger competitiveness of sector industrial Brazilian; well as concludes with recommendations for future action and research. Its limitation is that the conclusion stays restricted to study in case in question, but what at sequence he can still, promote the comparison of data between the two units of the company, and promote a plan in action specific for each one from them, aiming including, face the maturity found, differentiate at strategies for the evolution for the industry 4.0, optimizing including, the schedule from investments Requested.

THEORETICAL GROUNDS

The Management of Knowledge (GC) as one line in search relevant quickly aroused attention and recognition in recent years (COLLINS; CLARK, 2003; SERENKO; BONTIS, 2004). Among the various processes involved in the Knowledge Management, knowledge sharing remains as a critical activity for organizations, since the effectiveness in results It depends gives effectiveness gives transfer of knowledge and best practices among the organization's members. Knowledge sharing is like transfer knowledge and skills in between you experts and holders of this knowledge, for novices (KUO; YOUNG, 2008). This is a process where the people share relevant ideas, information and suggestions (EZE et al., 2013) between individuals, groups, work teams, involving different departments and organizations (IPE, 2003).

As addressed by Polanyi (2009), knowledge of people goes far beyond than they simply do. Generally, tacit knowledge is difficult to share, then he It is subjective and ambiguous, depending on of features personal and innate in each employee/worker, well as, gives difficulty in identify The best way in to apply This one knowledge, which be, The ability required. Concludes, what experienced workers/workers must work side by side with newcomers (FULLER et al., 2005) for share you their knowledge unspoken, through in an environment in job favorable, characterized per one intense Communication, a strong sense of belonging (acts as the "owner" of the company), and an organizational climate reasoned at confidence and freedom in expression (BRESSEN et al., 2003).

The ability to acquire knowledge, recognize its value and apply it or turn it It is known as Capacity absorptive (ZAHARA; GEORGE, 2002); that concept relates intimately with sharing of Knowledge.

According to Baskerville and Dulipovici (2006), incentive efforts and investments to sharing of knowledge become useless When at organizations has low capacity absorptive. The development in sharing of knowledge with a view to the absorptive capacity of the organization presents itself as a challenge technical-scientific, particularly relevant in industry 4.0. Ripamonti and Scaratti (2012) indicate the importance of knowledge place and your evaluation as one manner in improve resources humans in the organizations. Those authors also observe the difficulty of replicating assessment processes from one context to another. Evaluate the factors that influence knowledge sharing have relevance to various technological challenges. The analysis

4

of recent articles demonstrates the relevance in your evaluation in several context, as, per example, for:

- Development of human resources within organizations (HSIAO et al. al., 2011; RIPAMONTI; SCARATTI, 2012);
- The Implementation andsharing in factors critics for success gives management of knowledge (WONG, 2005; DALKIR, 2007; AZIZ; SPARROW, 2011);
- Managing learned content through education systems in Teaching the Distance (KASAPBASI; VAROL, 2009).

The evaluation of this work is based on the Analytical Hierarchical Structure based at the Knowledge (MUNIZ Jr. et al., 2010). it is in a model in evaluation that indicates a coherent relationship between the leveraging factors of the Organization of the Labor (OT) and the Production Organization (OP), and the leveraging factors of Knowledge Management (KM) and which was used in Oliveira (2016) to assess the sharing of knowledge factory worker per quite of *Analytic hierarchy Process* (SAATY, 1980) and *incomplete Pairswise comparison* (HARKER, 1987).

SHARING OF KNOWLEDGE AT THE ENVIRONMENT INDUSTRIAL AND TECHNOLOGICAL

Vergison (quoted per RAJKUMAR, 2001, P. 4) identifies two flows independent gives search gives Management of Knowledge at the environment industrial. THE scale micro, focused at application of knowledge at the environment factory worker, and The scale macro with focus at the level gives unity in business. In this article, focus at scale micro. In this context, Grotenhuis and Weggeman (2002) indicates the interaction in between The source of knowledge and receiver, during process in sharing of knowledge, he can avoid the duplication and job that is redundant, creating knowledge with support of experts and people experienced, promoting directions; inspiring and exciting at people for become experts and resolve problems, at your phase initial in manifestation, avoiding waste in time, money and job. Examples in sharing in knowledge at the environment industrial factory worker, include training at the job, training fFrom workers newbies per a factory worker Experient, interaction practice in between you workers during at activities daily, and at discussions for the solution in problems during the events in continuous improvement (*kaizen).*

Relatively to the employees, *blue collar,* or be: you operational; sharing of knowledge It is requirement for contribute with the creation and improvement of processes, products and services, and their effectiveness in results depends on the methodology applied at solution from problems, of training and sense in collaboration and synergy among the participants in the process. Systematically, the experiences of workers must to be shared us levels hierarchical superiors gives organization (*white collar* employees) There are many sources of knowledge, which contribute for the improvement from results, including the rotation at the post in job (*job rotation)*, learning by doing, formal training, quality manuals, operation pattern, suggestions in improvements, innovations, new practices and methodology in solution in problems. important features the be developed and directly linked to knowledge sharing, as emphasized by Haynes (1999), include flexibility functional, versatility and multifunctionality, when you workers are trained for act in varied posts in job.

According to cantu et al. (2009), The motivation guys and the opportunity in learn with others collaborators are fundamental for the generation in knowledge, including for at companies small and averages

in technology, what will be supporting preparation for industry 4.0, of industries in general. Attitudes and skills of those who participate in the transfer process are also relevant, and this It is especially real in cases in that knowledge is highly tacit. Personal development is an example of organizational and social development knowledge based. In terms of practical implications for the results, study points for the importance of paper from managers and collaborators as carriers of initiative, voluntary effort and commitment. at the same time, suggest the process in planning strategic gives company he must include the knowledge to be transferred.

