

Managing Functional Power

In Vision Driven Digital Media Creation

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A Paramount Aesthetic Driver

Digital media projects can, as other software projects, be driven by technology, market, prize etc. And often hybrid drivers are involved, however normally one driver is above the others in specific projects. When the aesthetic driver is paramount it is called *vision driven creation* in the game industry.

A vision driven game creation means that the rationale of the *game director*, his vision, from the beginning becomes the most important rationale in order to have success with the creation process. However, this premise does not apply exclusively to the game industry.

The area of interest also covers other digital media applications such as e-learning systems, web-shops, mobile apps, home banking, booking systems etc. It is special to digital media projects compared to software projects in general, that an aesthetic driver can be paramount to other drivers, within the practical constraints. This is why the contribution of this article is relevant to the digital aspects in many practical fields beyond gaming such as marketing, education, media agencies, tourism, and trading. However, creating games is from an aesthetic viewpoint probably the most complex endeavour

in this area, and hence experience and consequences from game creation are more evident. Experience is increasing with the growing digital media potential following Moore's law: The power of computers is doubled every second year¹. This experience can be used when creating digital media systems in general, where the creation process become more and more complex, as requirements to the digital media systems

Data behind this article is summed up in a mapping of the functions according to different roles within a full digital media creation cycle from *idea* to *master*. The functions are mapped as a power graph (Figure 3), where power is understood as the opportunity, which roles to gives to contributing to the product quality at a given point in time, which will be termed functional power. Thus focus is on functional power, which is a type of informal power; and the functional power is compared with formal power in order to identify potential power conflicts and consequences. This understanding of power draws on a pragmatic approach, where power is often connected to the ability to make a difference, which is clearly a functional definition of power.

The article is based on industrial experience² coupled with experience from the Danish National Academy for Interactive Digital Entertainment (DADIU), where students have created vision driven games since 2005. Students from different Universities and Art Schools hold different positions during the game creations. For example the National Film School contributes with *game directors* and Aalborg University with *project managers*. Author Per K. Laursen invented an early version of the power graph (Figure 3) presented in this article as a part of his work as Development Director at Deadline Games as a way to understand potential conflicts during a creation cycle. Both authors have been teaching and following DADIU project managers, and it is primarily as a part of this teaching based research the contribution of this article has been discussed and matured. It is also in this process the methodical research question has been formulated: "How to manage functional power between leading functions in vision driven digital media creation from idea to master of the creation cycle?" In order to unfold this question, two sub-research questions are addressed: "What is a digital media creation cycle? And what is functional power according to leading functions in a digital media creation cycle?"

The research method is *action research* and *practice studies* from *collaborative practice studies* (Mathiassen, 2000). In addition to experience from the gaming industry, data have been collected through observing and being involved in digital media creation. A dynamic version of the power graph (Figure 3) has been the tool for data collection, which has been discussed and re-mapped together with the industry, education, and research.

The research question and its sub-research questions cause three chapters in addition to the above. First the *Digital Media Creation Cycle* is unfolded; then the *Functional Power and leading Functions in Digital Media Creation* are identified. Hereafter *Functional Power and Management* are addressed. And finally a *Conclusion* is given.

Digital Media Creation Cycle

The term *creation* covers both *media production* and *system development*. Hence *production* is reserved for work with *asset* as in the media industry; and *development* is reserved for work with *software* as in the software industry (Rosenstand, 2001, Rosenstand, 2002). The term creation cycle refers to the computer science term development (life) cycle (e.g. Homer et al., 2010). In order to unfold the sub-research question: "What is a digital media creation cycle? the understanding of development cycles in system development is adopted and transformed into a cycle for digital media creation. Figure 1 illustrates the digital media creation cycle from idea to master. On the most general level the creation cycle of digital media creation is divided into three phases: *Product formation*, *realization*, and *Q.A.* (Quality Assurance).

