

**Exploring Differences Between Inventors, Champions,
Implementers and Serial Innovators in Developing New
Products in Large, Mature Firms**

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PRODUCTS IN LARGE, MATURE FIRMS**

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Abstract:

This exploratory research investigates how 9 individuals participating in the new product development (NPD) process in four different roles initiated and executed innovations within their organization. In-depth interviews were conducted with these individuals, as well as with 17 of their managers and co-workers, adding an external perspective. These 9 individuals represented four different roles in the innovation process: inventors who focus on the scientific invention prior to concept development, champions who are most adept at selling acceptance for projects into the organization, implementers who focus on facilitating the project through the firm's formal development process, and innovators who operate across all three phases of invention, acceptance and implementation. In addition to specific strengths that allow them to succeed in the different demands of each process role, each of the roles has preferences that incline these individuals to different types of NPD projects.

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INTRODUCTION

Much of the product development research conducted over the last 15-20 years has taken the perspective that NPD could be managed like any other (complex) process. The underlying assumption is that standard methods and protocols could be put into place, and individuals and teams could follow a process to repeatedly commercialize a stream of successful new products. That is, the field has worked to change the “art” of individual-based product development to the “science” or process of product development (Griffin 1997). It is important to note, however, that the formal process view of NPD, and research on NPD processes, starts after invention, or after a technical capability has been generated, developed into a concrete concept and, accepted as a project by the organization (Griffin 1997). Previous research suggests that two distinct tasks precede project execution within new product development – capability invention and project acceptance.

Invention occurs in the time before there is a well-formed concept, sometimes called the “Fuzzy Front End,” (Smith and Reinertsen 1992). It is the messy “getting started” period of NPD. In technology-dependent firms, it is where technical possibilities are created and insights to match them to customer problems and market needs are generated (Belliveau et al. 2002).

Gaining project acceptance requires developing a business plan for the proposed product or service and shepherding that plan through the firm’s funding and staffing process. Frequently, this requires significant political maneuvering, although several processes and structures for increasing the rationality of decision-making have been developed.

Once the project is accepted by the organization, getting the product to market is a matter of project execution and implementation. Over the past several decades, researchers have strived to develop institutionally-supported formal frameworks of procedures and methods that allow product development teams to take an idea successfully from concept through commercialization. While overall success rates have not changed over time, firms have become more efficient at weeding out projects earlier in the development process (Griffin 1997).

Invention, project definition and acceptance, and process execution each require different competencies to complete successfully. The FFE requires technical competency and creativity.

Project acceptance requires business, market and some technical knowledge, coupled with a driving political capability. Project implementation requires project management and facilitation skills. In a traditional NPD setting, different individuals, with different types of skills, undertake the different roles involved with moving an innovation opportunity through the laboratory, gaining political acceptance for it as a project, and managing the formal commercialization process. In the classical view of NPD, these stages are completed or managed by inventor technologists, champions, and project managers, respectively (Figure 1). Technical inventors typically are investigated in the R&D management literature. Champions have been written about in the NPD and organizational behavior literatures. Project managers have been researched primarily in the engineering management literature. Not only are these treated as different and distinct roles, they are investigated in different literatures.

This research, rather than investigating the process by which NPD is accomplished, looks at the individuals who repeatedly undertake different roles in the NPD process. From in-depth interviews, this exploratory research investigates differences and similarities across individuals involved in the different tasks in NPD, finding that there are noticeable differences in how individuals in different roles operate in the firm and in the types of projects they tend to undertake.

LITERATURE REVIEW

For technology-dependent firms, the context of interest here, inventor technologists tend to be the originators of innovative capabilities and ideas in the fuzzy front end of NPD (Maidique 1980; Rice et al. 2001; Schon 1963). An inventor creates a technical capability that can be used to create products or features that solve a customer problem or market need. Industrial inventors typically have technical degrees, and frequently have undertaken advanced training and degrees in a field. These individuals must have the depth (and perhaps breadth) of technical understanding to be able to solve the critical problems that emerge during development and they exhibit creativity in the way in which they solve those technical problems (Tidd et al. 1997). According to McCall (1998) and Kerr et al. (1977), these types of technical professionals also have been found to merit and seek a measure of autonomy in defining how they approach their inventing tasks. They have a commitment to their work and their profession, and may identify more with their profession and technical peers than with their firm. They aspire to be ethical, unemotional and unselfish in the conduct of their activities. Most frequently, inventors reside in

the R&D laboratory, or sometimes in the engineering development group (Babcock, 1991).