ANALYTIC HIERARCHY PROCESS (AHP)

AHP It is one structure hierarchical linear with one structure in up for low no *feedback* from the lower level to the higher level. First proposes the global goal standards in influence. At alternatives will be directly affected per levels most tall. Each alternative depends only on itself. All the elements that make up each level the grades are considered independent of each other (SAATY, 2005). The *Analytic Hierarchy Process* was developed by Saaty (1970) and is one of the best methods for considering alternative decisions with various criteria or objectives multiples, based on and compared with the outcome of the trial, is a tool for calibration in scale measurement in numeric, quantitative and performance qualitative (VAIDYA; KUMAR, 2006).

Based at the method in thought Newtonian-Cartesian, he Visa solve the complexity of the problem through decomposition and stratification of factors. The hierarchy will depend on the objective, choose to decompose the complexity of the problem. One hierarchy simple It is shown at FIG. 1.

Saaty (2008) points 4 steps for to take one decision in manner organized:

- define the problem and determine objective expected;
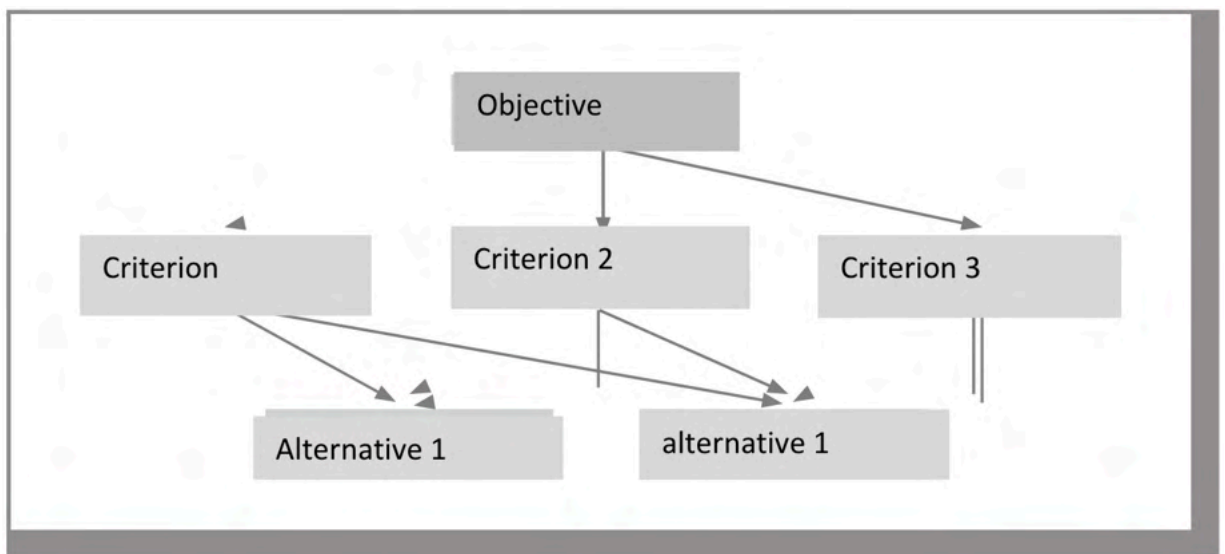- Ramp up one hierarchy in power plug

FIGURE 1 – Structure basic of method AHP.

SOURCE: The authors (2015).

in decision with base in goals and follow the goals from a broad perspective to reach from intermediate to level most low, what It depends in factors subsequent;

- establish one headquarters in judgment in value reciprocal per quite gives Comparison in between pairs, Where each element in level higher It is used for to compare you elements of middle level below;

- use the priority obtained comparing you weights in priority From levels intermediaries below. Do this for all elements. So for each element in the following levels, add its value as get priority global. Continue the weighting and addition process until the priority finish the alternative in level lower.

The scale in Comparation basic (PAINTING 1) provides value in importance relative of the "peer-to-peer" relationship and represents how dominant an alternative is under the other in relationship of the criterion. Through gives normalization and gives average geometric, arrives The a self vector in priorities relative through From factors.

Solomon and Montevechi (2001) indicate what for to have results Good one must follow three principles: time for decision making, no more than nine alternatives, at the case in comparisons complete, and be independence in between the elements in a same hierarchical level.

At inconsistencies individual at the set in judgment they can to be checked, and the group what you meet a high grade in inconsistency, ask one revision individual in one or more trials. You can also exclude such personal judgments, this is the advantage of AHP, and other MCDM (*multiple choice decision making*), the method he can to evaluate judgment express fur borrower in decision at Comparation paired fFrom factors gives headquarters (ALTUZARRA; MORENO-JIMENEZ; SAVIOR, 2006).

To analyze that grade in inconsistency, one must get O vector in weights in each factor by summing each value of your comparison matrix, plus the property relative of the corresponding factor; the consistency vector is the division of the value of the property relative the vector.

Maximum estimate, the eigenvalue of the "even" parity matrix is obtained by average arithmetic from values of vector consistency. THE formula for calculate the index in consistency (CI) It is: $IC = (\lambda max - n) / (n-1)$, Where we have "n" as the number in

Scale Numerical	Definition
1	Equal Importance
3	Weak Importance
5	Strong Importance
7	Importance Much Strong
9	absolute Importance
2, 4, 6, 8	Importances intermediaries in between two Values adjacent
Values reciprocal	Values inverses to the of painting above (1/2, 1/3, etc)

PAINTING 1 – Scale in Comparation of method AHP.

SOURCE: Saaty (1991 – Adapted).

No	1	two	3	4	5	6	7	8	9
ICA	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.49

PAINTING two – Index in consistency Random.

