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Printed on: 3.3.2011 15:35:33
Publication name: RJEBI Vol1.ppp, Page: 7

VOLUME 1, 2011

RUSSIAN AVIATION BUSINESS: PRODUCTION SYSTEM AND PROJECT / PROGRAM MANAGEMENT AS CRITICAL AREAS FOR BENCHMARKING

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ABSTRACT

Russian aviation business has faced a challenge. There are only two ways to proceed - either to change quickly and effectively or stay and slowly loose positions. Best practices of production systems creation from 3 world famous production companies were analyzed in order to come to the result, that is a basic fundament for production system. Fundament consists of four major pillars living under major ideologies: supply chain management, production and internal logistics processes with supplier-customer ideology, human resources management process with deployed function of personnel development, quality management process serving and steering the production process, management structure adjusted according to the process value-based approach. Main condition for running this production system is implemented programs and project management approach as the research showed. Benchmarking would be an ideal way to install both production system and program/project management.

JEL CLASSIFICATION & KEYWORDS

M11 | L23 | Aviation | Management

INTRODUCTION: From history to present times – revealing critical areas

Going back into the history, as a part of five year plans of USSR industrialization former Russian plants were producing according to five year plans as well – they didn't have to be efficient, the most important thing was being according to the plan. While political regimes change the time was setting different priorities (Kotkin S., 1992). A business in its now modern understanding started to appear. All the remaining plants started optimization in order to be able to be self-efficient and profitable. If it is a military part of aviation industry – government is still very focused on it and supports as a major priority, but when it comes to commercial aviation – business is only supported by its profit. That was long time ago, but people who used to be working that time and are still working now need much more time to change – it's much easier to change formal production or managing process then processes of thinking, understanding and acting of people.

Russian aviation industry is an industry with lots of bright examples of such plants. Some plants have more the 70-year history and had to survive through different times. Some functions were able to go through optimization with own forces of companies, some are still at early optimization stage – but would need a good benchmark to accelerate the process and avoid mistakes that were done by companies and industries that had to be effective and efficient from the very beginning. Either successful and recently established Russian production plant or successful foreign company specializing in industrial production would be ideal for benchmarking. Having done a short look into the history and knowing the industry from inside it's the time to define major subjects of interest for benchmarking. First, starting from the very top - management structure, which has to be a flat one and allowing for cross communication. Second, production areas core ideology – it's not just doing one part by another – its being a service provider to another chain link in production line. Third, quality role changes to more than just inspecting the results of what was produced. Finally, people are the first resources striving to be developed. These all lead to a very important step in development of the production-based companies which is a need for strong lean production system supported by just mentioned four commitments. Another step is addition to this system of a programs and project management approach that would allow to structure directions of a company business and bring order to results which each program and project gives to the company. The easiest way to do these two main additions to the company's everyday operations is benchmarking – don't invent a bicycle – just benchmark it. Process of benchmarking is carefully presented at the end of the article.

Management structure: from hierarchy approach to process and value adding approach

Hierarchy is a very traditional, familiar, but also a positive phenomenon when it comes to discussion of structural changes. Current status is the following – many levels, too many deputies at each level and too many departments with subdivisions within departments with its subheads. Positive is the fact that people know their roles and are concentrating purely on them without squander themselves (Heizetr J., Render B., 1999). It sounds really complicated but in fact it is even more. Structure was created long time ago and it was working for its purposes and is working currently, but purposes are continuously changing, structure has to become flexible as well. First rule of being flexible is being simple, when it comes to structures - flat and simple. The best approach to be so is a process approach (Keen P., Peter G., 1996). In order to apply this approach a company needs to distinguish between its core processes and supporting processes at the first stage. At the second stage it is necessary to describe all the processes, which means answering key questions – HOW, with WHAT, with WHOM and HOW GOOD. First question refers to methods and tools usable for the process, second question is about resources that are necessary to live the process, third question identifies responsibility, i.e. people and their departments involved which are actually making the process, final question is aimed to measure the results of the process – i.e. key performance indicators (further – KPIs) that would allow to know whether the process is going well or not well enough. The process itself is a core and is a goal oriented substance – the only reason for its existing is value adding. Having analyzed through this prism all operational activities of a company it would be clear which level in a hierarchy brings value – and which exists just because it was created using old rules and methods.

