Digital business models

Lecture 4. Developers as the new Decision Makers

Content

- **What is a Decision-makers?**
- **Who are the developers ?**
- **Developers as the new Decision Makers**
- **Agility in the digital age**

What is a Decision-makers ?

- A decision is the act of defining a solution for a given problem, in a current context.
- There are a lot of decisions to be made when developing software. In fact, everything you do in software development comes down to a decision: how to meet a customer need, how to meet our business objective, choosing a UX («user experience») over another, choose one feature over another, how to fix a bug, pick a language, pick a framework, pick a database technology, etc. Some of them can have a huge impact on the future.

What is a decision?

- Decision Making the process of identifying problems and opportunities and resolving them.
- Management decisions can be made by managers, teams, or individual employees, depending on
- The scope of the decision,
- The design and structure of the organization.

Who are the Decision-makers ?

Decision-makers are people within a company who have the power to make strategic decisions like acquisitions, expansion, or investment. Some of the types of decision-making may include tactical, organizational, policy, operating, personal, programmed, and non-programmed decisions.

What is a Decision-making?

Traditionally, decisions were made by business managers or corporate executives using their intuitive understanding of the situation at hand. However, intuitive decision-making has several drawbacks. For example, a gut-feel approach makes it hard to justify decisions after the fact and bases enterprise decision-making on the experience and accumulated knowledge of individuals, who can be vulnerable to cognitive biases that lead them to make bad decisions. That's why businesses today typically take more systematic and data-driven approaches to the decision-making process. This allows managers and executives to use techniques such as cost-benefit analysis and predictive modeling to justify their decisions. It also enables lines of business to build process automation protocols that can be applied to new situations as they arise, removing the need for each one to be handled as a unique decision-making event.

What is a Decision-making process ?

- A decision-making process is a series of steps taken by an individual to determine the best option or course of action to meet their needs. In a business context, it is a set of steps taken by managers in an enterprise to determine the planned path for business initiatives and to set specific actions in motion. Ideally, business decisions are based on an analysis of objective facts, aided by the use of business intelligence (BI) and analytics tools.
- In any business situation there are multiple directions in which to take a strategy or an initiative. The variety of alternatives to weigh -- and the volume of decisions that must be made on an ongoing basis, especially in large organizations -- makes the implementation of an effective decision-making process a crucial element of managing successful business operations.

What is a decision-making methodologie

1. Identify a business problem.
2. Seek information about different possible decisions and their likely effect.
3. Evaluate the alternatives and choose one of them.
4. Implement the decision in business operations.
5. Monitor the situation, gather data about the decision's impact and make changes if necessary

Challenges in the decision-making process

- Balancing data-driven and intuitive approaches to decision-making is a difficult proposition. Managers and executives may be skeptical about relying on data

that goes against their intuition in making decisions or feel that their experience and knowledge is being discounted or ignored completely. As a result, they may push back against the findings of BI and analytics tools during the decision-making process.

- Getting everyone on board with business decisions can also be a challenge, particularly if the decision-making process isn't transparent and decisions aren't explained well to affected parties in an organization. That calls for the development of a plan for communicating about decisions internally, plus a change management strategy to deal with the effects of decisions on business operations.
- Decision-making models can also be used to avoid these various challenges by creating a structured, transparent process.

What is a decision-making model ?

- A decision-making model is a system or process which individuals can follow or imitate to ensure they make the best choice among various options. A model makes the decision-making process easier by providing guidelines to help businesses reach a beneficial conclusion.
- Decision models also make the decision-making process visible and easily communicable for everyone involved, including all managers, stakeholders and employees. They can be used for a wide variety of purposes across departments, businesses and industries, but they are especially useful when selecting software vendors or new tools, choosing new courses of action or when implementing changes that effect large amounts of people.

Types of decision-making models

A rational decision-making model typically includes the following steps:

- Identify the problem or opportunity.
- Establish and weigh decision criteria.
- Collect and organize all related information.
- Analyze the situation.

- Develop a variety of options.
- Assess all options and assign a value to each one.
- Decide which option is best.
- Implement the decision.
- Evaluate the decision.

Types of decision-making models

Intuitive models.

These decision-making models focus on there being no real logic or reason to the decision-making process. Instead, the process is dictated by an inner knowledge -- or intuition -- about what the right option is. However, intuitive models are not solely based on gut feelings. They also look at pattern recognition, similarity recognition and the importance or prominence of the option.

Types of decision-making models

Recognition primed models

- These models are a combination of rational and intuitive decision-making. Its defining element is that the decision maker only considers one option instead of weighing all of them.
- The recognition primed decision-making process involves:
- Identifying the problem, including all its characteristics, problem cues, expectations and business goals.
- Thinking through the plan and performing a mental simulation to see if it works and what modifications might be needed.
- If the plan seems satisfactory, then the final decision is made, and the plan is implemented.

- In recognition primed models, alternative courses of action are only considered if the original plan does not produce the intended results. The success rate of this model correlates to an individual's experience and expertise.