SOURCE: Saaty (1994).

conditions to be considered. To determine the consistency ratio (CR), use the following formula: CR = IC / ICA, Where ICA if refers to index in consistency larger SAATY (1994) led, tabulated and proposed the number in comparisons in parity. The value of that index It is shown at the PAINTING two.

For Saaty (2001), when CR≤0.10, accept the judgment; in the case of CR≤0.20 he can to be tolerated; it is recommended what judgment of value CR ≥ 0.20 he must to be reviewed and can be ignored. The review judgment is a systematic procedure, which improve the assistance to power plug in decisions.

INDUSTRY 4.0

When analyzing the structure of industrial revolutions, a pattern of behavior according to Schumpeter's approach (1934; 1991), according to the industry evolved and he comes evolving in form cyclic based at inclusion in innovations that bring ruptures/revolutions on current paradigms bringing a series of new advantages and development; therefore, becoming the dominant style. That new style remains up until to emerge a new paradigm leading the stagnation and recession, being broken again from the appearance of new technologies, initiating the cycle again.

About such ruptures it's called per Paradigm Techno-Economic (PTE), what he can to be defined as one combination in innovations what result in the transformations and evolution of organizational processes and techniques, and in the economy as a whole, exercising one important influence at the behavior gives same.

Checking in more detail, it is observed that the 1st Industrial Revolution (started per return in 1770s/80s) joined fur emergence of respective innovations: (i) to the mechanization of production, (ii) powered by water and steam energy; in addition (iii) gives use of system modal rail (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

It is observed that these innovations made it possible to transpose the current paradigm characterized by limitations in scale inherent to the Law Suit, what used tools and manual equipment – also called artisanal – in addition to the largest inflexibility and logistical restriction, since there were no modals capable of distributing and interconnect one great the amount in materials (raw material and products) in distances most long (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

Such innovations therefore promoted the emergence of new practices and structures organizational replacing the production artisanal (whose Craftsman was owner in your workshop, tools and responsible per all productive processes) for the production industrial. In others words, now the place in job and tools they were properties from owners in means in production (also called per capitalists) and the process productive would be rationalized, or be, there would be division technique Where each factory worker would execute one activity specific. (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

These new practices became the dominant style until approximately 1880s/90s, when

a new paradigm emerged with the need to create a production in wide scale unable by technologies in force. started, then, what would come The to be called as The 2nd Revolution Industrial with The transposition the limits associated with the inflexibility of purely mechanical tooling by appearance in innovations in product, as The electrification of machines (tools and machines moved the energy electric), in addition of use gives energy per fuel fossil and the shift from iron to steel as a source of raw material (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

Furthermore, and mainly, would be developed also in this Monday revolution a process innovation popularly known as "mass production", Where line in mounting would shelter process productive already rationalized in a flow continuous, whose parts, tools and products would be now interchangeable (units identical) (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

To keep up per decades (up until 1950 about) as regime or technological paradigm, the signs of exhaustion of this revolution appeared with the first warnings about the possibility of depletion of non-renewable resources, as well as some changes in demand for customized products. As consequence, develops start gives 3rd Revolution Industrial, supported per innovations as, per example, emergence in systems and components computer/electronic and the use in technologies gives information and Communication. In other words, the emergence of the automation era (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

Therefore, The growing expansion in technology computational mitigated at limitations in versatility and agility, characteristic of paradigm previous, and made possible new shapes in organization industrial, with direct *link* in between you many different departments (*design,* management, production and marketing, now stand on one single system operational) Where you Law Suit productive are based at attempt in one production that is flexible, and per a mix in products and services in constant change, adapting at changes gives demand (FREEMAN; PEREZ, 1988; FREEMAN, 1991; PEREZ, 2010).

It is observed, therefore, what at changes in paradigm correspond at changes and evolutions technological what scored each era and had impact significant at form in organization of companies, at ball from their Law Suit productive and up until at change in attitudes and in habits in consumption (TAB. 2).

In short, in the 1st Industrial Revolution there was a transformation of the manuals in Law Suit mechanics. At 2nd Revolution Industrial intensified the use gives energy electric and the division of job; with the introduction at 3rd Industrial Revolution, from the first programmable logic controls to greater automation at industry.

The Industry 4.0 – Name published per Henning Kagermann, lukas wolf-dieter and Wolfgang Wahlster in 2011 at fair in Hanover (KAGERMANN, 2011) – it started then to be used to designate a fourth phase of industrialization based on 9pillars what are at innovations or changes technological most recent. We will observemost in detail.

A techno-economic paradigm is a set of successful practices based on the insertion of innovations. To understand whether the pillars of Industry 4. 0 correspond to a new paradigm, the correspondence must be verified in three criteria: change in the cost structure, perception of opportunity spaces and emergence in new models organizational.

As noted by Oliveira (2016), industry 4.0 impacts the structure of costs, since the technologies associated with this concept present a trend descending of Weight, size,

Revolution Industrial	paradigms transposed	technologies as factors key
1st	Process transformation manuals in Law Suit mechanics	Cotton and iron
	Creation of the steam engine and creation From systems modals perrailroad	Use gives energy water and Thesteam Use gives mesh railway
2nd	Electrification of machines	Use gives energy electricUse of steel
	System in Production in Pasta	Line in mounting and partsinterchangeable Use gives energy per derivatives of Petroleum
3rd	Automation gives production and useof information technologies and Communication	computers, products electronics, *software,* telecommunications, services ininformation

TABLE 1 – Evolution From paradigms Techno - Economics.

SOURCE: freeman and perez (1988), freeman (1991), perez (2010).

consumption energetic and about everything of cost, enhancing its use. For example, integration by CPS *(Cyber- Physical-Systems)* allows the monitoring of the production system and the collection of Data gives *performance* in time real, allowed of this form, The existence in proactive maintenance. Thus, through components, such as the sensors, which control the temperature; actions can be implemented preventive measures to be taken when it deviates from the recommended range, preventing one future malfunction. Without to mention The manufacturing 3D Where, The leave of model ideal gives your ask on one *software* in modeling three-dimensional, if it achieves use only The the amount certain in material, avoiding so, waste or excesses.

