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Daydream Software

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Company facts

Daydream AB was founded in 1994 just as the Internet was beginning to take off. Daydream was one of the first companies to see the potential of offering interactive entertainment with interesting content based on proven technology. Daydream's core business is the development and sales of interactive games and entertainment products. A growing area of business is the development of new technologies and their application and transformation into products.

The company is focused on developing and marketing interactive entertainment based on PCs, game consoles, and other Internet-connected equipment. The games are considered high quality in the interactive games industry. To date, Daydream has developed four game products for the mass market: Safecracker, Traitors Gate, Clusterball and Ski-Doo X-Team Racing.

Daydream has its sole base in Umeå, a University town in the north of Sweden. The company shares this location with Ericsson. Over the years, Daydream has been able to benefit from its close collaboration and exchange of knowledge with Ericsson. This collaboration is likely to continue in the future with advantages to both firms.

The company was first listed in 1997 on the SBI exchange, moved to the New Market exchange in June 2000 and then moved to the O-list of the Stockholm Exchange (recently re-named the 'Stockholmsbörsen') in December 2000. Daydream has recently been through a second stock emission, adding additional capital to the company in the order of SEK 14.4m.

In 2001, Daydream had a turnover of SEK 14,6m compared to SEK 12.2m in 2000. Daydream made a loss of SEK 22.5m before depreciation in 2001. The company expects to make a profit in 2003.

Daydream's vision is to become one of the world's leading game producers. The company sells the following products:

- Games for PCs that have been financed and developed in-house and are sold through distributors in various countries.

- Games for PCs and consoles that are developed for publishers - the development costs in this case are financed by the publisher.

Market dynamics and company changes

The games market, although still a 'young' industry, has gone through a phase of consolidation over the past two to three years. There have been several mergers and acquisitions, resulting in some market players becoming very strong, particularly among publishers, but also among producers of games.

The production of quality games requires significant resources. The following table contains indicative examples of resource allocation and duration of projects in relation to project sizes (lines of code).

Project	Resource allocation	Project size
Soldier of Fortune, a PC game by Raven Software, released in March 2000.	20 full-time developers (on average) over a 23-month period – originally planned for 18 months.	406,044 lines of code, 602 files.
Unreal Tournament, a PC Game by Epic Games Inc., released in November 1999.	16 full-time developers over an 18-month period.	350,000 lines of code.
The Operative: No One Lives Forever, a PC game by Monolith Productions, released in October 2000.	18 full-time developers over a 24-month period	110,000 lines of code.
Operation Flashpoint, a PC game by Bohemia Interactive Studios, released in June 2000.	10 full-time developers over a 48-month period	250,000 lines of code.

Source: *Gamasutra.com article archive of post mortems on game developments.*

From the above table, it is evident that the actual resource allocation varies significantly, depending on the complexity of the project, project management, methodology, contract terms, experience of the development team, etc.

Over the years, publishers have become more stringent in their contractual demands towards production companies. Game developers today increasingly have to demonstrate their capabilities in the areas of project management, documentation and quality assurance in order to secure contracts. Many minor game developers are finding it difficult to comply with these demands.

Furthermore, new specialised sub-suppliers are emerging on the games market. These suppliers specialise in certain engines (3D engines, Graphical API, physics engines) and components that are vital building blocks in the development of games.

Licences for these middleware products can be quite expensive and are becoming a significant element in the total cost of a game. However, for Daydream, the game design, 3D modelling and programming time are still the biggest cost elements. Typically, licence fees would represent 10% of total development costs.

Daydream has managed to secure a development contract with the supplier of such engines, allowing them access to support and biannual up-dates at a reasonable cost. In return, Daydream helps the engine producer by giving them access to test facilities and detailed feedback on the need for future engine facilities.

Daydream has built a fully tested component system by breaking all the different elements of a game development into separate components, which individually have been fully documented, tested and optimised. The components are stored individually in the code database. When Daydream commences the development of a new game, it already has many of the building blocks from its component system. The programming job is then often limited to making the individual components work together. This method and structure allows Daydream to develop prototype games extremely fast.

Too many game producers have not succeeded in developing such a reusable structure and therefore end up beginning a new development from scratch every time.

To date, Daydream has sold approximately 650,000 games of its first four games.