Types of decision-making models

Creative models

In this decision-making model, users collect information and insights about the problem and create some initial ideas for solutions. Then, the decision maker enters an incubation period where they do not actively think about the options. Instead, they allow their unconscious to take over the process and eventually lead them to a realization and answer which they can then test and finalize.

Decision management

- Decision management -- also known as enterprise decision management (EDM) or business decision management (BDM) -- is a process or set of processes that aims to improve the decision-making process by using all available information to increase the precision, consistency and agility of decisions. The processes also focuses on making good choices by taking known risks and time constraints into consideration.
- Decision models and Decision support systems (DSS) are key elements of decision management. Decision management processes also use business rules, business intelligence (BI), continuous improvement, artifical intelligence (AI) and predictive analytics to access the capabilities of big data and meet the needs of modern day user expectations and operational requirements.
- Decision management systems treat decisions as reusable assets and introduce technology at decision points to automate the decision-making process. Decisions may be fully automated, or they may be presented as possible choices for a human to select.
- Increasingly, organizations who deal with financial services, banking and insurance are integrating decision-making software into their business process systems as well as their customer-facing applications. This approach is especially useful for high-volume decision-making because automating such

decisions can enable more efficient, information-based and consistent responses to event.

How Businesses Use Information Systems

Information technology enhances business processes in two main ways:

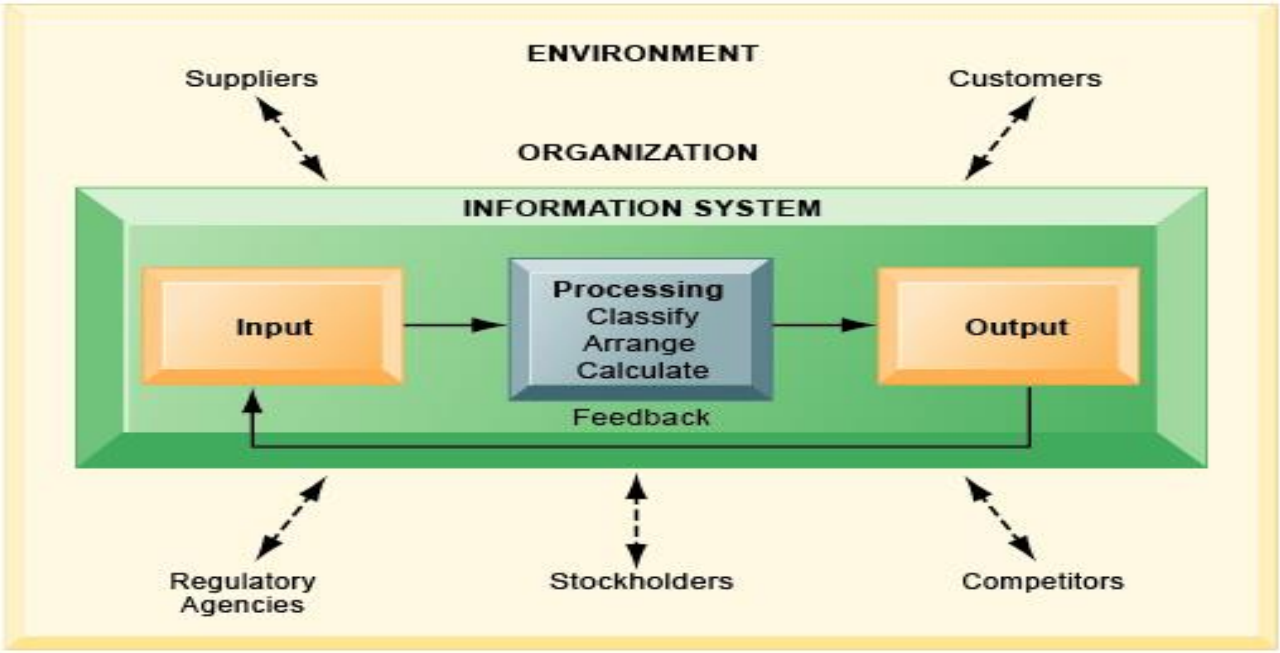
Increasing efficiency of existing processes