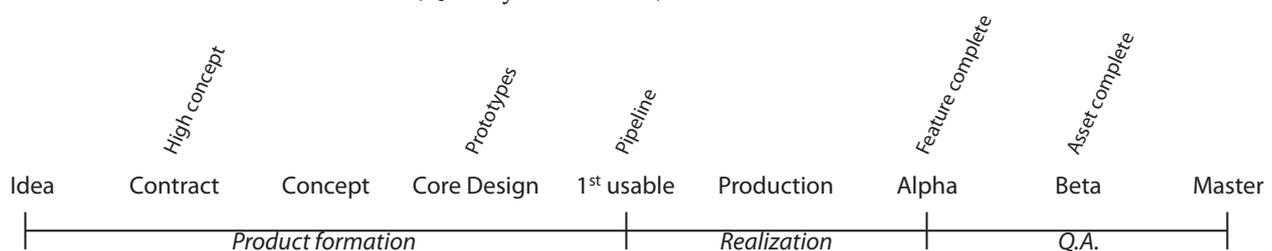


Figure 1: Creation cycle in digital media creation

On a more specific level, the *product formation* phase is constituted by *idea*, *contract*, *concept*, *core design*, and *1st usable*. The idea can come from anywhere; the director might get the idea himself but not nec-

essarily. The idea can for example be a scary dinosaur avoider game in First World War trenches³. The director transforms the idea into a vision, which he might formulate and illustrate in different ways. However, the vision is not fully transcendent before the actual product is finished – if the vision is achieved. The *contract* is an agreement of the qualities of the product formulated as a *high concept* and how and when deliverables should be delivered through the creation cycle; normally it is stated in a legal agreement, however it does not need to be. The *concept* is the criteria of the design; normally it is stated in a design and technical document, which are key references for the entire creation. The *core design* constitutes the essential design principles – including the interactivity principles, where interactivity is defined as “... a measure of a media’s potential ability to let the user exert an influence on the content and/or the form of the mediated communication” (Jensen, 1998, p. 201). Normally more *prototypes* are created to ensure how to handle identified high-risk creation challenges. These challenges can be technical, visual and/or mechanical – and of course organisational. The *prototypes* also cover the core mechanics. The *1st usable* is a full functional and audiovisual part of the digital media system, demonstrating Proof of Concept of the product and creation pipeline including universe, design, and technology. The universe of a digital media product should be coherent – e.g. a game universe (Rosenstand & Laursen, 2004). The pipeline is an effective creation flow handling integration of assets and features.

The *realization* phase is scaling up the organisation going into *production*. The phase is initiated, when the *1st usable* matches the quality criteria’s stated in the *contract* and subsequent agreements. The *contract* might (most probably in complex projects) be negotiated and altered through the creation process due to the nature of getting a deeper understanding of the product quality through actually forming it. When starting the *production*, it should be the presumption that all planned assets and features can be produced through an effective pipeline. However, the understanding of the product quality also increases through the *realization* phase, and the project manager should be open to re-prioritizing the assets and features according to the new and better understanding, which might include developing of new types of software solutions. The realization phase ends with an *alpha* version of the

product, which means the creation is *feature complete*. No new features should be allowed.

When it is decided, that the creation is *feature complete*, the finale phase, the *Q.A.* phase begins. The work from the *alpha* to *beta* version is making the product *asset complete* and improving the existing features. After the *beta* only bug fixing is allowed. Finally the creation cycle ends with the *master* version of the product, which is the final delivery. The *master* must match the quality criteria's of the *contract* – including the possible negotiated changes.

High concept, prototypes, pipeline, feature complete, and asset complete are general deliveries of a digital media creation cycle, normally deadlines are coupled to these deliveries. The above is special to digital media creation compared to media production and software development in general; but it is not special to vision driven digital media creation according to digital media creation in general. However, the functional power is special in vision driven digital media creation compared to for example technical or mechanic driven digital media creation.