Daydream was one of the many game developers who believed that the Internet represented a huge opportunity in the market, by selling and distributing games directly to the consumer. Until mid-2002, Daydream focused its development on this market. Many of the company's technical solutions were tools allowing the company to address this market. However, like many other companies, Daydream experienced difficulties penetrating this market. The consumers were simply not ready to purchase games online.

As the managing director says, 'On the Internet, the consumer will only give you one chance. If you fail to deliver an adequate service, he or she will not come back.'

Daydream has experienced all the usual problems of delivering an Internet service to consumers. The first problem is to get consumers to purchase a product over the Internet. The second problem is to develop a game that is easy to download over the Internet. Finally, the challenge is to support the consumers in getting the game to work on PCs with completely different specifications. It is generally accepted in the market that the consumers will not be ready to download games over the Internet before 2004 or 2005. At this time, the games consoles (X-box Live and PS3 Online) will work on-line as well as off-line.

Therefore Daydream has abandoned its Internet adventure for now. It has been a costly experience. Two years ago the company employed around 60 employees. Over a period of two years, the company has made more than 30 employees redundant, many of whom have gone to jobs at other companies in the region.

The employees who were laid off at Daydream worked in several areas to do with the company's Internet initiative. Some were responsible for developing 'virtual communities' and marketing campaigns around the Internet games that Daydream launched. Others were involved in developing the Internet applications that were necessary to support customer registration, download facilities, payments and support over the Internet.

At the time, communication between management and staff was quite disorganised. The company had just been listed on the Swedish stock exchange, and management had to be careful not to let rumours leak out through non-official channels. This resulted in an unstable period, when staff was unsure about the direction of the company. The whole process has been an important learning curve for the management team at Daydream as well as for the employees. The management team certainly learned that it is not always best to be the first movers.

The consoles market is particularly lucrative. After all, consoles are primarily used for games and therefore owners of such consoles are likely purchasers of several games. The sales of consoles is experiencing significant growth figures, increasing the market for games greatly every day. Daydream has therefore gone back to its original market strategy aiming at the console and PC markets through contracts with large worldwide publishers. Again, the focus on project management and component technology development has improved the workflow and performance within the company.

Daydream Software AB has recently entered into a contract with the American publisher, Conspiracy Entertainment Corporation. The contract concerns the development of one game and will be pre-financed by the publisher. Initially, the game will be produced for the three leading games consoles, Xbox®, Playstation® and Gamecube™. The contract runs over a period of 14 months and work commenced in the fourth quarter of 2002.

Conspiracy Entertainment Corporation was founded in 1997 in Century City, California. The company aims to become a worldwide publisher of games and concluded a three-year distribution contract with Vivendi

Universal Games in the spring 2002. It was Daydream's ability to demonstrate an effective workflow structure and project management competence that was significant in securing the Vivendi contract.

The company hired a project manager and a programmer with extensive project management experience and together employees at Daydream put this new component-based production system in place. It was a substantial task that prepared the organisation for faster game prototyping and development.

Future changes

Management at Daydream expects game development projects to become significantly larger than they are today. They foresee budgets for game projects in the region of SEK 100-150 m. Such projects would be likely to require 200 game developers and designers to complete. Obviously, for Daydream to be able to compete in such a market, they will have to grow and gain more experience in large projects.

The managing director foresees a period of stable growth, focusing on games for the consoles and PC markets. He expects the number of staff to increase significantly over the coming year. In a year's time, Daydream is likely to be developing three or four large games simultaneously. The company is already in the process of discussing new projects with five to six large game publishers with whom the company already has stable relationships. Daydream may decide to finance the development of another own-brand title.

An own-brand game gives Daydream the advantage of a higher royalty per unit sold. However, the company has to generate all the capital required for the game development. When Daydream develops a game for a publisher, the publisher will finance the cost of development, and Daydream's royalty per unit sold will be much lower and may only start after a certain number of units have been sold.

The number of units sold will obviously depend on the quality and general appeal of the game. However, it also depends on the competence and influence of the publisher/distributor network. Daydream has experienced this at first hand. Daydream's number one seller, Traitors Gate, has sold some 3-400,000 units, however sales by country are rather surprising. 75,000 units have been sold in Spain, whereas large game countries, such as the UK and Germany, have only seen sales of 3,000 and 4,000 units respectively. In Spain, Daydream has benefited from a very good distributor, whereas the German and UK distributors have not performed well at all. In the US, Daydream is currently experiencing significant growth, primarily because a huge supermarket chain is selling its number one game and the game is placed on the top of the PC games list.