Opportunity perception spaces are identified as the digital technologies are pervasive, generating the ability to innovate in facilities factories, products and the respective production process. For example, *Cloud application computing* and *big Date analytics,* has capacity for revolutionize completely.

Finally, the introduction of smart technologies in production affects the in decision, contributing for The your decentralization and changing you models

organizations in place to date. Thus, there is greater autonomy of the different entities involved in the process and the integration of local information in the power plug in decision (OLIVEIRA, 2016).

It is concluded, then, as a result, that industry 4.0 meets the requirements for if frame at taxonomy of new PTE.

METHODOLOGY SUPPLIES THE SEARCH

This section presents a description of the research method used to the analysis of the factors of sharing of workers' knowledge in the industry and the global assessment of these factors, through the presentation of the steps followed to the your consolidation.

The method adopted in the present work was the phenomenological one, which according to Triviños (1992), is characterized by the study of essences, intentionality and that arises from object-directed consciousness, recognizing that there is no object without subject. For diehl and Tatim (2004) that type in investigation if worry in to describe the experience such as Is it over there It is, being what the reality, built socially, It is understood as being communicable, interpretable and understandable.

The process outlined in the Figure below includes three distinct phases of actions: (1) foundation Theoretical, starting for the revision bibliographic for achievement Specific and General Objectives; (2) Field Work Design, with the classification of method, construction of instrument in interview for lifting in Data and of model in evaluation based at the method AHP-IPC; and (3) The Realization of Job in Field.

The literature review included articles and publications from 1979 to 2016, and also with at references pointed us articles selected inside of this period. During thefoundation theoretical of theme, used the base in Data *web of Science, from the Institute for Scientific Information* (ISI) that allows the visualization of works published in periodicals international renowned; well as: *researchgate* and *Google Scholar* _ For you topics used at words were: Management of Knowledge *(acknowledged management)*. Knowledge factory worker.

Analytic hierarchy Process. Industry 4.0 ; researched in shapes isolated and combined. Among at categories selected : *Management, Operations Research, Management Science, Industrial Engineering, engineering and manufacturing engineering Multidisciplinary.*

The search adopted one approach in character descriptive, what allows to describe at features in determined population or phenomenon, in addition in enable check relationship between the variables. Still, it is considered a qualitative-quantitative research, which associates statistical analysis with the investigation of the meanings of human relationships, privileging a better understanding of the topic to be studied, thus facilitating the interpretation From Data obtained (FIGUEIREDO, 2007). Second diehl and Tatim (2004) That approach he can to describe the complexity in determined problem and the interaction in certain variables, understand and to rank you Law Suit dynamic
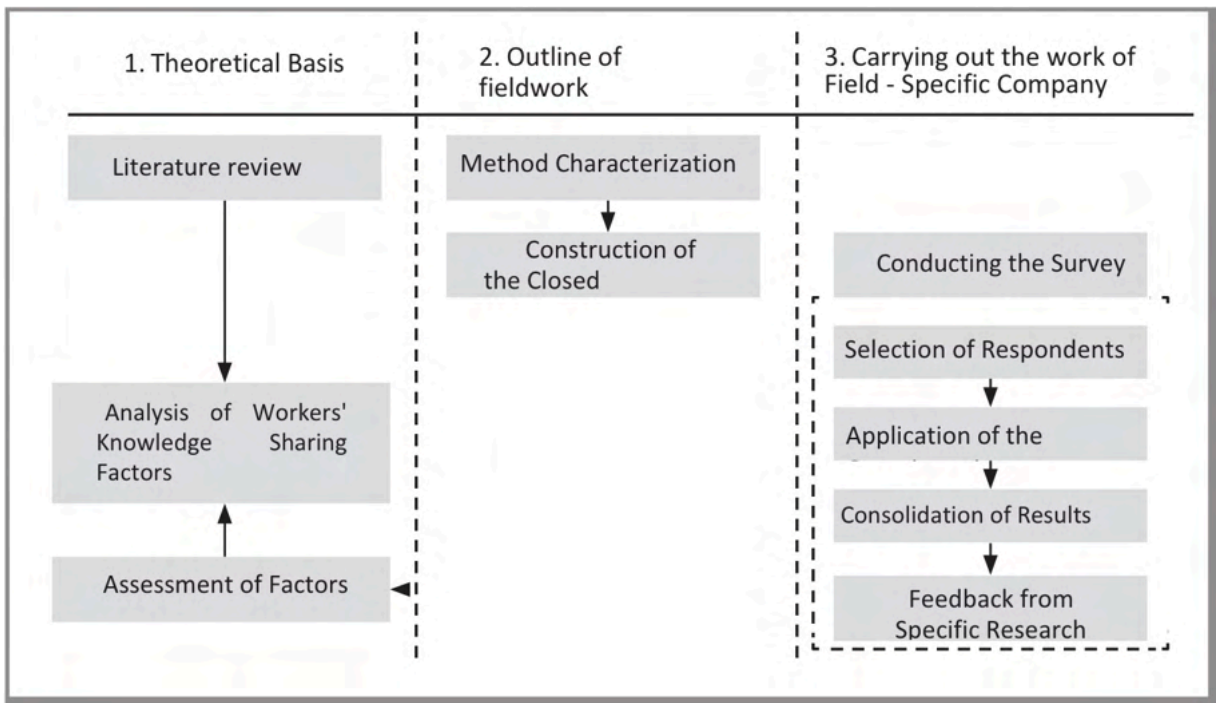

FIGURE two – Phases for the Realization gives search.