Functional Power and Leading Functions in Digital Media Creation

Roles in the digital media industry are termed and defined in different ways in different organisational digital media literature; different terms are used for the same roles, and there is in the literature no clear distinction between functions and roles. However, in general five leading roles seem to be covered (Iris 2005, Chandler, 2006). In order to anchor the article in industry, industrial titles for roles are given: *Project Manager, Director, Design Director, Art Director, and Tech Director*. Only “director” is added to the designer role, which is not normally seen in the industry, this is done to emphasise managerial responsibility.

To unfold the sub-research question: “What is the functional power according to leading functions in a digital media creation cycle?” the actual functions of the roles are added, which are the roles that contribute professionally to the product quality. To elucidate functional power and the following immanent conflicts and consequences, the difference between project strategy and execution and the primary rationalities regarding the different roles and functions are identified below.

Project manager and *director (top management)* both have a strategic management function and they handle the commercial conditions of a digital media project: Costumers, external demands, and other external stakeholders. They do not tell people how to execute their respective functions; they communicate the criteria of execution. Ideally, they both work with people, who are more qualified and competent in their specific work than they are themselves. The roles of *top management* can be characterized by its contributing to the product quality at a strategic level, where the roles of *design director*, *art director*, and *tech director (super leads)* contribute at an operational level. This hierarchy is illustrated in Figure 2.

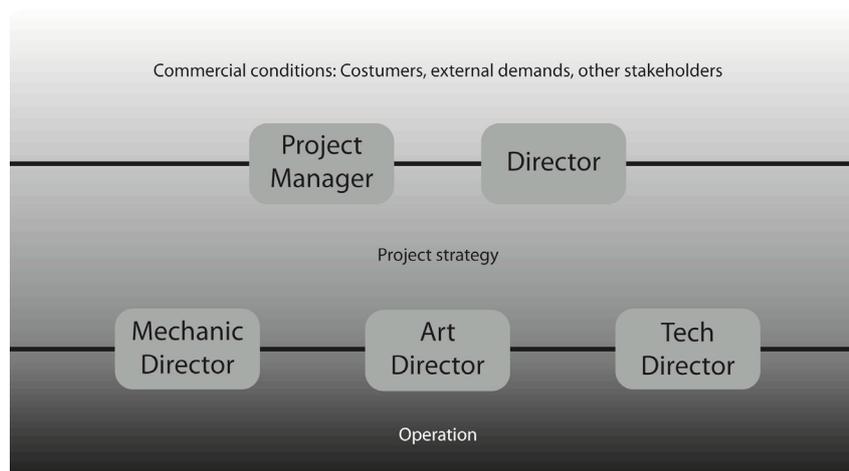


Figure 2: Hierarchy – Commercial conditions, project strategy and operation

The *project manager* and *director* handle the *project strategy*; they define the field and the constraints which the project should be executed within. Together *project manager*, *director* and *super leads* constitute the management team of the project. It could be relevant to analyse more roles according to the functional power. However, the functional power between *top management* and *super leads* are the most important ones to manage because they manage the functional power in the rest of the organisation according to their own understanding of how they can contribute to the product quality through the creation cycle.

The *design director* handles mechanics, the *art director* artistic expression, and the *tech director* secures technical execution of

features and assets. Together the *design director*, *art director*, and *tech director* constitute an interdependent potential trinity of creative constraints and possibilities set by technology, artistic, and mechanic. This is shown in Table 1.

Role	Creative constraints and possibilities set by
Design Director	Technology and artistic
Art Director	Mechanics and technology
Tech Director	Mechanics and artistic

Table 1: Trinity of super leads

When organising a team, a person can hold one or more roles, and one or more persons can fill one role. In this article the point of departure are managing and directing roles in vision driven digital media creation. The roles, functions, primary rationales, and what is handled are summed up in Table 2, where the rationalities are described with reference to Immanuel Kant (Kant 2005). The functions of the roles address which type of functional power the roles have.