ISSN 2045-3345
RESEARCH JOURNAL OF ECONOMICS, BUSINESS AND ICT

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Printed on: 3.3.2011 15:35:33
Publication name: RJEBI Vol1.ppp, Page: 8

Human resources role accent - people development

Another topic which is closely related to the management structure is human resources (further – HR) as far as it is exactly the resource creating a structure, then, living it and finally being able to change it. Obsessive quantity of company hierarchical levels with no exact function just a function of managing people in its supervision, are a sign of lack of trust from one stand point, from another - lack of developed enough people being able to execute the process within needed KPIs' levels without additional supervision. At this point a change in a paradigm of HR department role is necessary (Derek, T., 2004). Former days HR departments were responsible solely for procedural finding, hiring and firing of employees. Now they have to be in the field of an everyday operation – because this is a core function aimed to bring value to the people so that people would add extended value to the company at the end. Each person, once entered the company should have understanding that a company values him/her and, therefore, is willing to develop him/her in the areas that he/she has interest in, expertise and potential, which can be identified only with professional help. For that purpose benchmarking of tools like skills management matrix, appraisal interview and employee opinion survey are a must. Somehow connected and also hugely important topic is a leadership development. Ability to be a leader is a very seldom quality that people have as an inborn characteristic, but it can give a lot of results to the company if being developed and managed appropriately. Therefore choosing high potential leaders, their development and empowering them for executing managerial roles is a vital step to creation of a good team able to create structures, change them and reach extraordinary results for the sake of the parent company.

Quality: from inspecting results to production steering

Quality is a very broad topic, but as far as companies are striving for high quality employees – these employees are supposed to strive for high quality that their companies produce. Usual for Russian plants understanding of a quality in the production is continuous checking of the results of what production department created. At the end if the quality was good – the product goes further in the production line, if the quality was not good enough – employees of production departments are punished for the things they did wrong. The truth is that nobody in this world is willing to be caught while doing something wrong, if it happens - predictable feeling of demotivation occurs. All the people are allowed to make mistakes – it is the only thing that forces as to learn, change and deploy. Seeing a mistake – is the only sign forcing you to analyze what was done wrong, change it and make it again, but already with no mistake behind. This is exactly the place where quality function should live – catch the situation when something happened, describe it, analyze it, work on it, find a root cause, eliminate it and spread the results to the other areas where the problem could have occurred. Positive approach says that quality department should be looking forward for mistakes – each time they occur – involve people which were in the process when the mistake took place, each time they do not occur – just show the statistics that everything is going smoothly. By demonstrating these behaviors, quality is motivating production people to produce high quality and helping them to deal with mistakes.

Production: supplier – customer ideology

Quality is one of measures helping to understand whether production is established well or needs some support (Jackson T., Thomas L., 1996). Although inside the production there is a certain understanding of this role. As far as entire cycle of manufacturing of a product is a process – it should be treated as one process. The more chains there are in the process the harder it is to manage it. What really makes it easier to understand all the line is a treatment of each chain as a service for the next sequential step and as a customer of the previous one. In this case a chain link, like a usual customer is becoming pretty demanding to what it gets – what time, what quality, in which way – customer is setting a standard or gages of what it accepts and what does not – it goes then step by step to the very beginning of the chain and finally ends with development of suppliers of the plant. Having implemented this understanding in the minds of people – they're starting to get really better material/product as an input to their process. Now they're already suppliers for the next step – knowing high standards of accepting the product at the next stage – they're striving to deliver it – but it's already easier because at the beginning they already got a better product from previous step in the chain and they used less time to process it which gives further optimization possibilities for the company ready to communicate this understanding for its employees.