SOURCE:The authors.

lived per groups social, contribute for O process in change in given away group.

It was made necessary the choice in one tool for evaluation from factors studied in the search for a better sharing of workers' knowledge. Those factors are based on the Knowledge-based Production Management Model (MGP-C; MUNIZ Jr., 2007) and they can to be divided in factors levers gives: (The) Management of Knowledge (GC); (b) Work Organization and (c) Production Organization; totaling 15 factors. However, it is observed that the leveraging factors of Management of Knowledge if relate with you too much factors as shapes in conversion of knowledge, and represent so, means in if share O knowledge through gives Organization of Job (OT) and gives Organization Production (OP).

At construction of quiz closed, in each company participant used procedure in lifting the method *survey,* what according to Malhotra (2001) and Gil (2008), serves to obtain information based on the questioning from participants, inside in a number significant in people about of the problem studied, to which questions they can say respect to their behavior, intentions, attitudes, perceptions, motivations and characteristics demographics and in style in life.

The questionnaire had questions that were divided into five parts. The first part with two questions, relative to the criteria, was trying to verify the importance of each of them in relation to the others, using a nine-point scale that it varied on both sides from minor to exceptional importance. At three others parts they were questions referents The Comparison of Alternatives to in if improve the proposal for a given Criterion, therefore, for each of the three Criteria, eleven questions in comparisons parities, adding a total in 35 questions.

ANALYSIS FROM RESULTS

The gift search has per objective to be one extension of project in Analysis From factors for sharing workers' knowledge in industries of sector automotive at the Brazil, elaborate per Stefano Petrini in Oliveira, with focus of that sector within the state of São Paulo with the methodologies AHP, *Analytic Hierarchy Process* (SAATY, 1977); ANP, *Analytic Network Process* (SAATY, 1996); FDA, *Fuzzy Decision Approach* (LIANG; WANG, 1991); MACBETH, *Measuring attractiveness by The categorical based Evaluation Technique* (BANA; COAST; VASNICK, 1994); TOPSIS, *Technique for Order Preference by similarity to Ideal Solution* (HWANG; YOON, 1981); ELECTRE – *elimination et Choix translator there Réalité* (ROY, 1968); PROMETHEE (*preference ranking Organization Method for enrichment Evaluatis* (BRANS; VINCKE, 1984).

In conversations made in between you researchers and advisor, it was chosen per follow the *Analytic Hierachy Proces* (AHP) methodology within the automotive sector in the state Paraná and below, the results of this research project are presented additional.

The research carried out with a company in the automotive sector in southern Brazil, which account with two seats, being one at region metropolitan in Curitiba and other in the interior of Rio Grande do Sul. The collection of information through a questionnaire applied to employees, in order to obtain the best result decision making between the chosen factors. The table below shows the results obtained.

The representativeness From Data presented above reveals your main notes in the answers regarding the answer to the questionnaire, because in a whole we had 210 employees, being what 61% responded in form correct, 10% were not answered all questions and 30% of the answers were duplicates per question.
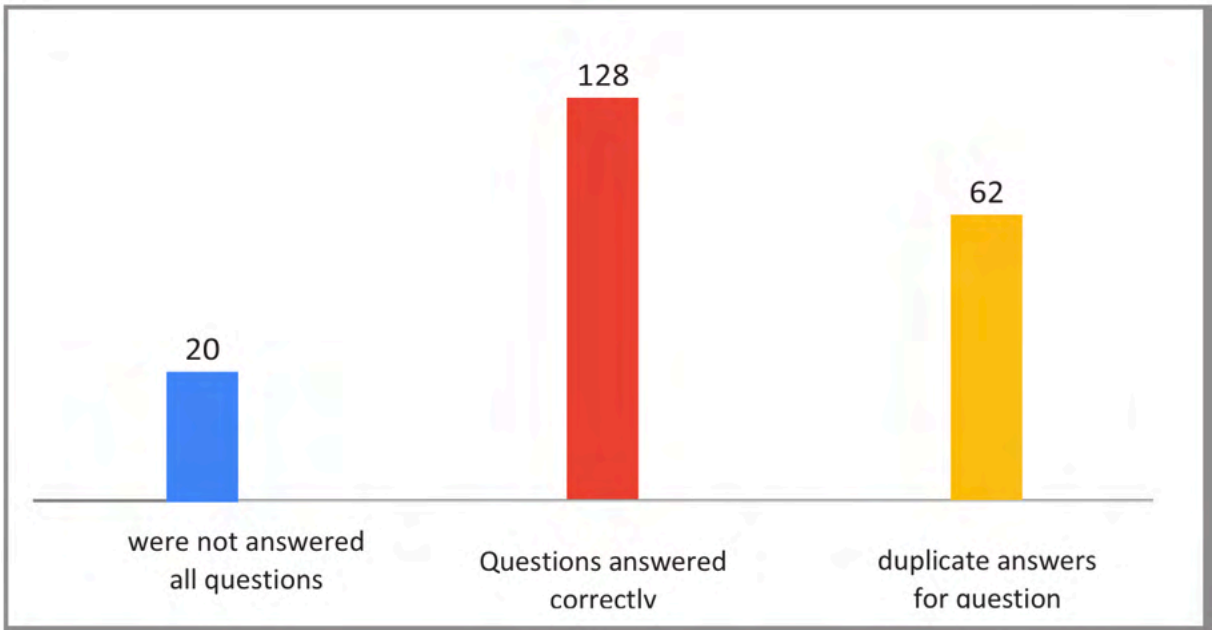
PAINTING 3 – Representativeness per Status.

SOURCE: Data gives search (2021).

FRAME 4 – Selection Criteria.

SOURCE: Survey Data (2021).

This sample relied on various data from employees of both branches, whose data extracted in the collection were: the time in the position of each employee; office current in each a, and if he was easy in to be answered. According painting above.