To be useful to the firm, however, the technology capability created by an inventor must be converted into products and features that the firm will ultimately commercialize (Markham and Kingon 2004). One study of radical innovations originating as technology pushes out of R&D, found that these projects frequently encounter difficulty in trying to find or create markets for their technologies (O'Connor and Rice 2005). The first product application generally is selected by a research scientist (an inventor technologist) with little or no business experience. The application selected in turn influences how the technology is further developed as well as the business model and future revenue stream from the technology. The majority of the firms were disappointed with the forecast revenue streams from the initial technology application selected by the research scientist. While highly creative technically, inventors have little market or business knowledge, and frequently operate in isolation of others.

Once an innovative capability is developed, it must cross the initiation gap and gain corporate support as a formal new product development project (Markham and Kingon 2004). A champion who understands the technology connects it to a market need, recognizing its potential. As defined by Schon (1963), a champion is a person who puts himself on the line for an idea of doubtful success and uses any and every means of informal sales and pressure in order to succeed. Prior research suggests that champions usually do not create innovative ideas on their own, but find them elsewhere in the organization (Ardichvili et al. 2000; Markham 1998; Markham and Aiman-Smith 2001; O'Conner and Rice 2001). Chakrabarti (1974) found that champions must have technical competence, knowledge about the company, knowledge about the market, drive and aggressiveness and political astuteness. Howell and Higgins (1990) found that champions are most likely to use a transformational leadership style.

After the initial concept has been defined and has management support, a formal project is launched to implement the concept and bring it to market, usually following some sort of formal product development process. At this point in the NPD process, a project manager generally is assigned formally to the project. His responsibility is to organize the execution of the project and ensure that each task and milestone is completed on time, and within budget. Research has suggested that these individuals are task-oriented (Turner and Miller 2005) yet also must have the ability to influence others on the team (Crawford 2003). Lee and Sweeney (2001) found that the most frequently used influence tactics by project managers were rational reasoning, consultation, and inspirational appeals. Higher project success is associated with

project managers who exhibit higher proficiency in planning, a more participatory and motivating management style, and skills in the technology domain (Thieme et al. 2003).

The picture that emerges is one of different types of people, with different personalities, knowledge bases, sets of skills, and leadership styles, who tend to occupy the different roles in NPD. However, research on intrapreneurs (Pinchot 1985) and hero scientists (Leifer et al. 2000), suggests the existence of individuals who can perform effectively across multiple stages of the NPD process, and act in multiple roles (Figure 2). These individuals, whom we term “innovators,” are highly creative people who invent, champion and, at least to some extent, facilitate projects through the implementation process. Innovators who have created and implemented market vision and direction for new technologies repeatedly are “serial innovators” (similar to serial entrepreneurs). Innovators are important to understand, since their strong depth and breadth of knowledge allows them to bring strong vision to the initial concept generation for a project, which can result in superior products that bring strong results to the firm (Griffin et al. 2007).

Initial research into innovators produced a framework with six elements that seem to be important in understanding them and how they operate in the context of mature firms (Figure 3, from Griffin et al. 2007). They bring to the corporate world their special personality, perspective or worldview, preparation, and motivation (the four elements inside the circle of Figure 3). Due to working in the context of the corporation, they develop both a political capability and process for innovation that enables their working across all stages of product development. These individuals tend to be very driven systems thinkers, who are creative and curious about many different topics. They have a somewhat idealistic worldview – they want to use technology to solve problems and improve business outcomes and peoples’ lives. They also take the perspective that technology is a means to an end, and that new technology must make money for the corporation. Because of their preparation, they are technically competent, having both technical breadth and depth, but also are able to connect technology to business concepts and customer problems (Vojak et al. 2006). Innovators are intrinsically motivated by their desire to solve important real world problems, where “important” is defined by people external to the corporation, like potential customers (Hebda et al. 2007). Innovators understand the reality of the political process of project acceptance. They prefer to use facts and other positive influencing mechanisms in managing the politics of innovation. Their process focuses on using extensive customer interaction to fully understand potentially interesting problems and extensive

exploration of possible solutions, prior to launching into the implementation phase. During development, they will act in whatever role is needed at the time. For example, one innovator physically transported partially finished wafers from one building to another to speed the initial prototyping process. Finally, innovators follow the new product into the marketplace, helping market and sell it. Overall, their process focuses on tasks that must be completed prior to a typical formal NPD implementation process, and extends beyond that process as well (Griffin et al. 2007).