Production system's basics

These all supports a very basic but crucial for any production plant statement: a company needs to have a very strong lean production system in order to be effective at the market and efficient from financial stand point (Table 1 "Basics of a production system"). Production system is a basis that shows an ability of a plant to produce and a confidence to the customer that the company is able of doing it with a needed quality, in a needed time. Basis for this system was presented above: on the functional level first of all there should be commitment from supply chain management, production and internal logistics . These processes must live supplier-customer ideology. Second, human resources management process should deploy personnel development function. Finally, quality management process should change paradigm to steering the production and supporting it. At the management level structure should be corrected

Table 1 Production system's basics

Strong lean production system

Management level	Management structure: process and value adding approach			
Ideology level	Supplier-customer ideology		People development	Production steering
Function level	Supply Chain Management	Production Including Internal Logistics	Human Resources Management	Quality Management

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Printed on: 3.3.2011 15:35:33
Publication name: RJEBI Vol1.ppp, Page: 9

in a way to support all the processes, be flat enough and support cross communication.

Projects and programs management

Under this framework production will exist and develop properly. Although in order to satisfy each specific customer and do it the way customer wants it to happen (meaning - under customer's requirements) there should be a force able to get together and direct all the efforts of a created production system for the sake of each customer's satisfaction. Of course depending on the time manner, it should be an organization or a system that would get together the right people, set up the right targets and finally lead these people in a direction for reaching these targets (Minko.A.E., Minko E.V, 2007). These organizations or systems are programs and projects. The difference could be identified within each specific company, but for a better understanding let's consider three approaches to identifying those differences. First, common to automobile industry approach says that project is a unique target-oriented organization specified in time, limited in resources, complex and implying cross-functionality. Program is referred more to being a continuous stable production that would fit into the company structure, but still keeping its independence from management stand point (program manager). For example, car development could be a project, while its serial production is already a program. According to the second approach, common to aviation industry, program is considered as being a set of projects holding a supervisory function towards them or sometimes complicated project could be treated as a simple program and vice versa. In this case characteristic which differentiates one from another is complexity. For example, international cooperation program for an aviation plant may consist of several projects like preparation for and serial production of any aircraft component for a foreign customer (Prieto R. 2008). See Table 2 for details.

Finally, according to a more theoretical approach, projects are about doing the things right, but programs are about doing the right projects and projects are bringing outputs and programs are organizing these outputs into a more tangible outcomes for the company. From one stand point this approach is very closely related to the second one, because programs are keeping function of supervision under projects. From another stand point characteristic that distinguishes these two terms within this approach is a result (output/outcome) ("The relationship between Programmes and Projects", Viewed 06.01.2011). See Table 3 for details.