- Automating steps that were manual

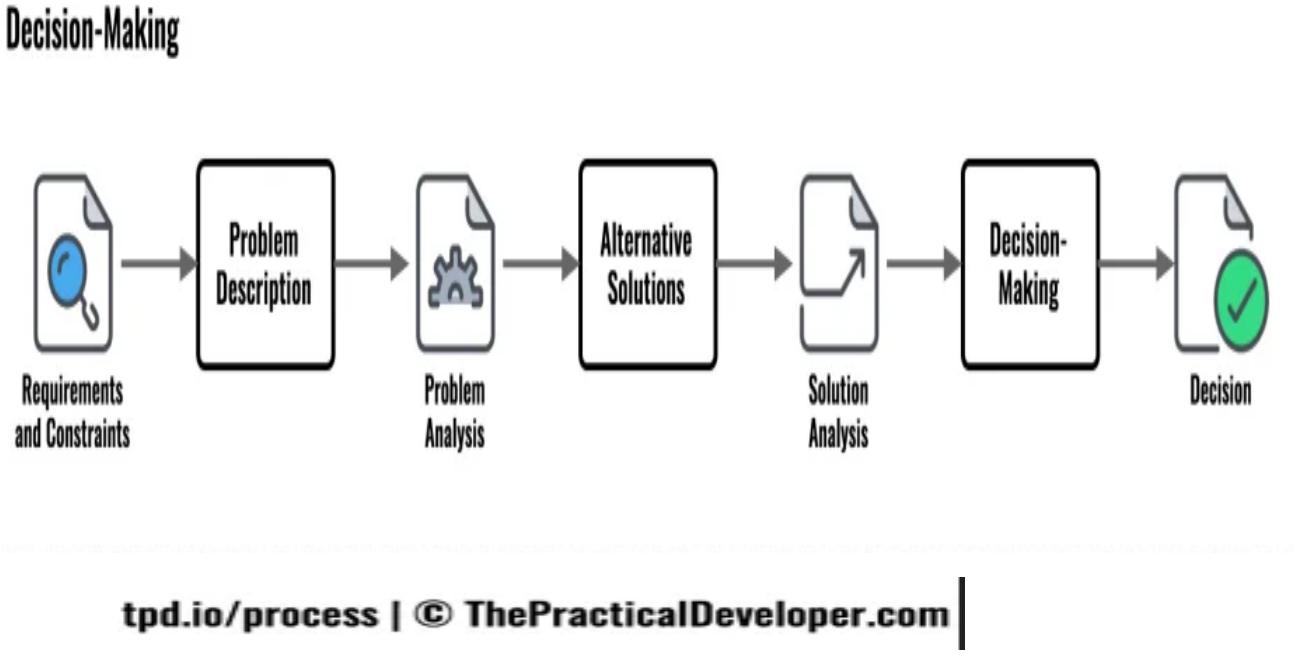
Enabling entirely new processes that are capable of transforming the businesses

- Change flow of information
- Replace sequential steps with parallel steps
- Eliminate delays in decision making

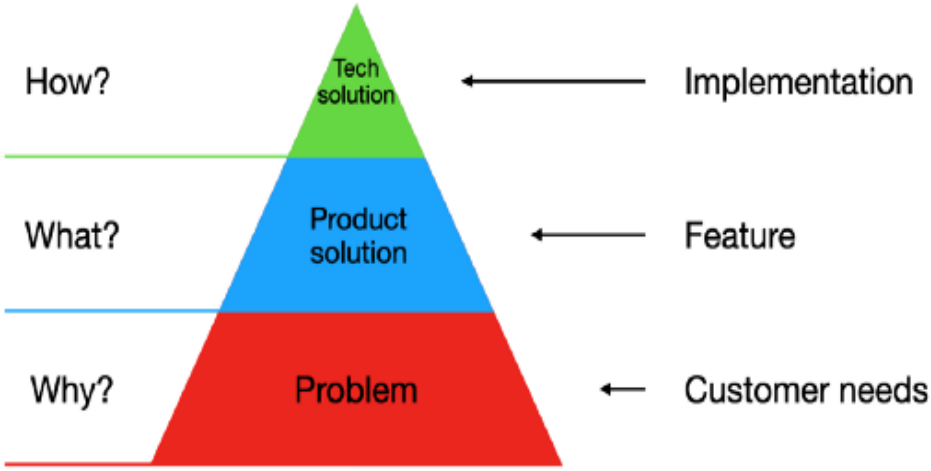
Functions of an information system



https://paginas.fe.up.pt/~als/mis10e/ch1/chpt1-2bullettext.htm



What is a decision in software?



https://medium.com/swlh/decision-management-in-software-engineering-ca60f9d40e02

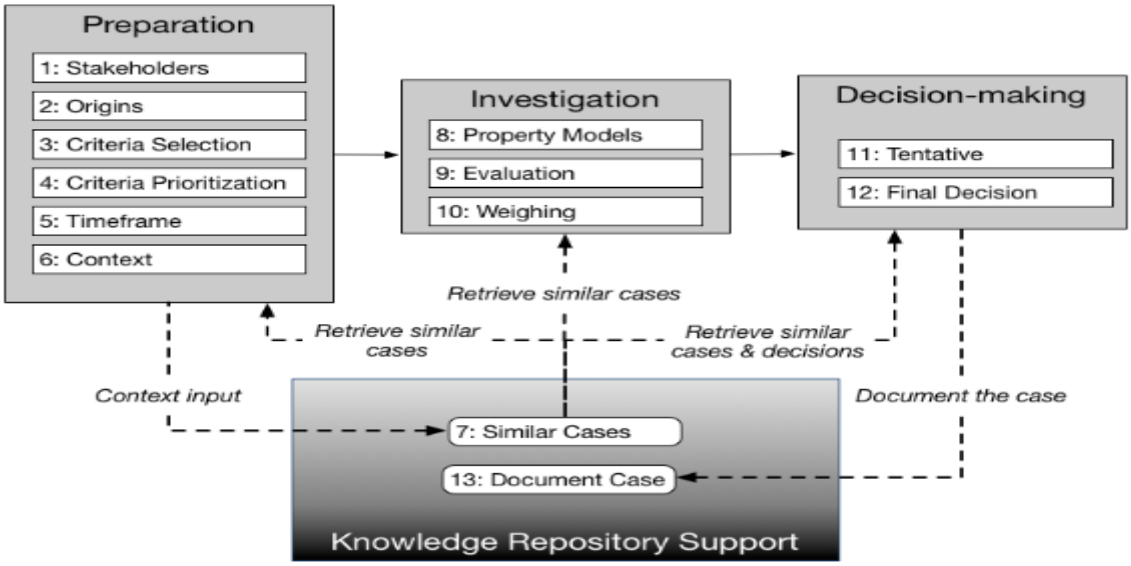
What is a decision in software engineering?