This research explores specific trends in how four different types of individuals – inventors, champions, implementers, and innovators – create new products. This study examines each role in relation to the others and their place in the product development process and strategy.

METHODOLOGY

Sample

This study focused on the employees at a division of a large engineering services firm that uses advanced scientific theory as a basis for new products, which are sold primarily to the government. The division manager identified individuals who he believed matched the profile of serial innovators (3 subjects), inventors, champions, or project implementers (2 subjects each) for a total of 9 subjects. In addition to having the appropriate role-related characteristics, these individuals were required to have brought multiple products to market in the past.

Eight of the nine subjects had M.S. degrees or higher in engineering while the remaining person (a champion) had an M.B.A. with an undergraduate degree in social sciences. Each subject was male with at least 10 years of work experience, not necessarily at the same company.

Research Instruments

An in-depth interview was conducted with each individual to investigate their approach to new product development projects. Subjects were asked about their thoughts, actions, and environments within the context of two to three different projects in which they had played a key role, using indirect questioning techniques adapted from the Voice of the Customer (Griffin and Hauser, 1993). Subjects were then asked direct questions about their personalities and background, including educational history and career path. Interviews varied in length from 30 to 120 minutes, averaging about 70 minutes.

After completing personal interviews, each of the subjects identified one to two coworkers with whom they had worked closely in the past and who knew them personally, rather than by reputation. Coworkers were prompted to discuss two to three projects in which they worked with the subject that exemplified the subject's actions and behaviors as perceived by the coworker. Additionally, the coworker was asked about their perceptions of the subject's personality, work styles, and contributions to the organization. Each subject's manager was also interviewed in a manner similar to the peer interviews. In addition to questions about the subject's behaviors during a product development process, personality, and perceived role in the organization, managers were asked about their perceptions of the different roles and how they manage individuals in the NPD process. A total of 17 additional interviews were conducted for the nine individuals identified by the branch manager. All research instruments were approved by the university's human subjects committee.

Analysis

The interviews were recorded and transcribed. The transcripts were reviewed twice to uncover key themes (Miles and Huberman 1994) by two members of the research team and coded according to the six dimensions of the Innovator Capability Model (Griffin et al. 2007). Statements from each interview were categorized into one of these six categories. General themes for each of the roles were established individually according to the six dimensions. Finally, aggregate results were examined to determine similarities and differences among the four different roles.

Limitations

For the purpose of this study, individuals were assigned according to the activities that they most frequently performed and at which they were the most successful, based on input from their managers, their peers and themselves. However, an individual's ability to act in a certain role may depend on the individual's availability, or different project factors such as the technical subject matter or market space. This method attempts to draw on trends based on multiple accounts, rather than extrapolating based on one unusually successful incident. Other concerns stem from the retrospective nature of the method, which lends itself to potential reporting discrepancies. Finally, the small sample of individuals investigated for each role and the use of individuals from one firm limits the generalizability of the findings. These results thus should be treated as preliminary, initial results.

RESULTS

Inventors

Two subjects interviewed were classified as inventors, who functioned as research scientists for the company. Both inventors had Ph.D. degrees in their area of expertise, with a great deal of technical knowledge in supporting fields. Both had earlier held post-doctorate positions and had extensive experience in the engineering theory relevant to the division's products. Additionally, they had a strong grasp of a secondary, unrelated field of engineering, which allowed them to have unique insights in their primary focus area. This knowledge granted them special insight in applying engineering theory and allowed them to develop creative technical concepts. These inventors focused on technology and technical development tasks.