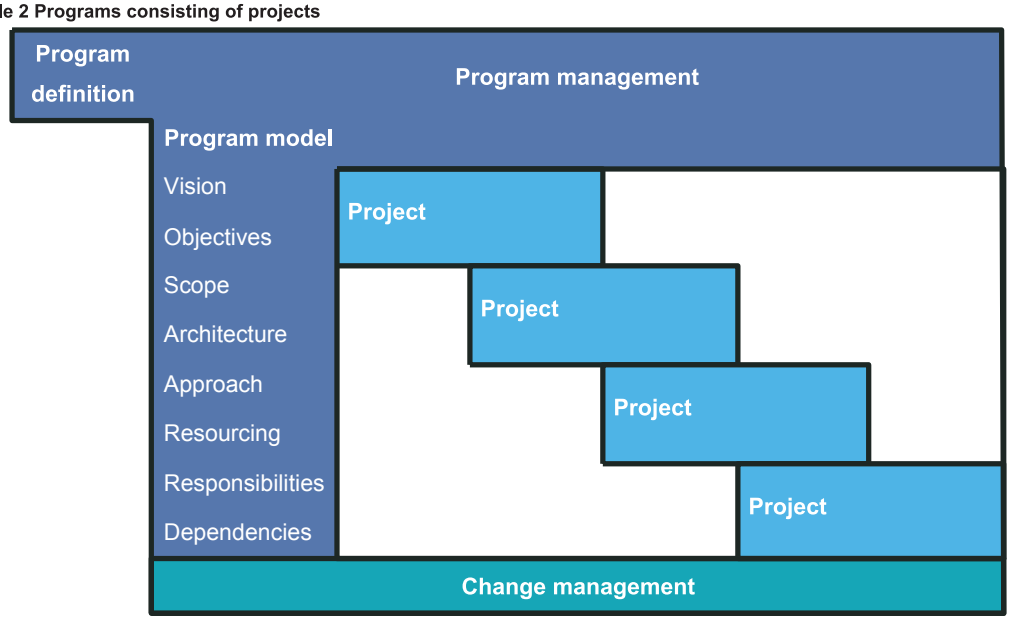
An output peculiar to projects generally delivers some specific state of conditions, something that itself is not capable of giving the needed result for a company, semi-finished result or just a basis for it, while an output peculiar to programs is an end result that is ready for usage/account and that the company is working on mainly. For example, optimization of aviation components production would be a project (it gives an output – a better organized production with prepared ways of costs reduction etc.), while optimized running of aviation components production line is a program (it gives an end outcome – direct costs reduction or improved production rate for a company, which has a direct influence towards company's financial indicators).

It is important to have both projects and programs installed in a company, as far as current article considers more similarities of these two terms – let's call programs and projects with a capital letter "P". So, in order to have the right understanding of P within a company it is important to see it as a structure within a company's structure and also to understand that P structure is predominant in front of a company structure, second, P implies a manager responsible for P result and finally, each P has customer-specific requirements and targets. Let's have a closer look at all these dimensions of P.

A prevailing structure within structure

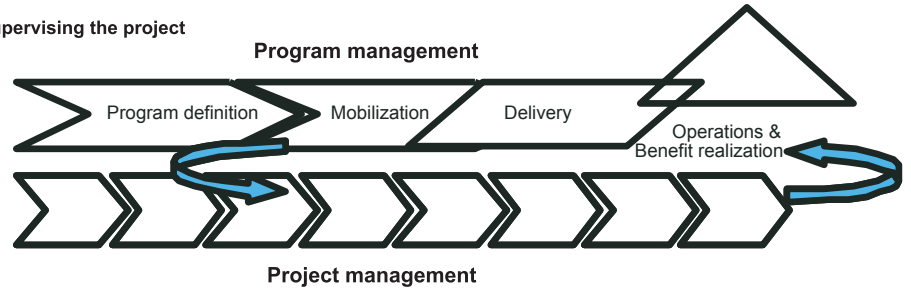
First of all, if to consider relations between a company and a P, then P is a temporary organization within a company which uses company's infrastructure, people and other resources in order to bring together all the necessary things for P execution. It explains why a P needs a company. Why a company needs a P? As simple as it is: all the incoming flows of cash that a company generates are going from the customers, so, a P at the end generates a product which a customer is willing to pay for. Even if all the resources needed for a P execution are in place, they all should be managed appropriately in order to deliver the right product

Table 2 Programs consisting of projects



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Printed on: 3.3.2011 15:35:33
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Table 3 Program supervising the project



at the right time so that the company would get satisfied customers, better reputation, future Ps and continuous cash flow with positive dynamics. So, for this case we take on default that a P is a structure within a company's structure and a structure of the P prevails in front of the company's structure – a project in this case is a customer choosing all the resources the P needs – right people, right production facilities etc. – and paying for that by bringing good results, reputation and profit to the company. If to go beyond current understanding of a production organization and to have a look at a P from a broader prospective – then relations could be different and a large-scaled P could consist of several companies responsible for its part, but it would be a topic for a different article.