Role	Function	Primary rationale	Handle
Project Manager	Project Management	Normative	Project strategy
Director	Vision Management	Aesthetic	Project strategy
Design Director	Mechanic Direction	Theoretical and Aesthetic	Execution
Art Director	Art Direction	Aesthetic	Execution
Tech Director	Tech Direction	Theoretical	Execution

Table 2: Roles, Functions, Primary rationale, and what is handled in Digital Media Creation.

The *vision management* performed by the *director* can be understood as the unifying eye of the creation cycle, and this is done through balancing the trinity of *super leads*.

With Immanuel Kant (Kant 2005) the digital media industry is both covering an esthetic and a theoretical rationale – the primary rationalities of respectively media production and software devel-

opment. Moreover a management rationale is as in other projects needed, which with Kant is a normative rationale. Esthetic decisions are made with feelings, theoretical decisions are made with logic, and normative decisions are made in order to manage the creation process. The discussion of roles, functions, and rationales could be both deeper and broader; however, it is not necessary to go further in order to examine and understand functional power at management level.

Functional Power and Management

On top of the sub-research questions addressed in the chapters Digital Media Creation Cycle and Leading Functions in Digital Media Creation, the research question of this article can finally be fully addressed: “How to manage functional power between leading functions in vision driven digital media creation from idea to master of the creation cycle?”

In Figure 3 the functional power regarding the five functions of top management and super leads (cf. Table 2) are illustrated according to the digital media creation cycle. As stated *functional power* are the roles that contribute professionally to the product quality; and to be more precise we add *at a given point in the creation cycle*; this is illustrated in Figure 3, which is termed *power graph*.

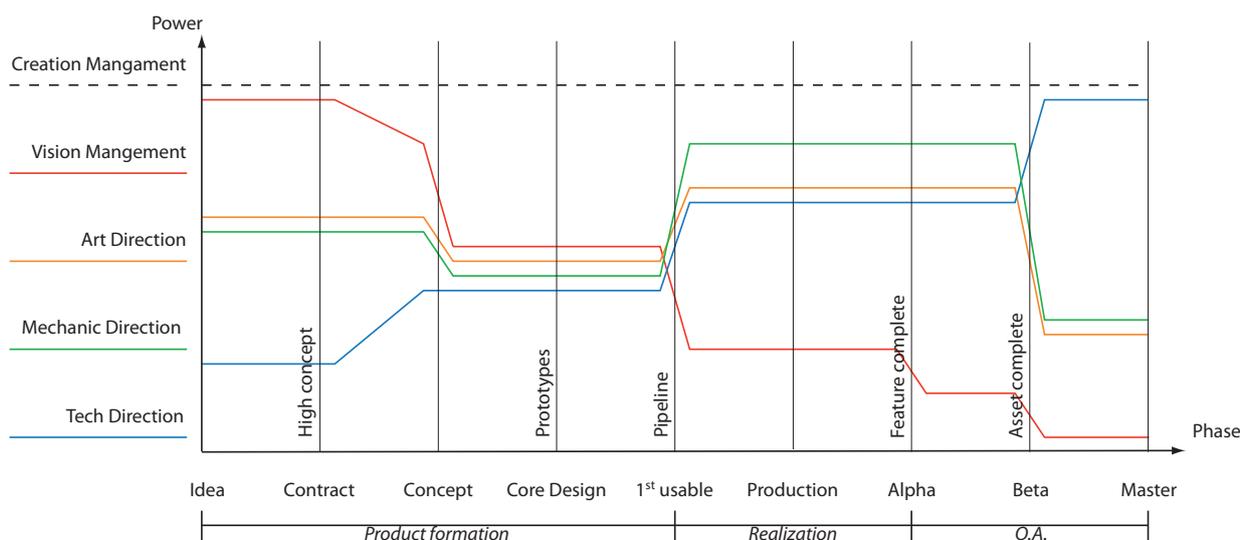


Figure 3: Power Graph: Creation cycle and functional power

Power understood in this functional and dynamic perspective constitutes an area of tension and potential conflict with the formal power according to the formal organisation, roles and functions, which are constants throughout the creation cycle (cf. Leading Functions in Digital Media Creation). Not knowing when to apply formal or functional power in relation to quality coupled with a lack of understanding of a roles, functional power in relation to product quality at a given point in the creation cycle is a rich source of conflicts. It also applies that if a role does not step up and enforce the functional power at a given point this will have a matching potential of conflict and will definitely influence the final quality of the product.