Both subjects were part of a "think tank" which was created for the purpose of developing platform technologies for next-generation products. They were seen as the technical experts in the company, although they interacted very little with other parts of the organization. The group was given a great deal of freedom, but reported to one of the implementers in this study for administrative purposes. Most of the group's work focused on developing new engineering tools from complex theory under the leadership of the most senior member of the think tank – one of the innovators in this study. The general areas on which they worked typically were determined by the innovator, and then the inventors were given significant leeway in deciding how to move their projects forward technically.

These individuals rarely interacted with customers, although they would occasionally participate in meetings where customer needs were discussed. However, both inventors relied strongly on their own intuition for determining the direction(s) in which new technology should be moved and which features should be included in products. While they both showed an understanding of "big trends" or "big needs" in the marketplace ("tools need to be simple to be accepted and used"), they were less aware of need details, again relying on their own intuition of what would be useful. Both indicated a strong preference for "figuring stuff out myself" rather than working as part of a collaborative team. Politically, these inventors primarily relied on others to sell their ideas to upper management.

The inventors in this study expressed a strong interest and appreciation for technical work. The inventors enjoyed solving challenging technical problems and purposefully avoided management roles in order to focus on technical subjects. They enjoyed being on the cutting edge of technology and desired to push the state of the art. However, at least one of the

inventors occasionally struggled to see the larger context and was described by others in the firm as having a penchant for over-engineering.

Both inventors came from well-educated families, and related that dinner conversations ranged across numerous topics, helping pique their educational interests. They both could be described as “lifelong learners,” in technical topics as well as for broader topics, preferring fact-based reading to fiction. While both had families, they indicated they had little social life outside of their family.

Champions

The two champions interviewed acted in business development roles. At the time of the study, both had been with the company less than a year and were brought in for the purpose of reaching new customer segments. Both were senior managers with administrative responsibilities and teams reporting to them. They were accomplished business people with strong communication skills and an ability to sell their ideas.

The two champions had very different backgrounds than the other subjects in this study. One champion had an electrical engineering degree, but did not have much experience in engineering design, instead opting for a career in business development. The other had no formal technical education, but had a great deal of applied technical experience prior to receiving his M.B.A. Both champions had extensive experience in business development and had received informal training in sales and customer interaction.

While the inventors had focuses on technology and technical development, these champions focused their efforts on people and communication, preferring to work in small groups rather than either alone or in large groups. Their motivation is to create products and services that solve people’s problems. They were known for being successful managers who directed their subordinates efficiently.

They viewed product development primarily through the lens of meeting customer needs, and were adept at anticipating changing market conditions. For various reasons, these champions rarely created a new technical concept, but, instead, would recognize the merit of others’ ideas and could navigate the political environment, both internally in the organization as well as externally with potential customers, to secure support for their ideas. When the government is the customer, navigating the external political environment is at least as important as successfully navigating the internal political environment. One could describe them as acting as brokers finding organizational capabilities that matched the needs of the firm’s customers.

They had good relationships with customers and knew how to interact with them and follow up appropriately. As a result, they had a strong understanding of customer needs and how to set priorities among them. However, their ability was to define the functional needs rather than exact specifications or technical requirements for the product. When presenting ideas or concepts to customers, they tended to focus more on the benefit to the customer of having the problem solved, rather than the particular solution chosen. Champions usually stayed out of the finer technical details and chose to delegate development activities to implementers. The two individuals instead preferred to provide vision and direction at a high level.

The champions interviewed were passionate, yet personable. They were described as competitive and driven, as well as somewhat stubborn. They would “do what it takes to get the job done.” Their coworkers and managers described them as creative, although not necessarily in the technical arena. Coming from diverse, but generally lower middle-class backgrounds, they have become well-rounded individuals with interests in many different fields, and were expressive about their hobbies. Both champions were active socially. Of the four types interviewed, champions seemed to be the most focused on visible success and recognition.