Customer-specific requirements and targets

Having presented understanding of projects and programs structures and their role in the company it's quite logical to go into the relations of this structure with main company's structure, in the rules of living. Each company while its existence creates own set of rules and norms that people start to live and then formalize in forms of policies and

so that new people would be able to live it in the same way. In order to keep track on how described policies are working in a changing environment, targets and their monitoring are installed. There're usually a meaningful part of company's procedures corresponding to the industry, law and different authorities' requirements, and it is a very big and important or even determinant part especially in aviation business. But there are another part of requirements going from the customer – and main goal of the P is to work within this necessary set of a company's procedures but be flexible enough in order to satisfy customer specific requirements. Both are crucial because first is a main term of using company's resources while the second one is the purpose reaching of which would pay back to the company for using those resources. So, P should be a flexible organization allowing for careful leveraging of the resources, staying within company's rules and at the same time being totally directed for customer's requirements adherence.

A manager responsible for a P result

Structures within structures as presented above have their rules for living while people, especially managers of these structures have more then that – by keeping the a P within the needed set of requirements from all the sides they are responsible for the most important thing – the result. If there's a responsibility – then there's a person, a team, a structure, but still a person responsible for the result of an organization he/she drives to the mountain of success/failure. It takes some time to understand it within mentality of a typical Russian aircraft plant, because under the term P there's usually an image of a complete aircraft and the only person responsible for that is CEO which is true at the end, but operative responsibility should be on the shoulders of the P manager, a person having enough time (only one project), authority (delegated by the upper management), power (internal power as well as acceptance within a company and a project) and experience (operative participation in similar Ps and P management knowledge). P manager translates P's requirements to the parent company's language, communicates these requirements to the company's management, gets the right (which means - the best available – and, sometimes, not available) resources and organizes them in a way to reach P's targets (these are translated customer's requirements to a P language). This understanding helps to distinguish responsibilities better ("Definition of Program vs Project", 09.04.2008, see Table 4), avoid mixture of responsibilities, overload of a one person with responsibilities and manage transparently a portfolio of projects. Of course, this understanding should be supported by accounting and financial departments' structures allowing for a P account, which means that a P for a company is similar to a business for an investor, and in order to keep track on its effectiveness and efficiency – there should be a tracking system, allowing to distinguish flows of one P's profits from the losses of the other one P.

Table 4 "Differences in managing projects and programs" ("Definition of Program vs Project", 09.04.2008)

Program manager	Project Manager
Outward focused (context)	Inward focused (content)
Influence	More technical skills
Deals with ambiguity	Risk management
Strategic thinker and doer	Controlling project
Accountable for business benefits	Focus on scope, schedule and resources
Focus on change	
Focus on people, politics and negotiation	
Develops program governance	

Well, strong lean productions system and carefully steered programs and projects within this system seem to be a good solution improving current operations of a production company, at least the one that works within leading production companies throughout the world (Stapenhurst, T. 2009). There's no sense to simply copy these systems as they were created for the surrounding they're currently working in, but there's a sense to notice all the best from leaders, analyze how these best practices could be adjusted to the current surrounding, test it and finally install in the process those parts and tools which really make sense. Benchmarking, a term generally considered as a technology transfer, is a process going through particular steps (See Table 5 "Benchmarking process steps") described in the paragraph below.