With the normative rationale (cf. Table 2) the project manager has no direct contribution to the aesthetic or theoretical quality of the product; this is why the *functional creation management power* is marked with a dotted line. However, both decisions made with the aesthetic and theoretical rationale must be according to the practical, normative frames handled by the project manager. This is why both formal and *functional creations management power* is above the other functional powers.

In beginning of the creation cycle *functional vision management power* is very high. As stated the idea can come from anywhere (cf. Digital Media Creation Cycle). However, it is the director who makes the final decision about the idea and transfers it into a vision. Through the product formation phase *functional art direction* and *functional mechanic direction power* are at the same level, contributing with both asset and feature formation. From idea to contract the *functional tech direction power* is very low; the only contribution of the tech director is to ensure that the idea can actually be executed within the normative frames. He may contribute with technical possibilities, which can influence the ideas.

When a contract is delivered and a high concept is formulated the *functional vision management power* decreases, because the quality is defined. As soon as quality has been defined the tech director can contribute with raising the technical problem formulation to reach the defined quality, and the *functional tech direction power* increases, having influence on the concept forming due to design criteria. The concept decision decreases the *functional vision management power* dramatically because the vision is now encapsulated.

The period from concept to 1st usable in the production phase of a vision driven digital media creation is where “all are in love”. The first hard decisions have been made, and normally all others than the project manager and director have made some concessions according to the *functional vision management power*. Now all the aesthetic and theoretical functional powers are equal. The director, art director, design director, and tech director contribute with equal levels of functional power to the product quality. This phase is the core of the product formation, and if the project manager does not help the director to realise that the *functional vision management power* is decreased to the same level as the directors, then he will probably try to execute on art and mechanic directing, which he is empowered to according to his formal position. However, the execution is delegated to the super leads and such behaviour would clash with the mandate the super leads have and trigger a conflict. One thing is that this is very demotivating to the art director and design director, and highly important quality input will lack, another thing is that the director overrules the mandate of the super leads. Furthermore, the tech director might not take his responsibility according to secure technical execution of features and assets, because the director might have unrealistic wishes according to the technical possibilities. It is also seen that some tech directors only take sole disciplinary responsibility according to the developing team. However, it is very important that the project manager makes sure that the tech director works interdisciplinarily and that he understands to contribute to the product quality.

When the product formation is terminated with the delivery of the pipeline the *functional vision management power* decreases further. From this point off he is only administrating the vision, and the director’s ability to change the product universe is drastically limited to only making smaller adjustments based on the experience gathered during the project. Again, if the director does not realise this decrease in functional power and continues to employ the same level of functional power as before the end of product formation, it will lay the ground for potential conflicts and will at least derail the project.

When ending product formation the project manager ensures that assets and features needed to complete the product are identified and prioritized. This means that ideas demanding new assets

or features can only be realized, if other assets or features are removed – if no changes are made to the time, cost and/or quality. From the realization phase the directors' prime function is to secure that the delivered work adheres to the vision and has the right quality according to the contract. When the alpha version is delivered and the creation is feature complete, the *functional vision management power* decreases again because no new features can be added. At the final phase from beta version to master, the director has practically no functional power left. To handle this functional power shift it is a good creation management idea to have other vision management tasks for the director from 1st usable and forward, preferably in another project. In the creation of commercial products the director is typically focused on developing and implementing marketing campaigns and sales efforts.

From the start of the realization phase to the delivery of the beta version the *functional mechanic direction power* is the highest aesthetic and theoretical functional power. The quality of the design director's work is the core contribution to actually creating a high-end interactive experience. The mechanic must be balanced, and assets and features might be reprioritized and altered accordingly to ensure a design matching the vision. The *functional art* and *tech direction power* are at the same level in the realization phase contributing with asset and feature quality.