Implementers

The two implementers interviewed could best be described as technical project managers. Both implementers have M.S. degrees in electrical engineering with at least 10 years of technical design experience and performed the role of project engineer prior to being promoted to technical managers. They are simultaneously technology and people focused, oriented toward ensuring task completion. Each managed a team of engineers and was responsible for the improvement of existing flagship products. Both implementers took on a great deal of administrative responsibility for managing and work planning, in addition to providing technical oversight for their projects. They had frequent contact with customers, for the purpose of improving product features and functionality and for providing assurance to them as to how the project was progressing versus the scheduled milestones. They were responsible for the final product that would be delivered to the customer. Because of their expert status, they were often involved in many different tasks. Both individuals focused on day-to-day project management and development rather than radical idea generation for new methods of reaching new markets or using new technologies. As a result, most of their projects were either characterized as incremental innovation or the execution of concepts established by others in the organization.

These implementers were often described as having strong organizational, communication and people skills, with a strong grasp of the engineering theory behind their product. This past experience gave the implementers a deep knowledge of the product and an understanding of how the customer used the product. They understood the technical details and were often deeply involved in that capacity. Although they had good communication skills, they tended to avoid the political aspects of the NPD process. Their managers and coworkers believed that they had an unusual union of technical and people skills, which made them unique and valuable to the company.

Both individuals came from “average” middle to lower-middle income families, with parents who had not graduated from university. They were described by coworkers as being diligent, hardworking, and detail oriented. They both found great satisfaction in developing technical products, but also enjoyed interacting with people. They both functioned as mentors and teachers in the organization in addition to their development responsibilities. They enjoyed their work, but were not obsessed with it, electing to focus their emotion on other things, such as family. Their managers described them both as being reliable, dependable, and instrumental in the development of short term products.

Innovators

The three innovators interviewed as part of this study were directly responsible for radical innovation projects. Out of the four roles, the innovators had the most diverse backgrounds. One innovator had a Ph.D. in electrical engineering and previously had been a university professor for many years. This innovator had a strong grasp of computer programming, which was rare for a faculty member during the time in which he created his first radical innovation. Another innovator reported to the first innovator while he was working on his M.S. in computer science, but did not have any formal education in the core engineering theory. Similarly, the last innovator also lacked the formal theoretical training of the first innovator, but had a degree in systems engineering and the most experience in working with customers. Despite their varied backgrounds, each had extensive experience in engineering design, which differentiated them from the champions.

While the innovators were recognized as technical experts, each also had a deep understanding of the customer. They were simultaneously technology and market oriented. These individuals had an ability to decipher customer needs both generally and in detail, and probe further for appropriate information. The innovators interviewed had a strong ability to see

across several different technical fields and predict market trends, allowing them to synthesize new ideas. Innovators were deeply involved during the concept generation phase, spending a great deal of time refining and understanding customer requirements. They would then collaborate with others and iterate between technical reality and customer needs. Once the concept was solidified, they might hand-off some development details to implementers, but would remain involved in both the technical and market issues at a supervisory level.

Similarly to the champions, innovators understood the political system and effectively built support for their ideas both internally as well as with their external (potential) customers. All three innovators were well respected by the other members of the organization and were given considerable freedom. One innovator held a position of special autonomy – he was allowed to work on whatever projects he found interesting, while the other two innovators also were managers with a great deal of formal authority. Despite their positions of authority, the innovators most often would build support for their ideas using informal persuasion, rather than their authoritative position.

Interestingly, each of the innovators spoke of some traumatic early childhood experience that greatly shaped their personalities. The death of a twin brother early in life might be one such type of trauma about which an innovator could have spoken. According to their accounts, these experiences taught the innovators to be pragmatic and to adapt to their surroundings. They also forged into them a desire to help make the world a better place.

The innovators shared characteristics of both the champions and the inventors. They had a deep love of working on customer problems, like the champions. Like inventors, they were passionate technical problem solvers. However, they were more motivated to use their technical knowledge to create solutions that would meet customer needs. On the other hand, like the implementers, the innovators also have excellent people skills. This means that they ultimately were likely to be promoted into management positions, which limited their ability to participate in the technical aspects of their projects to the extent that they would have liked. Innovators were confident and sure of their own abilities, but were often described by coworkers and managers as being humble and down-to-earth. The innovators also seemed to have a deep interest in one or more hobbies, and often used their office as a creative outlet. Comparatively, the champions also decorated their offices, while the inventors and implementers had the fewest personal effects. The implementers' offices could best be described as “sparse.”