In order to prepare for future market developments, Daydream staff have to become familiar with the future capabilities of PS3, XBox and other consoles, as well as the online facility. The company is likely to get access to the development kits for these consoles already next year. It is yet another learning curve for the game developers and designers. The other future challenge for staff at Daydream is to create new exciting game concepts that will be attractive for consumers around the world.

Daydream will seek to make the most of its collaboration with Ericsson. The Ericsson department in Umeå is responsible for software development for Radio Base stations for 3G systems that in future will allow games with a high level of graphics in addition to sending large amounts of data via mobile communication networks.

Organisation and the market

Daydream organises its work in projects. A project with a total budget of SEK 20m or more can easily occupy 20 employees on and off for up to 14 months. Apart from large games development projects, Daydream will keep several minor projects running, some of which could lead to the development of a new game concept.

In total, Daydream currently employs 23 people. There are four people in management and administration. These four people are:

- the managing director with overall management responsibility for the company;

- the financial officer who is in charge of finances and budget management;

- the personnel manager, who is responsible for all human resource issues; and

- the production manager, who is responsible for the overall organisation of the production process.

The production manager also acts as project manager within the production process. In addition, there is one more project manager.

In the production department there is a game designer, who is responsible for the initial design of the games that Daydream develops. There is also a technical physicist who is responsible for calculating the movements of all movable objects within a game. On the graphical development of the physical environment, Daydream has five graphical designers who use the 3D engine to develop attractive environments for the game. To ensure the quality of the games, the company employs a test person, who runs tests on the individual components as well as on the final product.

Finally, the company has 10 programmers, all with individual strengths within the different disciplines of game designing and programming.

In Daydream's production department, they use a Milestone Plan to help set goals for each milestone, define success criteria, and verify that these criteria have been met before the project team can move on to the next milestone in a game development. This document also helps to break the master schedule into convenient chunks that are easier to understand at a glance.

Daydream will propose a Milestone Plan to the Publisher who ordered the game. The Milestone Plan is then negotiated and agreed by the two partners. The Milestone Plan from then on becomes the tool by which the project is driven.

Daydream's milestone plan would typically look like the Milestone Acceptance Test below that Microsoft uses as a publisher when testing games developed by external game studios. The MAT described by Chris Hind contains the following overall Milestones:

Milestone	Deliverable
M0 Kick off	Contract, contact information.
M1 Vision/Prototyping	Vision document, high level design and determine project scope.
M2 Design/Engine	Project schedule initial level designs, functional specification, art bible and concept art.
M3 Proof of Concept	Rendering engine, scripting engine. Camera control, collision system. Character in game. 'Money shot' of expected final visualisation. Refine character control, run intellectual property through focus group, schedule management review.
M4 First Playable	Rudimentary UI, sample mission, basic attacks, basic camera, representative game play, Perform play test.
M5 Production	Levels 1 to 4 game shell (select mission), inventory system, finished camera.
M6 Production	Levels 5 to 8 tutorial, save/load, game shell (options).
M7 Feature complete	Levels 9 to 12. All game features in and functioning, including cheat codes, finalised lighting and shadows, finalised special effects.
M8 Code complete	Levels 13 to 15. Code optimisation and/or rewrites complete.
M9 Content complete	All game content in and functioning. Bonus levels. All cinematic cut scenes in place. Release to beta and localization.
M10 RC0 to RC?	Release candidate(s).
M11	Release to manufacturing / release to certification (for console titles).

Source: *'Taking your Project to the MAT: Implementing Milestone Acceptance Tests' by Chris Hind, Microsoft Games Studios, May 2002, in Game Developer.*

All employees are happy about the Milestone Plan as well as the component database where all the game building blocks are stored and maintained. It allows everybody involved to move quickly from the intangible idea and concept to the visualisation in the form of a prototype. The quicker employees can relate to a tangible product, the quicker they can contribute to its further development. The managing director calls it 'controlled creativity or creativity in a controlled framework'. This has allowed Daydream to build cost effectiveness into the development of its games, and it clarifies the roles, responsibilities and competence requirements of the employees involved.