After surveying the results, the previously reported proposed method was applied, that is the *Analytic method hierarchy processes* (AHP), which in total were 35 questions. In order to have proper applicability and efficiency in the results, all 128 participants who answered correctly were assigned 3 criteria to each respondent within a 3x3 square matrix. See the table 2 below.

Using the data presented in table 2, we can see in tables 3, 4 and 5 how each criterion was calculated within the AHP – IPC method.

In the tables presented above, after inserting the values according to the degree of importance answered in the questionnaire, the eigenvector is calculated in which the eigenvector (MG) for each line is taken the geometric mean of each information, to finish it is performed the normalized eigenvector; when the MG eigenvector of each row is divided by the total column sum of the eigenvector.

In the global analysis of the criteria, it can be observed that the vast majority of employees indicate that, in most order to make a more concrete decision, the weight of studying the work instruction presented a result of 44.62% in the calculated results. As shown below.

Continuing the global analysis, below are tables 5, 6 and 7 and the alternatives/criteria of the analysis based on performance; performance – normalized in numbers, and normalized in % performance. Among the three alternatives calculated, the incentive had a very considerable advantage in relation to the other items identified in the table. Being 20.95% in criterion 1, 17.29% in criterion 2 and 15.39% in criterion 3.

In a global scenario according to the table 9 indicated below, the research conclusions within all the calculations that in the integrated opinion of the respondents, the criterion "Studying the Work Instruction" and the alternative "Incentive" were considered the most important factors for the sharing of workers' knowledge. Even the judgment of importance of the alternative is maintained when analyzed by individual criteria.

FINAL CONSIDERATIONS

With base at sampling and us Data collected, statistically representing approximately 30% of the population studied, we sought to respond to the constant demand for best competitiveness at industry, and enlarge the discussion about applicability in several concepts related the people and Law Suit. However, in many organizations, you concepts adopted are installed and implemented in form disjointed. At the study and at application of quiz, there is O due recognition about the role of the competitive advantage of knowledge, which is normally treated in form implied us models traditional in Management gives Production.

With focus at preparation for the industry 4.0, he was identified through gives application of quiz the importance of sharing knowledge as one manner in improve resources humans in the organizations and improve The power plug in decisions inside of the operational scope. To reach the conclusion of the importance of KM, the research relied on the *Analytic Hierarchy Process* (AHP) method that works as a structure hierarchical linear, being the proposal, the goal global from standards in influence us which at alternatives were directly affected per levels most tall, and each alternative It depends only in yes same. created per Saaty, Analytic *hierarchy process*

	AHP -IPC	to talk	register	study	Auto-Vector(MG)	Self - Normalized Vector		
Respondent 1	to talk	1	5	1	1.71	45.45%	9.09%	45.45%
	register	1/5	1	1/5	0.34			
	Studying	1		1	1.71			
	TOTAL	2.20	11.00	2.20	3.76			
	AHP-IPC	to talk	register	studied	Auto Vector(MG)	Self - Normalized Vector		
Respondent 2	to talk	1	1/7	1/49	0.14	1.75%	12.28%	85.96%
	register	7	1	1/7	1.00			
	study	49	7	1	7.00			
	TOTAL	57.00	8	1.16	8.14			
	AHP-IPC	to talk	register	study	Auto Vector(MG)	Self-Normalized Vector		
Respondent 3	to talk	1	1/3	1/3	0.48	14.29%	42.86%	42.86%
	register	3	1	1	1.44			
	study	3	1	1	1.44			
	TOTAL	7.00	2.33	2.33	3.37			
	AHP-IPC	to talk	register	study	Auto Vector(MG)	Self-Normalized Vector		
Respondent 4	to talk	1	7	35	6.26	85.37%	12.20%	2.44%
	register	1/7	1	5	0.89			
	study	0	1/5	1	0.18			
	TOTAL	1.17	8.20	41.00	7.33			

TABLE 2 – Calculation AHP – CPI.

SOURCE: Survey Data (2021).

Normalized author-vector

0,74%	2,23%	11,16%	2,23%	0,45%	2,23%	11,16%	55,80%	11,16%	2,23%	0,45%	0,15%	

	AHP	Obj.	Est.	Com.	Tre.	C.P.	R.P.	M.S.P.	I.T.	5S	Z.D.	T.R.	Inc.	Auto-vector(M.G)
	Obj.	1	1/3	1/15	1/3	1 2/3	1/3	1/15	1/75	1/15	1/3	1 2/3	5	0,31
	Est.	3	1	1/5	1	5	1	1/5	0	1/5	1	5	15	0,92
	Com.	15	5	1	5	25	5	1	1/5	1	5	25	75	4,59
	Tre.	3	1	1/5	1	5	1	1/5	0	1/5	1	5	15	0,92
	C.P.	3/5	1/5	0	1/5	1	1/5	0	0	0	1/5	1	3	0,18
Respondent 1	R.P.	3	1	1/5	1	5	1	1/5	0	1/5	1	5	15	0,92
	M.S.P.	15	5	1	5	25	5	1	1/5	1	5	25	75	4,59
	I.T.	75	25	5	25	125	25	5	1	5	25	125	375	22,96
	5S	15	5	1	5	25	5	1	1/5	1	5	25	75	4,59
	Z.D.	3	1	1/5	1	5	1	1/5	0	1/5	1	5	15	0,92
	T.R.	3/5	1/5	0	1/5	1	1/5	0	0	0	1/5	1	3	0,18
	Inc.	1/5	0	0	0	1/3	0	0	0	0	0	1/3	1	0,06
	TOTAL	134,40	44,80	8,96	44,80	224,00	44,80	8,96	1,79	8,96	44,80	224,00	672,00	41,14

TABLE 3 - Criterion 1 (Conversation between workers).