DISCUSSION AND FUTURE RESEARCH

After examining the nine subjects, several trends emerged across the four roles. These are summarized in Tables 1 and 2.

According to their own accounts and the accounts of their coworkers and managers, each of these nine subjects tended to take a significant leadership role, albeit in different ways, in product development. While many of these individuals could have performed in the different stages of the NPD process effectively, they each seemed to be drawn to work repeatedly in the roles of the part(s) of the process that they enjoyed the most and where they felt they could have the greatest impact. The inventors preferred to not worry about the details of customer needs and developing specific solutions for them. Champions tend to be more “big picture” and orchestrating in nature, driven by a desire to solve people’s problems. Implementers are by nature detail and people oriented, less comfortable with ambiguity than the inventors and innovators. Finally, innovators are drawn to the new and different, wanting to do the radical, comfortable with ambiguity in order to make the world a better place.

One major difference across the roles is in the form that creativity takes across the four different types of people. Inventors exhibit high levels of creativity, but narrowly applied, restricted to creativity across their technical fields. Champions do not necessarily exhibit technical creativity, but they are creative in business and managing the politics of NPD. Implementers prefer to operate in more certain environments with higher control. However, they may be seen as exhibiting executional creativity and creativity in the way they orchestrate and coordinate people to work together to produce results. Finally, innovators exhibited technical, market, political and business creativity.

These roles seem to be based on the individual’s preferences, in addition to their abilities. For example, the implementers studied preferred working on projects with very little ambiguity and would avoid projects that involved highly theoretical technology or significant market development. They focused on projects that required teamwork and for which the outcomes could be managed. In the case of the two implementers surveyed, this preference seemed to be based on motivation as opposed to skill. In the case of inventors, they disliked project management, favoring instead to focus their efforts on working with advanced theory. They also deemphasized marketing and customer interaction, and would only talk to customers when others felt it was necessary. The champions surveyed believed the work of implementers and

inventors to be essential but boring, and enjoyed the challenge of expanding their business into new areas.

The innovators seemed to be very similar to champions, but with the benefit of a strong technical background, and desire to move technology forward, akin to the inventors' attitudes. This allowed them to consider a wider range of technical solutions to meet customer needs and be more engaged technically in the NPD process. The innovators studied observed a connection between markets and technology, believing that technical development occurs to satisfy a market need, or market development occurs when the appropriate technology is developed. According to the division manager, an innovator would be more likely to reach a new customer by developing a better product, while a champion would attempt to use a better sales pitch. Conversely, an inventor might gain support for his or her invention by pushing its technical merits, while an innovator would be more likely to demonstrate its ability to satisfy a customer need.

Although it may be possible for individuals to operate outside their "preferred" region, the data suggest that they may lack either the desire or the necessary skills to repeatedly succeed in other roles. They tend to stick to their role, time and again. Thus, it seems there are "serial" innovators, as well as serial inventors, serial implementers, and serial champions. It may also be possible for two individuals with complementary skills to collaborate on an innovation, most notably an inventor and a champion, or an inventor, a champion and an implementer – the traditional model for radical innovation (Leifer et al., 2000).

Interestingly, the different roles seem to map to individuals choosing to focus on different types of projects, as presented in Figure 4. The framework is analogous to Ansoff's matrix for strategic growth (1965). Practically, inventors seem to be best suited to perform purely technical development, champions to work in market development, implementers to execute incremental NPD, and innovators to develop radical innovations. This does not mean that each role is only capable of being successful on one type of project, nor does it imply that individuals always work on their preferred project type. Rather, it appears that the issues of each project type may be best addressed by individuals who have the appropriate strengths and preferences.

While the inventors in this research closely resemble the profile assembled from the literature, the champions and implementers differ a bit. The champions in the literature have been portrayed as working predominantly internally to the firm. None of the literature says anything about their customer- and market-based activities. However, in this investigation the

champions seemed to act more as brokers between the firm and their customer, with extensive customer interaction and strong knowledge of needs. Perhaps this was because of the customer context of selling large systems to government agencies. In this context, the firm doesn't first try to build a product and then sell it. The firm first obtains the contract for the product, then builds it to specification. There is as much pre-selling before the product is developed as there is post-selling.