There is no doubt that Daydream is a technologically advanced company. The continuous technological development in the games market dictates a continual learning curve for employees at the company. Constantly, there are new tools to be introduced and a new generation of PCs or game consoles with new capabilities and facilities to be built into future games.

At the same time, the company is seeking to improve its project management capability and component structure and system.

Workforce and the market

At Daydream, the development of products and technologies is a continual process. In this process, the staff is considered the most important resource. Daydream is highly dependent on being able to recruit and keep staff with the expertise to remain at the forefront of game development.

The company employs project managers, an art director, 3D level designers/artists, programmers, lead programmers and a computer technician. In addition, Daydream has staff covering marketing, sales and financial responsibilities.

The strong growth within the interactive entertainment industry has resulted in increased competition for personnel with specialised skills. To retain staff, it is important for Daydream to continue to create a stimulating work environment where employees can develop and have a strong sense of involvement in the company's operations. All the staff are originally from northern Sweden and Umeå.

Employees are quite used to switching from the factory-like production line that characterises the game development process at Daydream to participating in the creative process of thinking up new game concepts and designs.

The significant increase in activity level from one game development project to between three and four projects will require a significant increase in and integration of staff over a very short period.

Daydream has a database of some 300 applicants wanting to work at Daydream. Finding the number of employees required for the expansion in the coming years is not the problem, but finding the right combination of programming skills (C++ and object-oriented programming), attitudes and creativity will be the challenge.

Salary

The company last organised salary negotiations in 2000, but national statistics suggest that employees at Daydream are quite well paid compared to similar jobs in the market. Daydream will organise salary negotiations again in 2002.

At Daydream, employees do not work overtime unless it is necessary. Overtime work must be requested by the production manager. If overtime is requested, it will just be over a very short time period to solve a specific task. For a games developer, the company has quite a high average age of more than 30 among its employees.

All salaries are fixed annual salaries, with levels depending on the knowledge, experience and contribution of employees. In addition, employees at Daydream are offered a very good pension scheme and have been invited to purchase stocks at the releases that have been organised for the company.

Labour relations

Most employees at Daydream are not unionised. However, a few are, and the relevant union has paid the company a visit and found the working conditions and contracts at the company to be excellent. There have been no approaches by the union in order to increase membership levels at Daydream.

The union issue has not been much discussed at the company and there is no union policy as such. Although the company has been through ups and downs, employees do not feel threatened by unemployment. As the managing director says, 'People who have worked at Daydream have no problems finding jobs elsewhere should they wish to leave or be made redundant. The experience an employee will gain at Daydream is invaluable when seeking a job at another company.'

Recently, Daydream has set up a new management team consisting of five people: the managing director, the production manager, the financial manager and two employees elected by the other employees. This management structure ensures that employees are fully involved in all major decisions.

In addition, the company holds meetings every Monday for all staff where the management team informs about new prospects, potential contracts, promotional and PR activities. Furthermore, the company puts a lot of emphasis on informing the employees about the situation on the stock exchange and formal announcements to be made to the stock exchange.

The management at Daydream does not foresee any active collaboration between the company and relevant unions. Daydream focuses on involving employees in the decision-making process of the company by bringing employee representatives into the management team. Other employees can use their representatives in the management team to raise relevant questions about working conditions where necessary.

Education and training

Daydream has a policy to educate and train their staff. However, over the last couple of years there have been few formal education and training opportunities for the employees at Daydream. The focus has been on getting projects done and changing the workflow and systems in the production department. In addition, relevant education and training courses are difficult to come by. Employees are already educated to a very high technical level.

The employee (a lead programmer) interviewed has taken responsibility for his own personal development. He lectures at the University of Umeå and has taken several courses at the university including courses about Artificial Intelligence and Media. In his spare time, he is involved in local film and TV production, giving him experience that complements his game programming skills very well.

In the past, it was difficult when new employees were introduced into the company. Without a clear role and job profile definition, new recruits were left to define their own role and try to fit into the workflow as best as they could. According to the employee, the improved structure, project management and systems now allow for easy integration of new employees. Project managers as well as colleagues who will be directly interacting with the new employee play a major role in introducing the new employee in the company.