At the final phase, from beta version to master, the *functional tech management power* is at the very high, because it is primarily about enhancing technical quality. The *functional art* and *mechanic direction power* are dramatically reduced in this final phase, and the contribution is only about improving existing features and assets. It is important that the project manager ensures that the art director and designer understand that the *functional technical direction power* is the most important contribution to the product quality in the final phase, even though they still have a lot of wishes for altering the asset and feature quality; but if they were permitted to do so, it would have a potentially high negative impact on the product quality because the changes will probably not be quality assured. Ultimately the introduction of new assets and features would bring the creation cycle back to before the alpha version.

When looking at the functional power over time in the *power graph* (Figure 3) it should be clear that the task of managing the functional

power in vision driven digital media creation is a highly communicative task, articulating the relationship between the functional powers, the roles, and the product quality. The project manager should facilitate the functional power as illustrated in the *power graph*. And as it is shown in the *power graph* there are two immanent conflicts (turning points) in every vision driven digital media creation. The first and largest is transition from product formation to realization, and the second is when the beta version is delivered. Both conflicts are characterized by the transgression of different types of functional powers. The first conflict is special to vision driven digital media creation according to for example a technical or mechanic driven digital media creation. If it were technical driven, the *functional tech direction power* would be highest or equal to the other aesthetic and theoretical rationales. If it were mechanic driven, the *functional mechanic direction power* would be highest according to the other aesthetic and theoretical rationales until the delivery of a beta version, where the *functional tech direction power* would be the highest as in vision driven digital media creation. These examples show that normally there are more transgressions of the functional power in vision driven digital media creation, than there are in digital media creation in general or in software development, with no aesthetic rationale. Hence it can be concluded that the conflict potential are normally largest in vision driven digital media creation.

As a project manager it is wise to choose to take the immanent conflicts up front, and discuss the contribution of the different roles' functions according to the creation cycle. Otherwise conflicts might very well evolve into crises, where disagreements about the quality of the product grow into personal disagreements.

Conclusion

The research question raised in this article is "How to manage functional power between leading functions in vision driven digital media creation from idea to master of the creation cycle?" In order to unfold this question, two sub-research questions have been addressed: "What is a digital media creation cycle? And what is functional power according to leading functions in a digital media creation cycle?"

With the point of departure in creation cycles from system development in general, a specific digital media creation cycle has been

given on a general level with phases and on a more specific level with specific tasks and deliveries. Furthermore the relationship between roles and functions in digital media creation has been specified according to rationalities in order to address the concept of functional power.

On top of this the functional power has been unfolded in a power graph (Figure 3) according to the functions of top management and super leads in a digital media creation. The functional power is compared to formal power of the leading roles and functions, and potential power conflicts and consequences have been identified and described from a strategic management perspective. In continuation of this it is concluded that normally there is more conflict potential in vision driven digital media creation than in digital media creation in general or in software development.

The power graph (Figure 3) is a management tool, which project managers in the digital media industry can use to identify, understand, and communicate about both potential and manifest conflicts during a vision driven digital media creation cycle.

As further research more power graphs with functional power could be produced because the functional power of a role differs from one digital media project to another according to the driver of the project – e.g. vision, technology, mechanic, market, and art driven. These power graphs could also be more specific and include more functional power than top management and super leads.

Noter

- 1 Moore's law was stated around 1970 in reference to a statement by Gordon E. Moore. The law is not precise; however it pinpoints the trend of the still accelerating potential of computers.
- 2 The authors have in leading positions been involved in many differing digital media companies, working with e.g. gaming, e-learning, webshops, indoor way-finding, marketing, publishing, artificial intelligence, dynamic interactive sound, cross-media, banking, augmented reality, and social media.
- 3 This is an example from the Danish National Academy for Interactive Digital Development: "1916 – Der unbekanntede Krieg", 2011

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