- In software engineering, problems often arise from customer needs collected in the feedback loop. Customers tend to ask for new features, but understanding the issue behind the feature request is very important to ensure that you get a correct answer. It's the "Why?". The first decision is

whether or not to try to meet these needs. The framework below is not intended to be a prioritization framework, prefer RICE (Reach, Impact, Confidence, Effort) or Cost of Delay..

- When a need is prioritized, you have to choose the best way to meet it. This often leads to a new feature or an improvement to an existing one. It's the "What?"
- Then, before you develop this feature in your software, you need to decide how to implement it (define the software architecture that is the most efficient). It's the "How?"

A process-line for decision-making supported by a knowledge



https://www.diva-portal.org/smash/get/diva2:1163441/FULLTEXT01.pdf

Skills for developers -design makers

- Flexibility
- Analytical thinking
- Critical thinking
- Problem-solving
- Investigation
- Team player
- Strategy

- Active listening
- Ability to compromise
- Time management

Who are the developers ?

- Developers are the most important asset of today's business.
- They are shaping products in new ways, and organizations that understand and embrace the value of this shift will be the most successful in the coming years.
- Developers make decisions today, not the traditional CIOs of yesteryear.
- Developers can make or break a business through their experience, talent, or passion.

Who are the developers ?

A developer is an individual who is responsible for creating or working on the development of a product or service. Most developers utilize one or more programming languages to develop their product or service. They may work alone or on a team, and may develop part of or all a product or service.

Who is called developer?

A developer is an individual that builds and create software and applications. He or she writes, debugs and executes the source code of a software application. A developer is also known as a software developer, computer programmer, software coder or software engineer

Who is called developer?

- A developer is the key individual behind all software applications. Generally, developers are well versed in at least one programming language and proficient in the art of structuring and developing software code for software or a program. Depending on job role and type of software developed, a developer may be classified as a software

developer, application developer, mobile developer, Web developer, etc.

- Although the primary job role is writing code, a developer also may gather requirements for software, design or overall software architecture, software documentation and other related software development processes.
- Synonyms
- Software Engineer, Software Developer, Programmer, Software Coder
- https://www.techopedia.com/definition/17095/developer

Why Developers become Decision Makers ?

In the era of the digital economy, software is becoming a competitive advantage in many industries today, most media, gaming, finance or transportation, advertising and sports businesses use software to improve operations, streamline the supply chain, and improve the customer experience. Developers are at the heart of these changes.

What is the role of a developers?

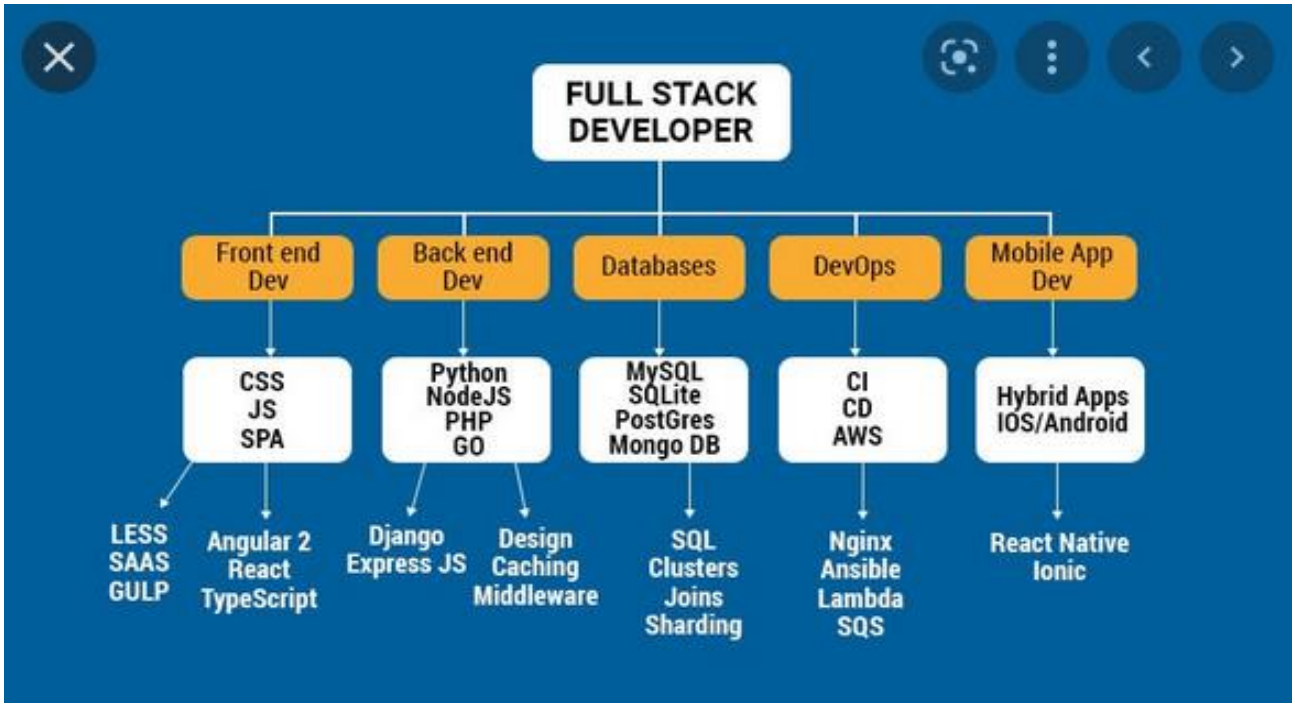
Researching, designing, implementing and managing software. Testing or evaluating new software. Identifying required modifications and developing them. Writing and implementing software code.