The project management literature suggests that effective project managers must have the ability to influence others on the team (Crawford 2003). Higher project success also is associated with more participatory and motivating management styles (Thieme et al. 2003). However, the implementers in this research go far beyond those base requirements, describing themselves as "people persons" who genuinely seem to enjoy the human part of the job.

In summary, this research suggests the existence of four different types of roles that can be mapped to different types of development projects. Although certain individuals (eg. especially the innovator) are capable of acting in several of the types of roles, each of the four roles has its place in the organization. It is likely that the proper mix of these individuals for an organization is dependent on the mix of its products and its ability to cope with radical new products versus to execute on current business. For instance, a mature company likely has a higher percentage of incremental innovations than a start-up, and thus has a higher percentage of implementers. Therefore, it is critical to understand the capabilities of each individual in the organization, and place them into the various development roles accordingly for maximum impact.

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| Core Skills | Inventor | Champion | Implementer | Serial Innovator |
|-------------------------------|-----------------|-----------------|--------------------|-------------------------|
| Technical Expertise | ☑ | • | | ☑ |
| Market Expertise | | • | | ☑ |
| Political Guiding | | ☑ | | ☑ |
| Process Implementation | | | ☑ | • |

- ☑ Primary skill
- Secondary sensitivity

Table 1 – New Product Development Roles and Skills

| | Inventor | Champion | Implementer | Innovator |
|-----------------------|---|------------------------|----------------------------|---------------------------------|
| Creative Ability | Technology | Business and Political | Execution and Coordination | Multi-faceted |
| Focus | Technology | Customer and People | People and Process | Technology and Market |
| Orientation | Task | Communication | Task | Multiple |
| Work Style Preference | Individual | Small Group | Small Group | Either |
| Childhood Background | Well-educated Family, Early Exposure to Many Topics | Lower-Middle Class | First Generation College | Traumatic Childhood Experiences |