Source: Survey Date (2021).

Normalized author-vector

	0,55%	1,64%	8,20%	41,01%	8,20%	24,61%	8,20%	2,73%	0,91%	0,30%	0,91%	2,73%	
AHP	Obj.	Est.	Com.	Tre.	C.P.	R.P.	M.S.P.	I.T.	5S	Z.D.	T.R.	Inc.	Auto-vector(M.G)
Obj.	1	1/3	1/15	1/75	1/15	1/45	1/15	1/5	3/5	1 4/5	3/5	1/5	0,17
Est.	3	1	1/5	0	1/5	0	1/5	3/5	1 4/5	5 2/5	1 4/5	3/5	0,52
Com.	15	5	1	1/5	1	1/3	1	3	9	27	9	3	2,61
Tre.	75	25	5	1	5	1 2/3	5	15	45	135	45	15	13,03
C.P.	15	5	1	1/5	1	1/3	1	3	9	27	9	3	2,61
R.P.	45	15	3	3/5	3	1	3	9	27	81	27	9	7,82
M.S.P.	15	5	1	1/5	1	1/3	1	3	9	27	9	3	2,61
I.T.	5	1 2/3	1/3	0	1/3	1/9	1/3	1	3	9	3	1	0,87
5S	1 2/3	5/9	1/9	0	1/9	0	1/9	1/3	1	3	1	1/3	0,29
Z.D.	5/9	1/5	0	0	0	0	0	1/9	1/3	1	1/3	1/9	0,10
T.R.	1 2/3	5/9	1/9	0	1/9	0	1/9	1/3	1	3	1	1/3	0,29
Inc.	5	1 2/3	1/3	0	1/3	1/9	1/3	1	3	9	3	1	0,87
TOTAL	182,89	60,96	12,19	2,44	12,19	4,06	12,19	36,58	109,73	329,20	109,73	36,58	31,78

Respondent 1

TABLE 4 - Criterion 2 (Registration in the Work Instruction).

SOURCE: Survey Data (2021).

Normalized author-vector

	38,94%	12,98%	4,33%	12,98%	4,33%	12,98%	4,33%	1,44%	0,48%	1,44%	4,33%	1,44%	
AHP	Obj.	Est.	Com.	Tre.	C.P.	R.P.	M.S.P.	I.T.	5S	Z.D.	T.R.	Inc.	Sel- vector(M.G)
Obj.	1	3	9	3	9	3	9	27	81	27	9	27	9,00
Est.	1/3	1	3	1	3	1	3	9	27	9	3	9	3,00
Com.	1/9	1/3	1	1/3	1	1/3	1	3	9	3	1	3	1,00
Tre.	1/3	1	3	1	3	1	3	9	27	9	3	9	3,00
C.P.	1/9	1/3	1	1/3	1	1/3	1	3	9	3	1	3	1,00
R.P.	1/3	1	3	1	3	1	3	9	27	9	3	9	3,00
M.S.P.	1/9	1/3	1	1/3	1	1/3	1	3	9	3	1	3	1,00
I.T.	0	1/9	1/3	1/9	1/3	1/9	1/3	1	3	1	1/3	1	0,33
5S	0	0	1/9	0	1/9	0	1/9	1/3	1	1/3	1/9	1/3	0,11
Z.D.	0	1/9	1/3	1/9	1/3	1/9	1/3	1	3	1	1/3	1	0,33
T.R.	1/9	1/3	1	1/3	1	1/3	1	3	9	3	1	3	1,00
Inc.	0	1/9	1/3	1/9	1/3	1/9	1/3	1	3	1	1/3	1	0,33
TOTAL	2,57	7,70	23,11	7,70	23,11	7,70	23,11	69,33	208,00	69,33	23,11	69,33	23,11

respondent 1

TABLE 5 - Criterion 3 (Study the Work Instruction).

SOURCE: Survey Data (2021).
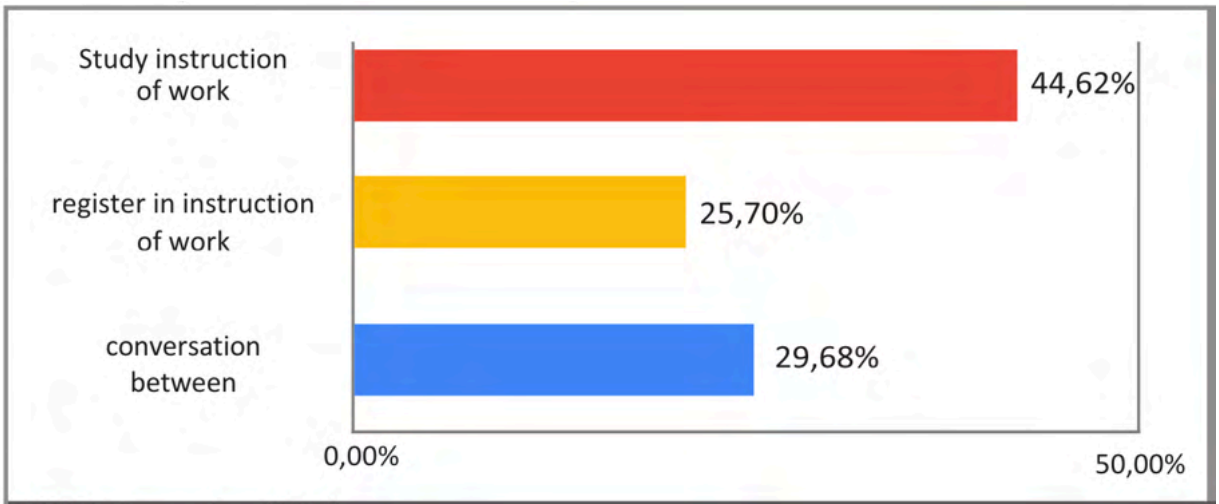
FIGURE 3 - Representativeness with the weight of each criterion.