Framework for developers

- Identify a problem (not a potential solution)
- Read previous decisions on this subject
- Identify the context and constraints
- Identify at least two solutions and their consequences
- Choose the solution that best meets your constraints
- Write a decision record in the log book

Types of developers

- Software developer, a person who writes computer programs
- Video game developer, a person or business involved in video game development, the process of designing and creating games
- Web developer, a programmer who specializes in, or is specifically engaged in, the development of World Wide Web applications and etc.



https://onlinecoursetutorials.com/full-stack-developer/what-are-the-advantages-of-full-stack-developers-why-is-it-in-demand/

The world is moving towards open systems

- Big tech conglomerates like Apple, Facebook, and Google have huge influence over consumers around the planet, but they don't encourage inclusivity like the previous generation of tech giants did. In fact, they are pushing open source into the mainstream. Facebook created React; Google is the minds of Golang and TensorFlow; Apple has done a lot to make Swift into a language that can become dominant in the wider programming landscape.
- The world is moving towards open systems where interoperability prevails. Companies like Facebook, Google, and Apple want to control consumers, but when it comes to development and programming, they want to empower people to develop software.

Developers as the new Decision Makers

As the software and technology sectors grow, so does the number of developers. Hand in hand has been the rise of developers' decision-making influence within organizations. Fueled by advances in business models , many developer tools now have a free entry point or offer low-risk pay-as-you-go pricing. Today, developers can find out about a new tool, trial it, and buy it in minutes, independently of any formal procurement process in their company.

Developers as the new Decision Makers

- It's a new world. Employees in every pocket of your organization have the power to move your business forward—faster. They are the new decision makers. But they're not always equipped to succeed. Only 13 percent of businesses have empowered front-line employees with actionable analytics. Those that have, become more productive and create more value.
- 87% of survey respondents say their organization will be more successful when frontline workers are empowered to make important decisions in the moment.

https://go.thoughtspot.com/white-paper-hbr-new-decision-makers.html

Developers as the new Decision Makers

The point here is, if the engineers are the ones building the product, they should decide which programming language to go with or the type of data store to match. Engineers must be comfortable again putting a managerial hat on and make mission-critical decisions based on solid analytics. And management should be comfortable trusting their engineers on those. This type of mindset can lead to a great workplace and great products.

- Developers are not only the architects and visionaries of digital transformation but also have end-to-end line of sight into the processes that govern the manufacture of digital solutions. This finding underscores the importance of developers to both technology suppliers and technology buyers because developers have insights into how the operational efficiency of development processes can be improved.

Developers as the new Decision Makers

- Developers are not only the architects and visionaries of digital transformation but also have end-to-end line of sight into the processes that govern the manufacture of digital solutions. This finding underscores the importance of developers to both technology suppliers and technology buyers because developers have insights into how the operational efficiency of development processes can be improved.
- Developers are product designers, product managers, business analysts, builders, strategists, and sales professionals all rolled into one, Arnal Dayaratna, research vice president, Software Development at IDC, said.
- This expansion of the responsibilities of developers means that developers are critical to the success and growth of enterprises and organizations as measured by their ability to innovate, execute on strategic and operational plans, and pivot business operations in response to a changing business landscape, the IDC report said.

Developers as the new Decision Makers

- Full-stack developers are the most common developer role. Full-stack developers have proficiency in both the development of business logic and the management of data, as well as the development of rich front-end experiences that are consumed by end users.
- Developer responsibilities have expanded to include deployment, the implementation of automation, performance management, user experience and security. Developers are increasingly responsible for the full lifecycle of application development, including operational responsibilities such as the implementation of DevOps and development-related automation, and the implementation of UX and security.