The implementation of the modular game development scheme resulted in a range of informal learning activities where employees had to become familiar with the new ways of working and the component systems and databases to be used. This learning experience is continuous as the company seeks to improve individual modules/components as well as the system as a whole.

Virtualisation of the workplace

Communication with clients very much builds on existing relationships. Daydream's managing director usually meets with a representative of a game publisher and presents a game proposal. If the publisher likes the idea, a small team of graphical designers and programmers will develop a game design (prototype) upon which a contract is drawn up.

It may well be that ideas and contributions will be e-mailed back and forth before a final contract can be drawn up. Based on the contract, Daydream's project manager then finalises the Milestone Plan by which the project is managed. The team is then expanded to cover all the work contributions to be made in the development.

Employees keep themselves up to date on features and technical possibilities by reading different magazines, articles and participating in Internet and, in particular, in-house discussions. Such discussions may lead to significant suggestions for improvement without affecting the Milestone Plan, but affecting the resources estimated to complete the feature. In such cases, the publisher is drawn in to make a decision on whether additional resources can be used and financed. Often the publisher will accept the additional cost, because it is important for the publisher that the end product is the best possible.

Work on the individual components consists of mainly programming and computer design tasks (i.e. very computer-intensive activities), as well as a few sketching activities by the graphical designers.

Communication between colleagues working on the same project often takes place face to face in front of a screen discussing different features and possibilities. E-mail is also used but cannot replace the important meetings in front of a design on a board or a computer screen.

During the last three months of a project the publisher (customer) virtually co-habits with Daydream's staff at Daydream's offices in Umeå in order to test and make last-minute modifications to the game product.

The managing director travels extensively because publishers are based primarily in the US and western Europe. Being away for weeks on end makes it difficult to maintain both electronic as well as physical conversations. For this reason, he will typically read his e-mails once or twice a week, and each time there will be hundreds of mails. Many of these are deleted without his even reading them. He is used to getting less serious e-mails that do not warrant a response. He considers the mobile telephone his preferred method of communication.

Daydream Software
Umeå, Sweden

Annex: Interview questionnaire

1. Semi-structured interview with management

Company facts

- Short description of the company

- Number of employees (total/the specific department you are interviewing)

- Location

- Products/markets

- Legal/ownership structure

- Organisational structure

- Company turn-over

Market dynamics and company changes

- What is the company's competitive position within the graphics and media sector, both nationally and internationally?

- What are its current weaknesses and strengths and why?

- What was the position of the company five years ago in terms of key products and services, number of employees, organisational structure?

- What are the most important changes that have occurred in relation to these themes? Has management taken an active role in bringing about these changes, and to what degree have the employees been involved/informed? Or are the changes perceived rather as something 'induced from the outside', where the company has just been forced to follow pace?

- What role has ICT and globalisation played with regard to these changes? How has the organisation prepared for this, and who has taken the main decisions? What type of measures have been taken? (innovation strategies: organisational changes including production flow, new partnering structures, new business models, etc, cost-cutting measures: outsourcing, reduction of staff, optimisation of production processes. Please provide concrete examples of initiatives that have been taken and describe the effects at both strategic and operational levels.

- What do you perceive will be the main opportunities and threats over the next 5 years? How are you at this stage planning for these? Are employees involved in this kind of forward-planning, and if yes, how?

- Where do you think the company/area for which you have managerial responsibility will be in five years with regard to products/services, share of the market, employees, organisational structures, partners/collaborators and why?

- What do you think will be the biggest changes, and how are you preparing to deal with these?

Organisation and market

- How are the key functions organised within the company. Do you rely on suppliers/sub-contractors? If yes, for which functions? Have there been changes in organisation and workflow during the past five years? If so, why? Have there been any planned changes? If so, why? What role does ICT play in this?

- Are the main activities within the organisation spread over different locations/addresses? Have there been changes in this respect over the past five years? Have there been any planned changes? If so, what role does ICT play and how does it affect skills and communication structures within the company?

- Do you perceive the company to be technologically advanced? If so, please give examples. What are the main issues concerning the adoption of ICT? (innovation strategies: new products, efficiency in workflow due to pressure from competitors, implementing a new business model, cost-cutting measures: reduction of staff, outsourcing, optimisation of production flow, etc). Please give examples.