Alternatives - criterion 1			
	Performance	Performance-Normalized	Performance Normalized
objective	6,69%	0,07	6,69%
Structure	4,42%	0,04	4,42%
Communication	7,98%	0,08	7,98%
Training	8,20%	0,08	8,20%
personal characteristic	3,22%	0,03	3,22%
Personal Relationship	4,47%	0,04	4,47%
Troubleshooting method	7,70%	0,08	7,70%
Work instruction	9,00%	0,09	9,00%
5S	6,50%	0,07	6,50%
ZERO DEFECT	14,42%	0,14	14,42%
Quick change	6,44%	0,06	6,44%
Incentive	20,95%	0,21	20,95%

TABLE 6 – alternative – Criterion 1.

Source: Reseach Date (2021).

Alternatives-Criterion 2			
	performance	Ideal-Performance	Performance-Normalized
objective	9.92%	0.10	9.92%
Structure	6.38%	0.06	6.38%
communication	6.37%	0.06	6.37%
Training	9.50%	0.10	9.50%
Personal Characteristic	3.84%	0.04	3.84%
Personal Relationship	4.18%	0.04	4.18%
Troubleshooting method	7.59%	0.08	7.59%
Work instruction	10.10%	0.10	7.40%
5s	7.40%	0.07	10.91%
zero defect	10.91%	0.11	6.50%
quick change	6.50%	0.06	6.99%
encourage	17.29%	0.17	17.29%

TABLE 7 – alternatives – Criterion2.

SOURCE: Survey Data (2021).

Alternatives-Criterion 3			
	performance	Ideal-Performance	Performance - Normalized
objective	9.36%	0.09	9.36%
Structure	7.14%	0.07	7.14%
communication	6.58%	0.07	6.58%
Training	10.51%	0.11	10.51
Personal Characteristic	3.87%	0.04	3.87
Personal Relationship	3.63%	0.04	3.63
Troubleshooting method	7.87%	0.08	7.83
Work instruction	10.69%	0.11	10.69
5s	6.63%	0.07	6.63
zero defect	11.38%	0.11	11.38%
quick change	6.99%	0.07	6.99%
incitement	15.39%	0.15	15.39%

TABLE 8 – alternatives – Criterion 3.

SOURCE: Survey Data (2021).

Global Total	
Objective	8.71%
Structure	6.14%
communication	6.94%
Training	9.56%
Personal Characteristic	3.67%
Personal Relationship	4.02%
Troubleshooting method	7.73%
Work instruction	10.04%
5S	6.79%
zero defect	12.17%
quick change	6.70%
encourage	17.53%

TABLE 9 – Total Global.

SOURCE: Research Data (2021).

is a from the best methods for considering alternative decisions, with multiple criteria or goals multiples. comparing with result of judgment, it is one tool numerical measurement scale, the method presented very interesting results about share of knowledge inside the company object of study of segment automotive, what account with two units, at region south of Brazil.

It is also noteworthy that the application of the questionnaire took place *online,* due to the pandemic scenario that occurred during the study. The expected result was satisfactory, so that the vast majority of employees proved to be well committed in answer all at 35 questions indicated at the quiz.

The problem in search is the best competitiveness at preparation for industry 4.0, was resolved, as the database with 128 respondents, representing the various functions in the organization, made it possible to identify the best form in share the knowledge.

Questions important in search at the scenery introduced were:

1. Which factors are a priority for a production system to align People, Law Suit and Knowledge? Those factors are based at the Model in Management in Production based at the Knowledge (MGP-C, MUNIZ Jr., 2007) and they can to be divided in factors levers gives: (The) Management of Knowledge (GC); (B) Organization of Job and (ç) Organization gives Production; totalizing 15 factors.

2. How to evaluate such factors? The assessment of these factors is based on the Structure Knowledge-based Analytical Hierarchy (MUNIZ Jr. et al., 2010). It is an evaluation model that indicates a coherent relationship between the leveraging factors of the Work Organization (TO) and the Organization of Production (OP), and the leveraging factors of Knowledge Management (GC) and which was used

in Oliveira (2016) to assess the sharing of workers' knowledge through the *Analytic Hierarchy Process* (SAATY, 1980) and O *incomplete Pairswise comparison* (HARKER, 1987).

3. What is the importance of these factors in the opinion of managers and workers of production? The incentive, with 17.53% of scenery global, followed for the quality (Zero defects) with 12.17%, and work instruction with 10.04%; they were factors in greater prominence.

The general objective, in to evaluate you factors for sharing of knowledge worker in the company object of the study, answers the research question of how to prepare for The industry 4.0, and confirm The hypothesis in solution, in principle, with creating a favorable environment for knowledge sharing worker, through the incentive, generator of motivation for the search of the "zero defect", and based on work instruction; forming the foundation for evolution and a future in greater competitiveness.

For such achievement, you goals specific in correlate you factors relevant for The Organization of Knowledge, gives Production and of Job relatives to the working environment; as well as the application of methods to aid in taking decision, to identify the most relevant factors in the company object of the study; it's the mapping in aspects behavioral what influence the sharing of Knowledge; were fundamental, and applied to far away of study.

This method can be used within several organizations due to its high efficiency and easy applicability, to in strengthen the relationship in between managers and employees, contributing to improvements and encouraging decision-making most assertive.

Your limitation is the conclusion will stay restricted to study in case in question, but what at sequence can still, promote The Comparation From Data in between at two company units, and promote a specific action plan for each one of them, aiming including, face the maturity found, differentiate at strategies for the evolution of the industry 4.0, optimizing including, the schedule From investments Requested.

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22

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