Developers as the new Decision Makers

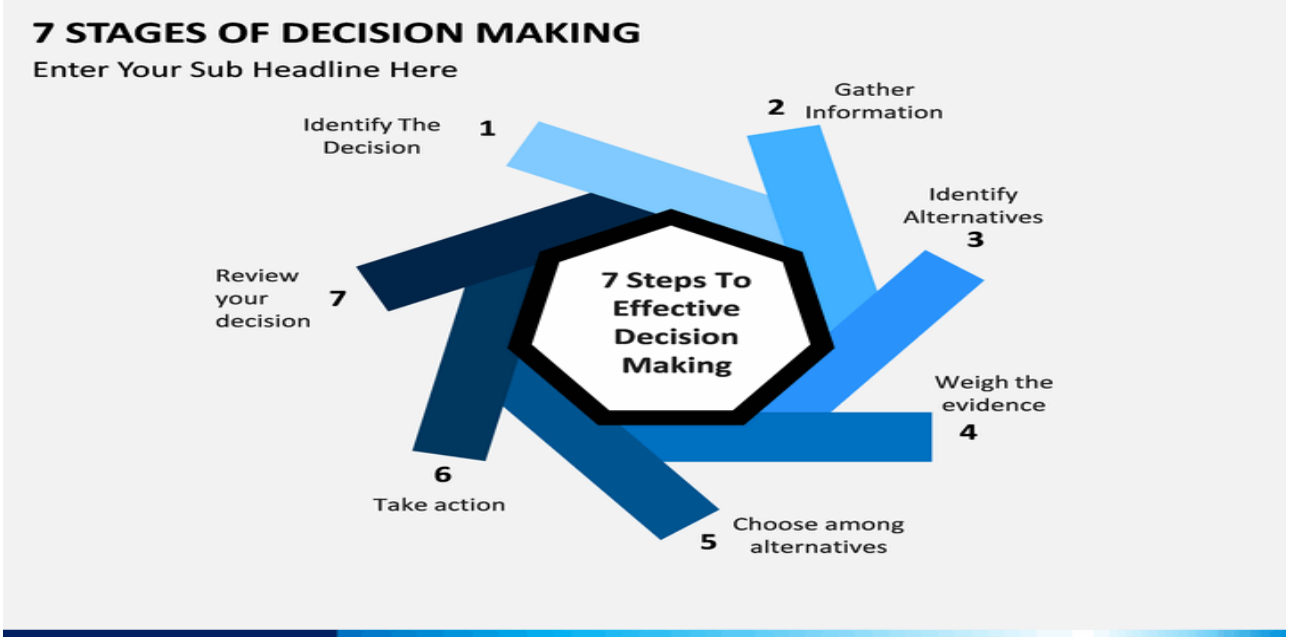
- Developers have the freedom and autonomy to select developer tools and infrastructures. Given this independence, technology suppliers need to ensure

that developers are familiar with – and have easy access to – their full portfolio of developer tools products and services.

- Developers should be considered technology buyers because they have a strong influence over purchasing decisions. Between 70 percent and 79 percent of developers feel they have either significant or complete influence over purchasing and procurement decisions, including decisions related to the modernization of legacy apps, cloud adoption, and cloud vendor selection.

Developers as the new Decision Makers

- Every business today is a software business, and developers are the most important part of it.
- Developers can make a company great or destroy it.
- Developers can help a company conquer the world and create new business models.
- Developers can help a company generate new profits



https://cdn.sketchbubble.com/pub/media/catalog/product/cache/1/image/720x540/c96a280f94e22e3ee3823dd0a1a87606/7/-/7-stages-decision-making-slide1.png