It is very important to have personal involvement of top management representatives personally interested in certain process or a set of processes at the first stage of preliminary team creation Sequence of stages one and two

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Printed on: 3.3.2011 15:35:33
Publication name: RJEBI Vol1.ppp, Page: 11

could be overmixed – thus, by the time of a steering team creation participants of that team might already made inernally analysis of stnrengthes, weaknesses, opportunities and threats. Main task then would be to formalize this analysis and come to the common understanding within steering team of what are the strengthes and weaknesses that the company has and what are the oportunities and threats that extermal environment prepares and, more impornat, where a company/programm/project needs acceleration and improvement. After that selection of partners comes. Partners should be capable of assisting in this acceleration. Having done this, freeze this list (some times owners of best practice processes in some particular industry are quite obvious if the market is narrow and barriers for entering the market are pretty high). After that it is crucial to start involvement of partners into the current state of problems existing at parent company, and also it is important to start understanding the differences of technologies used by benchmarking partners. These two sides of one medal then will create a one team with identical understanding of the type of transformation that should be done. Deeper understanding of a process – benchmarking object - and its comparison to a current parent company process / environment is a very important stage of pilot testing as it gives preliminary feeling whether it will live or not and how effectively. For that purpose there should be an environment of a future implementation, cross functional team in order to work out the process from stand points of all the stake holders. And also there should be a deep effectiveness analysis where KPI is a key. After certain time depending on the process type (one needs longer time to test, the other less), a plan is compared to a fact, deviations are analyzed and final decision on implementation into the serial processes is made. If decision is positive, process management documents need changes, personnel requires training and updated work instructions. Having done all these, continuous tracking of effectiveness of an updated process should be established as far as any foreign body implanted may show different reactions at different stages of implantation – it is crucial to track, measure and react operatively.

So, following those steps, benchmarking would enable a smooth transfer of those things that are firstly, really important, secondly, tested and showed their efficiency and, thirdly, capable of being installed.

CONCLUSION

Article gave an overview of two main directions development in which would give a huge improvement for Russian aviation business companies. First direction is a strong lean production system development. Article also creates a very basic understanding for any company willing to establish its production system without dependency to it's industry, country and lifecycle. Further step is a breakdown of this approach to strategies for each functional area, and, accordingly, tools and methods. This part is an industry-specific. To summ up, start from the very top – make your management structure flat and allowing for cross communication. Then, communicate to all the production-related areas customer-supplier ideology. Change current quality role to a production supporting one. Finally, deploy a function of personnel development. Second direction is installation into this strong production system of projects and programs management, which is crucial for a better customer satisfaction and internal tracking and managing of each program and project. Differences of these two terms are presented and importance of this approach is examined. Finally in order to develop these two directions method of benchmarking is recommended, which steps are carefully explained in a sequential order.

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Table 5 Benchmarking process steps

Goal	Stage	Method
Key players identification.	1. First iteration of a steering team.	Choosing of the most interested people from top managers, which would further be part of a steering committee.
Identification of weaknesses and strengths of a parent company.	2. Benchmarking objectives identification.	Internal benchmarking, SWOT (strengths and weaknesses (internal), opportunities and threats (external)) analysis of a company/program.
Identification of companies in which object of benchmarking is organized more professionally and effectively.	3. Benchmarking partner selection.	Internal and external data collection, decision about list of partners.
Creation of a climate of understanding of companies and cultures.	4. Team creation.	Team building e.g. on a business trip (both ways).
Identification of processes considered to be best practices	5. Clarification of benchmarking objects.	Overview of processes of a benchmarking partner.
Closer study of processes.	6. Careful analysis of benchmarking objects, comparison, identification of differences.	Standards and policies study / watching the running process / process map analysis.
Identification of instruments to correct processes of a parent company to the level of best practice processes running at benchmarking partner company.	7. Pilot testing.	Testing of each tool within a pilot area with a cross functional team as a pilot project (with SMART goals identification and their following up).
Identification of effectiveness of tried tools.	8. Analysis of pilot tests results.	Plan and fact comparison.
Implementation into the serial process.	9. Implementation into the process.	Changes in documents with KPIs identification (standards, policies, work instructions), personnel training.
Identification of possibilities for continuous improvement.	10. Analysis of implementation results.	KPI tracking, continuous correction of the goal upon reaching.

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