- Does ICT give you a competitive advantage? If so, please give examples.

Workforce and the market

- Has ICT resulted in layoffs or an increase in the number of staff? (quantify over the past five years and give expectations for the future).

- Has ICT led to a demand for other skill profiles and job functions? How have you accommodated this demand? eg, internal training, reorganisation of workflow, hiring of new staff, etc. Please give examples.

- How do you prepare management and staff with regard to ICT skilling? Please give examples.

- Have there been any special measures or issues with regard to elderly workers, women and ICT?

- What type of work contracts do employees have (eg full-time, part-time, freelance, temporary)? What changes have there been in this respect over the past five years and why?

- Are salary structures linked to job roles or are there variations on an actual skills basis?

- How do you recruit staff? Have there been changes in your recruitment strategy regarding the competence profiles you are seeking (both with regard to technical and personal skills)? Please give examples.

Salary

- How is the salary system constructed? Are there differences for different groupings? Do you have a bonus system?

- Do contracts include the right to education and training?

Labour relations

- Are employees unionised? Are employees involved in any type of managerial decisions through formalised or informal structures? Please give examples.

- Which topics have been/are on the agenda?

- Do you have an equal rights policy?

- Do you have a union policy? If so, what role has this played?

- What role do you see for unions/employer relations with regard to a proactive stance on industrial change, if any? (local, sectoral, national, and/or EU levels, including the European Monitoring Centre on Change)

Education and training

- Do you have any formal educational programmes for different employee groupings? Has ICT affected the content of these programmes or their delivery?

- Is there an induction programme for new employees? If yes, what kind and how does it work?

- If there have been technical or organisational changes recently, have they led to particular training initiatives? (Content and duration? Who was the target group? What were the effects? Who took the initiative? Were employee or employee representatives involved?). If there were no particular initiatives, how did you deal with the changes?

- Are training courses held in-house or externally?

- What other means are used to ensure the necessary ICT skills base?

Virtualisation of the workplace

- How integrated is ICT in the internal workflow and processes and in the products and services and communication with customers and clients?

- What developments do you think will most likely occur internally and with regard to external relations and with regard to products over the next year?

- How do you think this will affect the overall organisation, employees and the business model?

- Is ICT regarded as a strategic issue affecting the core of your business or is it mainly regarded as an asset to improve efficiency and cut costs? Or a mixture of both? Please describe.

- How engaged are the employees in the process of defining the role of ICT in their work situation?

2. Semi-structured interview with employees

Market dynamics and company changes

- What is your perception of change (opportunities and threats)with regard to ICT and globalisation? What is your involvement in the change process?

- What is your reaction to change (innovation strategies/cost cutting measures)? How have employees been prepared for these changes?

- What are the main opportunities and threats for the company over the next 5 years with regard to ICT developments? What is the expected effect on employment, skills and work?

Organisation and market

- What is your knowledge and perception of planned changes in the immediate future regarding ICT and conversion and the expected outcomes?

- What is the level of ICT penetration in the company and how does it affect job profiles, skills basis, and work organisation?

Workforce and the market

- What are the effects of ICT on employment and skills basis and job profiles?

- ICT and demand for other skills profiles and job functions (internal reorganisation and training, new hires?), how are employees prepared to deal with media conversion and an increased use of ICT with regard to skilling?

- Have any special measures taken or issues to deal with regard to specific target groups?

Salary

- Does the company have salary incentives and a performance review?

- What formal acknowledgement is there concerning education and training?

Labour relations

- What is the role and involvement of unions with regard to media conversion and ICT?

- What topics have been/are on the agenda?

- What is the role of unions/employer relations with regard to a proactive stance on industrial change (at local, sectoral, national, and/or EU level, including the European Monitoring Centre on Change)?

Education and training

- Describe any training measures with regard to ICT: type, level and target groups.

- Describe other skilling measures introduced with regard to ICT.

- Have recent technical or organisational changes led to particular training initiatives?

Virtualisation of the workplace

- What changes have occurred in the level of ICT penetration and how has this affected jobs, skills and the work environment?

- What are the expected ICT developments in the future and anticipated effects?

- What is the level of employee involvement with regard to ICT implementation and change occurring from ICT?

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