Making Decisions

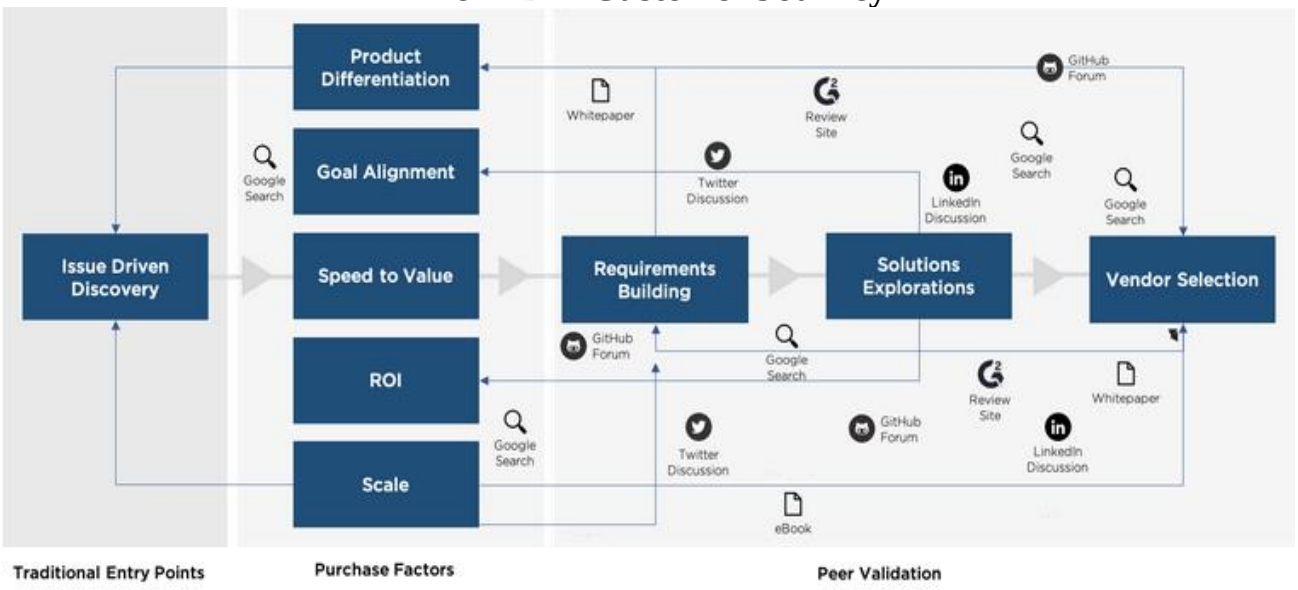
Well-Defined Problem → **Programmed Decisions**

Unstructured Problem → **Information-Based Decisions**

What is an IT Decision Maker ITDM?

- ITDM is an acronym that stands for "Information Technology Decision Maker." This type of decision-maker is responsible for making purchase decisions about which technologies to deploy and implement in their organization. ITDMs are usually high-level executives or managers who have a lot of influence within their organization.
- ITDMs range from the CIO (Chief Information Officer) to the IT manager of a small business. They may also include directors of technology and vice presidents of information systems and infrastructure.

The ITDM Customer Journey



https://www.britopian.com/influencer-marketing/it-decision-makers/

Top of Mind for IT Decision Makers

- When exploring the ITDM conversation, a few key topic areas are driving the conversation. These are :
- Artificial Intelligence
- Cloud Security
- Automation
- Big Data
- Hybrid Work

Developers as the new Decision Makers

According to a new report by Camunda, more than nine in 10 (92%) IT decision-makers describe process automation as a vital element of digital transformation. The same percentage considers process automation critical to achieving business optimization and efficiency, and to helping them free up employees to take on more complex, strategic jobs. They support increases in investment in process-related technologies and expect their organizations to put a higher priority on applying automation across operations, revealing that process automation is taking on an increasingly important role in their organizations.

Here are a few of the pioneer kingdom creators of our time

- Satoshi Nakamoto wrote the Bitcoin whitepaper. After 10 years, Bitcoin is worth over US$ 100 billion. More importantly, this vision of decentralization gave a spark to many followers.
- Vitalik Buterin founded the Ethereum project, now worth over US$ 1 billion.
- Daniel Larimer created the Steem project, worth over US$ 250 million, and then created EOS, which is valued at close to US$ 5 billion.
- Charles Hoskinson created Cardano, worth over US$ 2 billion.
- Jed McCaleb created the Ripple and Stellar projects, which are worth billions.

Why Developers Become Decision Makers Today ?

- Today Developers make technological decisions.
- Previously, huge corporations provided ready-made solutions, ordinary

companies simply registered.

- Today, company developers and technicians have a significant degree of control over the tools they use.
- They are not only involved in the choice of tools, but also involved in creating things and delivering code, in understanding the tools that will help the company with this.

Why Developers Become Decision Makers Today ?

- We are moving into a world of open systems where interoperability prevails. Companies like Facebook, Google, and Apple want to control consumers, but when it comes to development and programming, they want to empower people and companies.
- As trends like microservices rise and as APIs (Application Programming Interface) become more important to business development and growth, software is becoming open and mutable. The developers, programmers, engineers who create and manage these systems need to be open and prepared for the evolving landscape of software they may use in the future.
- So decision making is an important part of working with software. It may not have always been this way, but today it is necessary.

Why Developers Become Decision Makers Today ?

- Today, software developers need to be able to understand what a business does and why it does it. They must be able to measure the value of their decisions.
- The fact is that if software developers create a product, then they must decide which programming language or data store to use. Program developers must, as managers, make critical decisions based on sound analytics. And management should be comfortable trusting them to these software developers. This type of thinking can lead to a great workplace and great products.

Why Developers Become Decision Makers Today ?

In the early days of software development, it was not uncommon to do in-house development. As the software business has evolved, two important trends emerged: specialization and commoditization. Specialization can be seen as a result of commodification, as many companies have adopted specialization as a means of

remaining competitive. Commercial parts of their products were most often removed from the shelf. The Growing Popularity of Open Source Software (OSS) helps speed up the commercialization process and encourages many software companies to look for alternative or multiple sources of income and new opportunities

Why Developers Become Decision Makers Today ?