Table 2. Differences Across the Roles

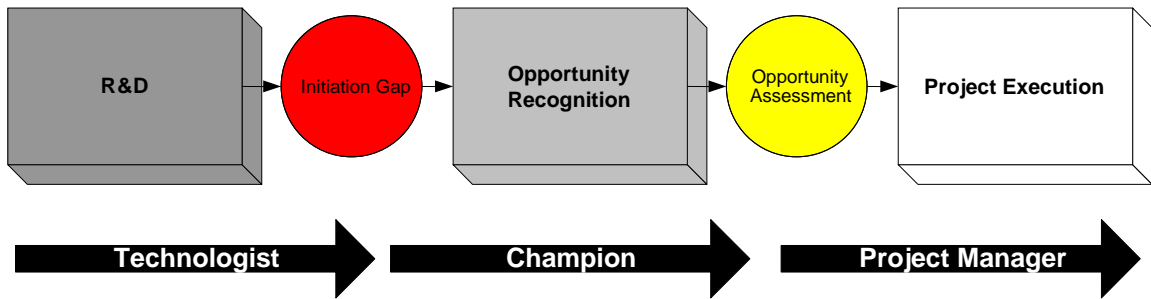


Figure 1 – Stages in New Product Development

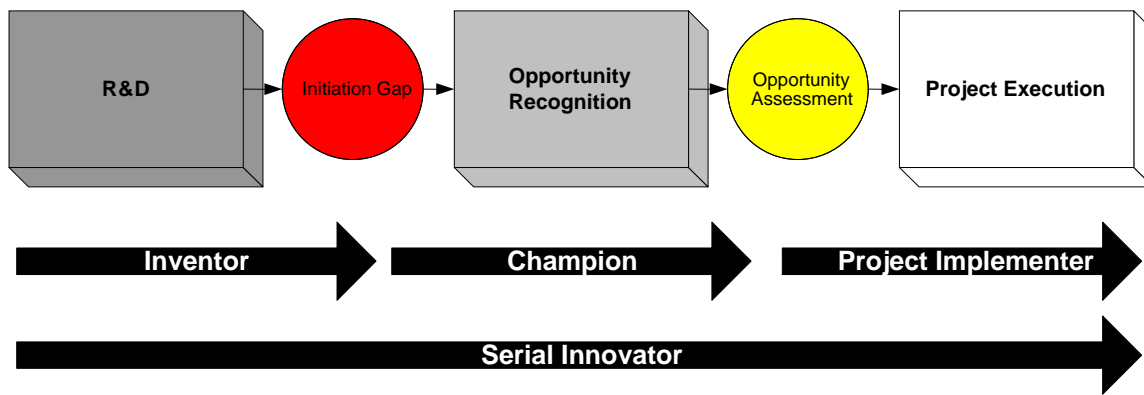
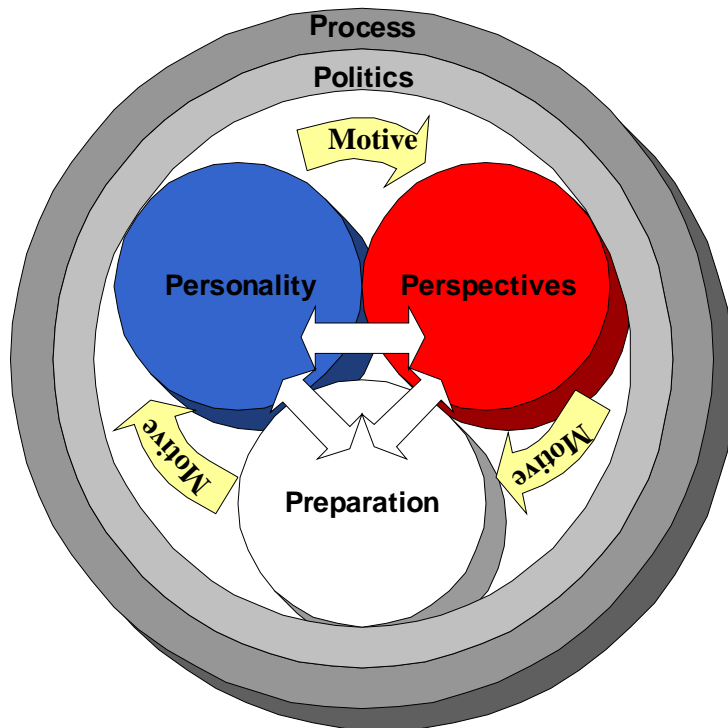


Figure 2 – Serial Innovator Activity in the NPD Process

Figure 3 - The Six Elements of Innovators: MP5



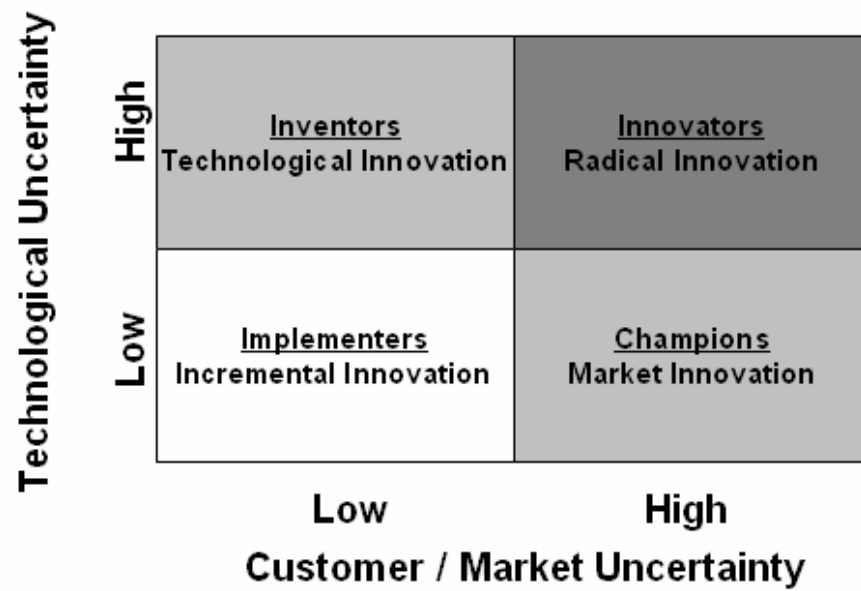


Figure 4 – The four types of NPD leadership and their associated area of expertise