In this regard, the focus is on the development software that provides a competitive advantage, i.e. killer apps. Companies now need to decide what to develop themselves and what to source from elsewhere. At the strategic (executive) level, the merger strategy and acquisition is a relevant option for obtaining software and organizations that develop it. However, an acquisition may not always be feasible or feasible, including for example OSS assets. Decision making efficiency regarding software assets become important as they can be implemented using in-house development resources (in-house), purchase of componentsoff-the-shelf (COTS), subcontracting (outsourcing) or using OSS software.

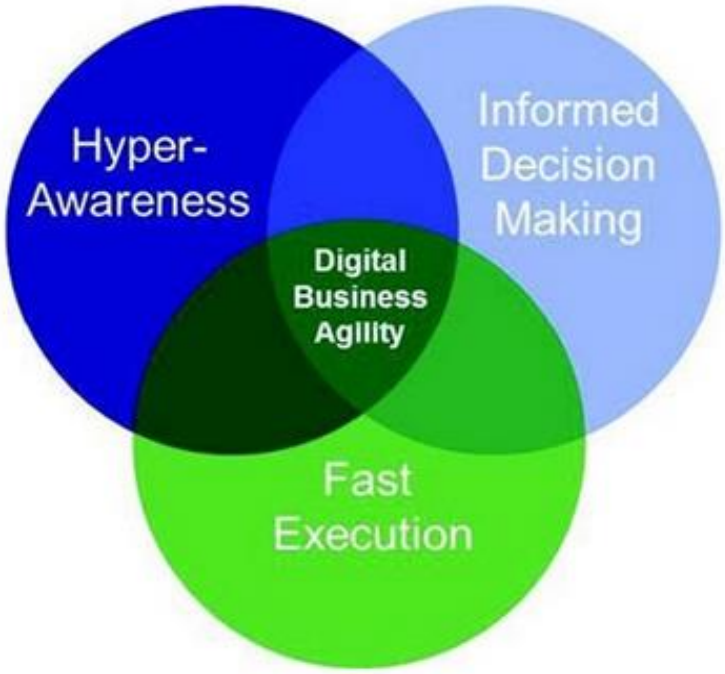
Agility in the digital age

In the digital economy, developers and technologists are increasingly gaining a “seat at the table” and forming equal relationships with executives regarding investment in enterprise technology and business.

Agility in the digital age

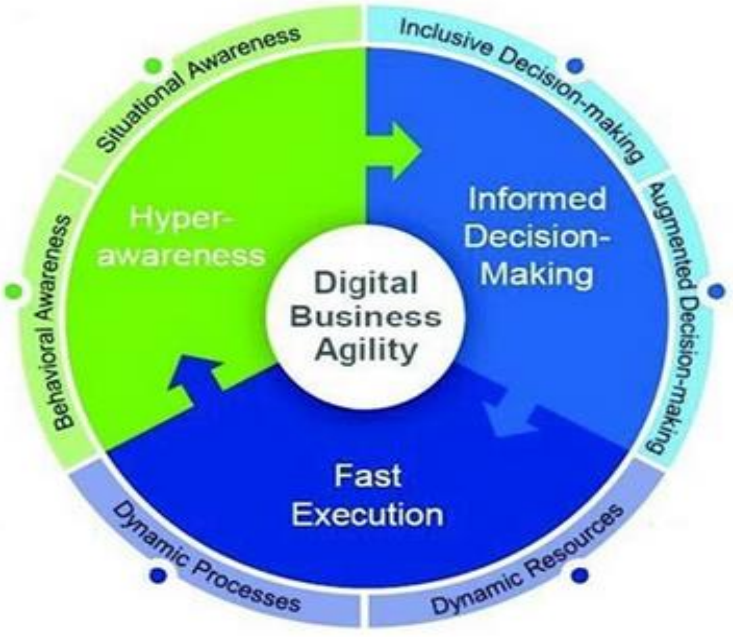
The three things that a company needs in order to be agile are hyperawareness, informed decision making, and fast execution named as “Digital Business Agility” . Companies need to develop these capabilities to respond quickly and effectively to emerging threats to their businesses, and to seize new market opportunities.

Agility in the digital age



https://www.imd.org/research-knowledge/articles/digital-business-agility-and-workforce-transformation/

DBAs in workforce management



https://www.imd.org/research-knowledge/articles/digital-business-agility-and-workforce-transformation/#&gid=1&pid=2

How to log decisions?

- Create a file with this information:
- What is the initial problem
- When did you act the decision
- Who decides on this solution
- The current context and constraints during the decision
- The acted solution, its consequences and why it was chosen
- All the rejected solutions, their consequences and why they were rejected.

References

- Wirtz, B. W. (2018a). Business model management: Design—Instrumente - Erfolgsfaktoren (4th ed.). Wiesbaden: Springer Gabler.
- Wirtz, B. W. (2018b). Electronic business (6th ed.). Wiesbaden: Springer Gabler.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. Journal of Management, 37(4), 1019–1042
- Bernd W. Wirtz. Digital Business Models.Concepts, Models, and the Alphabet Case Study. ISSN 2196-8705. Progress in IS. ISBN 978-3-030-13004-6.